

CURRICULUM VITAE

Part I: General Information

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Education:

1984	Matura Type C	Kantonsschule Reussbühl, Lucerne, Switzerland - STEM
1990	Dipl. Ing. ETH	ETH Zürich - Electrical Engineering (08.03.1990)
1994	Dr. sc. ETH	ETH Zürich - Electrical Engineering (15.11.1994)

Postdoctoral Training:

1995	Institute for Biomedical Engineering, University and ETH Zürich, Zürich, Switzerland
1996	Orthopedic Biomechanics Laboratory, Harvard Medical School, Boston, USA

Academic Appointments:

1997 - 1999	Instructor in Orthopedic Surgery, Harvard Medical School, Boston, USA
1999 - 2002	Assistant Professor of Orthopedic Surgery (tenure-track), Harvard Medical School, Boston, USA
2000 - 2006	SNF Professor of Bioengineering, Department of Information Technology and Electrical Engineering, ETH Zürich, Zürich, Switzerland
2001 - 2003	Adjunct Assistant Professor by courtesy, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland
2004 - 2006	Assistant Professor by courtesy, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland
2006 - 2010	Associate Professor of Biomechanics, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland
2011	Professor of Biomechanics, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland
2012 -	Professor of Biomechanics, Department of Health Sciences and Technology, ETH Zürich, Switzerland
2012 -	Professor by courtesy, Department of Mechanical and Process Engineering and Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland
2016 - 2017	Russell Severance Springer Visiting Professor, Department of Mechanical Engineering, UC Berkeley, USA
2017 - 2019	Visiting Professor, Department of Bioengineering, Imperial College London, UK
2019	NUSS Visiting Professor, Yong Loo Lin School of Medicine, National University of Singapore Society (NUSS), Singapore

Institutional Appointments:

1988	Research Student, Image Science Group (Prof. O. Kübler), Communication Technology Laboratory, ETH Zürich, Switzerland
1989	Research Student, Institute for Biomedical Engineering (Prof. M. Anliker, Prof. P. Rüeeggger), University and ETH Zürich, Switzerland
1990 - 1994	Graduate Research and Teaching Assistant, Institute for Biomedical Engineering (Prof. M.

Anliker, Prof. P. Rügsegger), University and ETH Zürich, Switzerland

1994 - 1995 Senior Research Assistant, Institute for Biomedical Engineering (Prof. P. F. Niederer), University and ETH Zürich, Switzerland

1995 Micro-Tomography Project Manager for the European Union project BIOMED1, Computed Tomography Research Group (Prof. P. Rügsegger), ETH Zürich, Switzerland

1996 - 1998 Senior Research Associate, Department of Orthopedic Surgery (Prof. W. C. Hayes), Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, USA

1997 - 2000 Research Fellow, Center for Engineering in Medicine (Prof. M. L. Yarmush), Harvard Medical School, Boston, USA

1999 - 2000 Associate Director, Orthopedic Biomechanics Laboratory, Department of Orthopedic Surgery (Prof. S. J. Lipson), Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, USA

2000 - 2006 Head, Bioelectronics Group, Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland

2001 - Co-organizer and Track Advisor Biomechanics, Graduate Program in Biomedical Engineering, ETH Zürich, Switzerland

2004 - 2005 Coordinator, Biomedical Engineering, ITET Pavillon, 150 Years ETH Celebration, Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland

2005 - 2008 Coordinator, ETH Bioengineering Cluster (BEC), Initiative on Bioengineering, Biosystems, Biotechnology (BEST)

2005 - 2008 Director, Center for Bioengineering Research and Education, ETH Zürich, Switzerland

2005 - 2013 Member, Center for Imaging Science and Technology (CIMST), ETH Zürich, Switzerland

2006 - 2013 Member, Materials Research Center (MRC), ETH Zürich, Switzerland

2006 - 2008 Associate Director, Institute for Biomechanics, ETH Zürich, Switzerland

2008 - 2012 Delegate of the President, Initiative on "Medical Engineering and Health", ETH Zürich, Switzerland

2008 - 2013 Director, Specialization in Biomechanics, Program in Human Movement Sciences, ETH Zürich, Switzerland

2008 - 2013 Member, National Competence Center in Biomedical Imaging (NCCBI), Switzerland

2008 - 2013 Director, Institute for Biomechanics, ETH Zürich, Switzerland

2010 - 2011 Co-organizer, Bachelor Program in Health Sciences and Technology, ETH Zürich, Switzerland

2011 - Member, Center for Applied Biotechnology and Molecular Medicine (CABMM), University of Zürich, Switzerland

2012 - 2014 Deputy Head, Department of Health Sciences and Technology, ETH Zürich, Switzerland

2013 - Head, Laboratory for Bone Biomechanics, ETH Zürich, Switzerland

2013 - Member, Competence Center for Materials and Processes (MaP), ETH Zürich, Switzerland

2014 - Member, Center of Experimental and Clinical Imaging Technologies (EXCITE), ETH Zürich, Switzerland

2014 - 2016 Head, Department of Health Sciences and Technology, ETH Zürich, Switzerland

2020 - Member, Rehabilitation Engineering and Science Competence Center (RESC), ETH Zürich, Switzerland

2021 - 2023 Director, Institute for Biomechanics, ETH Zürich, Switzerland

2021 - Member, Executive Board, Initiative on Advanced Engineering with Living Materials (ALIVE), ETH Domain Strategic Focus Area on Advanced Manufacturing (SFA-AM), ETH Zürich, Switzerland

2023 - Member, Steering Board, Scientific Center for Optical and Electron Microscopy (ScopeM), ETH Zürich, Switzerland

Major Committee Assignments:

1999 - 2000 Member, Academic Computing Executive Oversight Committee, Beth Israel Deaconess Medical Center, Boston, USA

2002, 2005 Member, Selection Committee, ETH Medal for Excellent Doctorate Theses, Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland

2003 - 2004 Member, Search Committee, Full Professor "Medical Engineering", Department of Electrical Engineering and Information Technology, Technical University of Graz, Austria

2004 - 2011 Member, Scientific and Medical Advisory Board, Kuros Biosurgery AG, Zürich, Switzerland

2004 - 2008 Chair, Awards Selection Committee, European Society of Biomechanics

2004 - 2007 Member and Chair, Medical Review Committee, European Synchrotron Radiation Facility (ESRF), Grenoble, France

2005 - 2006 Member, Imaging Strategy Committee, Vice President of Planning and Logistics, ETH Zürich, Switzerland

2007 - 2008 Member, Selection Committee, ETH Medal for Excellent Doctorate Theses, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland

2007 - 2008 Member, Search Committee, Assistant Professor "X-ray Microscopy", Department of Information

Technology and Electrical Engineering, ETH Zürich, Switzerland

2007 - 2011 Member, Room Commission, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland

2008 - 2011 Member, Admissions Committee, Department of Mechanical and Process Engineering, ETH Zürich, Switzerland

2008 - 2013 Member, Swiss Committee on Space Research, Swiss Academy of Sciences (SAS), Switzerland

2008 - 2013 Member, Board of Directors, b-cube AG, Zürich, Switzerland

2008 - 2013 Member, Board of Directors, Pearltec AG, Zürich, Switzerland

2009 - 2012 Member, International Advisory Committee, Centre for Multi-disciplinary Computer Assisted Tomography at Southampton (CeM-CATS), The University of Southampton, UK

2009 - 2016 Chair, Strategy Committee "Medical Engineering and Health", ETH Zürich, Switzerland

2010 - 2014 Member, International Advisory Board, Center of Excellence for Osteoporosis Research, King Abdulaziz University, Jeddah, Saudi Arabia

2010 Spokesperson, Search Committee, Professor "Orthopaedic Technologies in Aging", Department of Mechanical and Process Engineering, ETH Zürich, Switzerland

2010 - 2016 Member, Executive Committee, Department of Health Sciences and Technology, ETH Zürich, Switzerland

2010 - 2011 Member, Evaluation Jury, Architectural Competition for MEDTEC Building (GLC), ETH Zürich, Switzerland

2010 - 2014 Member, Steering Committee, ETH Phenomics Center, ETH Zürich, Switzerland

2011 Member, Search Committee, Professor "Muscle Plasticity", Faculty of Medicine, University of Zürich, Switzerland

2011 Member, Search Committee, Assistant Professor "Cartilage Engineering and Regeneration", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2011 Member, Search Committee, Professor "Exercise Physiology", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2011 Member, Search Committee, Professor "Neural Control of Movement", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2011 Spokesperson, Search Committee, Professor "Movement Biomechanics", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2011 - Member, European Institute of Excellence on Tissue Engineering and Regenerative Medicine

2011 - 2016 Member, Oversight and Use Committee, Construction of MEDTEC Building (GLC), ETH Zürich, Switzerland

2012 - 2014 Member, Huiskes Medal Award Committee, European Society of Biomechanics

2012 Member, Search Committee, Professor "Quantitative Imaging", Department of Biology, ETH Zürich, Switzerland

2012 Member, Search Committee, Head and Chair, Department of Bioengineering, Imperial College, London, UK

2013 Member, Strategy Committee "Sustainable development of an aging society", ETH Zürich, Switzerland

2013 - 2017 Member, Scientific Advisory Board, Centre Suisse d'Electronique et de Microtechnique (CSEM), Neuchâtel, Switzerland

2013 - 2014 Member, Search Committee, Professor "Neurogenetics", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2013 - 2015 Member, Search Committee, Professor "Systems Neuroscience", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2014 Member, Search Committee, Professor "Rehabilitation Engineering", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2014 - 2015 Member, Search Committee, Professor "Physical Activity and Health", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2014 - 2016 Chair, Executive Committee, Department of Health Sciences and Technology, ETH Zürich, Switzerland

2015 Member, Search Committee, Assistant Professor "Sustainable Food Processing", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2015 Member, Search Committee, Assistant Professor "Biomedical Image Computing", Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland

2015 - 2016 Member, Search Committee, Professor and Assistant Professor "Systems Neuroscience", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2015 - Member, Advisory Board, Department of BioMedical Engineering, Eindhoven University of Technology, The Netherlands

2017 - Member, Board of Directors, müco AG, Hitzkirch, Switzerland

2018 Member, Search Committee, Assistant Professor "Biomaterials Immunoengineering", Department of Health Sciences and Technology, ETH Zürich, Switzerland

2018 - Member, Academic Advisory Board, Department of Bioengineering, Imperial College London, UK

2022 - 2023	Member, Search Committee, Head, Department "Materials meet Life", EMPA, St. Gallen, Switzerland
2022 - 2025	Member, External Expert Advisory Board, Marie Skłodowska-Curie Doctoral Network "Cellular homeostasis and aging in connective tissue disorders (CHANGE)"
2023 - 2027	Member, External Expert Advisory Board, Marie Skłodowska-Curie Doctoral Network "Vegani"
2024	Member, Search Committee, Assistant Professor "Musculoskeletal Bioengineering", Department of Health Sciences and Technology, ETH Zürich, Switzerland

Awards and Honors:

1993	Alice L. Jee Memorial Award, Twenty-Fourth International Sun Valley Workshop on Hard Tissue Biology, Sun Valley, USA
1994	SSBE Research Award for the thesis "3D Assessment and Analysis of Trabecular Bone Architecture", Swiss Society for Biomedical Engineering (SSBE)
1995	Full-Time Fellowship, Alberta Heritage Foundation (declined)
1995	Advanced Researcher Award, Swiss National Science Foundation
1996	Scanning Microscopy International Presidential Award, Scanning Microscopy Meeting, Bethesda, USA
1997	Full-Time Fellowship, Biomedical Engineering Discovery Fund, Center for Engineering in Medicine, Harvard Medical School / The Whitaker Foundation
1998	Biomedical Engineering Research Grant, The Whitaker Foundation
1999	Inaugural John Haddad Young Investigator Award, American Society for Bone and Mineral Research (ASBMR) and Advances in Mineral Metabolism (AIMM)
1999	Promising Young Scientist Award, International Society of Biomechanics (ISB)
2000	Inaugural Recipient SNF Professorship, Swiss National Science Foundation
2002	Finalist, Mario Boni Award, European Orthopaedic Research Society (EORS)
2003	Plenary Lecturer, 49th Annual Meeting Orthopaedic Research Society, New Orleans, USA
2004	Young Leader 2004, The American-Swiss Foundation
2005	Plenary Lecturer, 27th Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), Nashville, USA
2006	Publication Group Award, German Academy of Osteological and Rheumatological Sciences (DAdorW)
2007	Most Outstanding Clinical Abstract Award, Australian and New Zealand Bone and Mineral Society
2009	Speaker, World Economic Forum (WEF), Davos, Switzerland
2012	ESB Clinical Biomechanics Award, European Society of Biomechanics (ESB)
2014	Plenary Lecturer, TERMIS-EU 2014 Annual Meeting, Genoa, Italy
2015	Elected Member, Swiss Academy of Engineering Sciences (SATW)
2015	Elected Fellow, European Alliance for Medical and Biological Engineering and Science (EAMBES)
2016	Russell Severance Springer Visiting Professor, Department of Mechanical Engineering, University of California, Berkeley
2016	Finalist, ESB Clinical Biomechanics Award, European Society of Biomechanics (ESB)
2016	Golden Femur Award, ASBMR/ECTS Clinical Debate, 2016 Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), Atlanta, USA
2017	Viktor Kaplan Lecture, Austrian Academy of Sciences (öAW)
2017	ERC Advanced Grant, European Research Council (ERC)
2018	Mike Horton Award, European Calcified Tissue Society (ECTS)
2019	Huiskes Medal for Biomechanics, European Society of Biomechanics (ESB)
2019	Muybridge Award, International Society of Biomechanics (ISB)
2019	NUSS Visiting Professor, The National University of Singapore Society (NUSS)
2021	Dandelion Entrepreneurship Award, ETH Entrepreneur Club and ETH AI Center
2022	Elected Fellow, World Council of Biomechanics
2022	Elected Fellow, American Society of Bone and Mineral Research (ASBMR)

Student and Fellow Awards, Faculty Appointments:

2002	Steve Boyd, Initial Appointment, Assistant Professor of Mechanical Engineering, The University of Calgary, Canada, currently Professor, Faculty of Medicine, The University of Calgary, Canada
2006	Jess K. Snedeker, Initial Appointment, Assistant Professor of Biomechanics, University of Zürich, Switzerland, currently Associate Professor of Biomechanics, University of Zürich, Switzerland
2007	Harry van Lenthe, Initial Appointment, Professor of Biomedical Engineering, Katholieke Universiteit Leuven, Belgium
2007	Philipp Thurner, Initial Appointment, Lecturer, University of Southampton, UK, currently Professor of Biomechanics, TU Wien, Austria

2012 Ara Nazarian, Initial Appointment, Adjunct Assistant Professor, Boston University, USA, currently Associate Professor of Orthopaedic Surgery, Harvard Medical School, Boston, USA

2013 Sandra Hofmann, Initial Appointment, Assistant Professor of Biomedical Engineering, Eindhoven University of Technology, The Netherlands, currently Associate Professor of Biomedical Engineering, Eindhoven University of Technology, The Netherlands

2013 Davide Ruffoni, Initial Appointment, Assistant Professor of Mechanics of Materials, Université de Liège, Belgium

2013 Philipp Schneider, Initial Appointment, Reader, University of Southampton, UK, currently Associate Professor, University of Southampton, UK

2016 Kathryn S. Stok, Initial Appointment, Senior Lecturer, University of Melbourne, Australia, currently Associate Professor, University of Melbourne, Australia

2019 Dana Akilbekova, Initial Appointment, Assistant Professor, Nazarbayev University, Kazakhstan

2022 Caitlyn Collins, Initial Appointment, Assistant Professor, Virginia Tech, USA

2023 Danielle Whittier, Initial Appointment, Assistant Professor, The University of Calgary, Canada

2001 Steve Boyd, NSERC Postdoctoral Fellowship Award, Canada

2001 Steve Boyd, Young Investigator Award, International Society of Biomechanics (ISB)

2001 Martin Stauber, Finalist, Young Investigator Award, International Society of Biomechanics (ISB)

2001 Yankel Gabet, Exchange Scholarship Award, European Calcified Tissue Society (ECTS)

2002 Yankel Gabet, Student Travel Award, Boehringer Ingelheim Fonds

2002 Martin Stauber, Best Commented Poster Award, European Society of Biomechanics (ESB)

2002 Ara Nazarian, Fullbright Fellowship, Recipient "Bundesstipendiat"

2002 Ara Nazarian, ESB Student Runner-up Award, European Society of Biomechanics (ESB)

2002 Eva Maria Lochmüller, Young Investigator Award, International Osteoporosis Foundation

2004 Harry van Lenthe, Young Investigator Award, International Bone Densitometry Workshop

2004 Tom L. Mueller, SSBE Student Award, Swiss Society for Biomedical Engineering (SSBE)

2005 Harry van Lenthe, ECTS Travel Award, European Calcified Tissue Society (ECTS)

2005 Yankel Gabet, Outstanding Research Student Award, Professor Yael Michaeli Foundation

2005 Thomas Krähenbühl, SSBE Student Award, Swiss Society for Biomedical Engineering (SSBE)

2005 Philipp Schneider, SLS Best Poster Award, 6th Swiss Light Source Users Meeting, PSI Villigen

2005 Stefan Heinzer, Max Anliker Memorial Poster Award, Swiss Society for Biomedical Engineering (SSBE)

2006 Philipp Schneider, Winner, New Investigator Recognition Award (NIRA), Orthopaedic Research Society (ORS)

2006 Ara Nazarian, Finalist, New Investigator Recognition Award (NIRA), Orthopaedic Research Society (ORS)

2006 Martin Stauber, Young Investigator Scholarship, Deutsche Akademie der osteologischen und rheumatologischen Wissenschaften

2006 Martin Stauber, SSBE Research Award, Swiss Society for Biomedical Engineering (SSBE)

2006 Henri Hagenmüller, Max Anliker Memorial Poster Award, Swiss Society for Biomedical Engineering (SSBE)

2006 Philipp Schneider, Best Student Presentation Award, Triennial Meeting of the Austrian, German and Swiss Society for Biomedical Engineering

2006 Philipp Schneider, ASBMR Young Investigator Award, International Society of Bone Morphometry (ISBM)

2006 Martin Stauber, IBMS Young Investigator Award, International Society of Bone Morphometry (ISBM)

2006 Ara Nazarian, IBMS Young Investigator Award, International Society of Bone Morphometry (ISBM)

2006 Philipp Schneider, Young Investigator Award, International Bone Densitometry Workshop

2006 Harry van Lenthe, Travel Award, International Bone Densitometry Workshop

2006 Tom L. Mueller, Travel Award, International Bone Densitometry Workshop

2007 Peter Vogel, Excellence Scholarship Award, ETH Zürich

2008 Kathryn S. Stok, Finalist, New Investigator Recognition Award (NIRA), Orthopaedic Research Society (ORS)

2008 Philipp Schneider, Publication Award, German Academy of Osteological and Rheumatological Sciences (DAdorW)

2008 Alina Levchuk, Whitaker International Fellowship, The Whitaker Foundation

2008 Kathleen Koch, Whitaker International Fellowship, The Whitaker Foundation

2008 Philipp Schneider, ESB Student Award, European Society of Biomechanics (ESB)

2008 Philipp Schneider, Finalist, Young Investigator Award, International Bone Densitometry Workshop

2008 Marion Senési, Excellence Scholarship Award, ETH Zürich

2008 Romain Voide, JBMR Raisz-Drezner First Paper Award, American Society for Bone and Mineral Research (ASBMR)

2009 Patrizia Fischer, Tom L. Mueller, Mario Schmuziger, Pearltec AG, Stage 1, 2 and 3 Awards (130,000 CHF), Venture Kick

2009 Floor Lambers, ECTS Travel Award, European Calcified Tissue Society (ECTS)

2009 Friederike Schulte, ECTS Travel Award, European Calcified Tissue Society (ECTS)

2009 Philipp Schneider, Young Investigator Award, International Society of Bone Morphometry (ISBM)

2009 Duncan Webster, Finalist, Young Investigator Award, International Society of Biomechanics (ISB)

2009 Samuel Basler, Christoph Schröter, SSBE Student Award, Swiss Society for Biomedical Engineering (SSBE)

2010 Friederike Schulte, ECTS New Investigator Award, European Calcified Tissue Society (ECTS)

2010 Davide Ruffoni, IOF SERVIER Young Investigator Research Award, International Osteoporosis Foundation (IOF)

2010 Floor Lambers, ECTS Travel Award, European Calcified Tissue Society (ECTS)

2010 Davide Ruffoni, ECTS Postdoctoral Fellowship Award, European Calcified Tissue Society (ECTS)

2010 Andreas Wirth, SSB Best Student Oral Presentation Award, Swiss Society for Biomaterials (SSB)

2010 Andreas Wirth, ESB Student Runner-up Award, European Society of Biomechanics (ESB)

2010 Friederike Schulte, ESB Student Award, European Society of Biomechanics (ESB)

2010 Silke Wüst, BMT 2010 Student Award, German, Austrian and Swiss Society for Biomedical Engineering (DGBMT/öGBMT/SSBE)

2010 Rachel Sondergaard, Merit Award, Best Intern in Mechanical Engineering, The University of Calgary

2011 Zihui Li, CSC Doctoral Fellowship, Chinese Scholarship Council (CSC)

2011 Marie Godla, Whitaker International Fellowship, The Whitaker Foundation

2011 Benjamin Thimm, European Doctoral Award, European Society of Biomaterials (ESB)

2011 Laura Nebuloni, Best Presentation Award, 2nd TOPEA Meeting

2011 Luc Nimeskern, Scholarship, Summer School on Biomaterials and Regenerative Medicine, European Institute of Excellence on Tissue Engineering and Regenerative Medicine and TERMIS-EU

2011 Friederike Schulte, ETH Medal for Outstanding Doctoral Thesis, ETH Zürich

2012 Samantha Paulsen, Whitaker International Fellowship, The Whitaker Foundation

2012 Robin Wilson, Whitaker International Fellowship, The Whitaker Foundation

2012 Thomas Steiner, Max Anliker Memorial Poster Award, Swiss Society for Biomedical Engineering (SSBE)

2012 Marcella von Salis-Soglio, Scholarship, IDEA League Doctoral School on Ageing

2012 Friederike Schulte, ASBMR Annual Meeting President's Poster Competition Award, American Society for Bone and Mineral Research (ASBMR)

2012 Marina Rubert, Marie-Curie Action, Intra-European Fellowship, European Union

2013 Hanna Artsi, Excellence Scholarship, Exchange Program of The Hebrew University and ETH Zürich

2013 Ben Larkin, OARSI Scholarship Award, Osteoarthritis Research Society International (OARSI)

2013 Steve Ho, Whitaker International Fellowship, The Whitaker Foundation

2013 Sandra Hofmann, ERC Starter Grant, European Union

2013 Sandra Hofmann, Marie Curie Career Integration Grant, European Union

2013 Michele Casanova, ESB Mobility Award for Young Researchers, European Society of Biomechanics (ESB)

2013 Floor Lambers, ASBMR Annual Meeting President's Poster Competition Award, American Society for Bone and Mineral Research (ASBMR)

2013 David Christen, ETH Medal for Outstanding Doctoral Thesis, ETH Zürich

2014 Robin Wilson, NSF Graduate Research Fellowship, National Science Foundation

2014 Alina Levchuk, Finalist, DGfB Award, German Society of Biomechanics (DGfB), World Congress of Biomechanics (WCB)

2014 Andreas Trüssel, Second Place, WCB Student Paper Competition, World Congress of Biomechanics (WCB)

2014 Elliott Goff, Whitaker International Fellowship, The Whitaker Foundation

2014 Ramin Oftadeh, Whitaker International Summer Award, The Whitaker Foundation

2014 André Butscher, Acta Student Award

2014 Alexander Zwahlen, JSB2014 Travel Award, 4th Japan-Switzerland Workshop on Biomechanics (JSB2014)

2014 Patrik Christen, Young Investigator Travel Award, 20th International Bone Densitometry Workshop (IBDW 2014)

2015 Patrik Christen, ASBMR John Haddad Young Investigator Award, American Society for Bone and Mineral Research (ASBMR) and Advances in Mineral Metabolism (AIMM)

2015 Jing Zhou, CSC Postdoctoral Fellowship, Chinese Scholarship Council (CSC)

2015 Andreas Trüssel, ISBM Young Investigator Award, International Society of Bone Morphometry (ISBM)

2015 Esther Wehrle, ETH Fellowship, ETH Zürich, European Union
 2015 Jianhua Zhan, CSC Doctoral Fellowship, Chinese Scholarship Council (CSC)
 2015 Jing Zhou, SSSTC Exchange Grant, Sino Swiss Science and Technology Cooperation (SSSTC)
 2015 Esther Wehrle, ESB Travel Award, European Society of Biomechanics (ESB)
 2015 Marios Georgiadis, ESB Travel Award, European Society of Biomechanics (ESB)
 2015 Marios Georgiadis, Second Place, ESB Student Award, European Society of Biomechanics (ESB)
 2015 Patrik Christen, CMBBE Travel Award, 13th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering (CMBBE 2015)
 2015 Duncan Betts, SSBM Travel Award, Swiss Bone and Mineral Society (SBMS)
 2015 Patrik Christen, Holcim Fellowship, Holcim Stiftung for the Advancement of Scientific Research
 2016 Marios Georgiadis, Early Postdoc.Mobility Fellowship, Swiss National Science Foundation
 2016 Anna Woloszyk, Early Postdoc.Mobility Fellowship, Swiss National Science Foundation
 2016 Esther Wehrle, SSBM Travel Award, Swiss Bone and Mineral Society (SBMS)
 2016 Angad Malhotra, Marie-Curie-COFUND, WHRI-ACADEMY Fellowship, European Union
 2017 Felicitas Flohr, Basic 'Ask your Peers' Poster Award, European Calcified Tissue Society (ECTS)
 2017 Gianna Marano, ETH Medal for Outstanding Master Thesis, ETH Zürich
 2017 Ariane Scheuren, ESB Travel Award, European Society of Biomechanics (ESB)
 2017 Esther Wehrle, SGV Travel Grant, Swiss Laboratory Animal Science Association (SGV)
 2017 Gianna Marano, Finalist, SSBE Student Award, Swiss Society for Biomedical Engineering (SSBE)
 2018 Ariane Scheuren, Short Term Scientific Mission (STSM) Grant, COST Action BM1402
 2018 Duncan Betts, ESB Student Award, European Society of Biomechanics (ESB)
 2018 Graeme Paul, ESB Student Runner-up Award, European Society of Biomechanics (ESB)
 2018 Dana Akilbekova, Postdoctoral Fellowship, Swiss Government Excellence Scholarship
 2018 Denis Cener, Young Researchers' Exchange Fellowship, Bilateral Japanese-Swiss Science and Technology Program, Japan Society for the Promotion of Science (JSPS)
 2019 Nicholas Ohs, Young Investigator Award, International Workshop on Quantitative Musculoskeletal Imaging (QMSKI)
 2019 Felicitas Flohr, Young Investigator Award, International Workshop on Quantitative Musculoskeletal Imaging (QMSKI)
 2019 Penny Atkins, ETH Fellowship, ETH Zürich, Marie Skłodowska-Curie Actions COFUND
 2019 Xiao-Hua Qin, ETH Career Seed Grant, ETH Zürich
 2019 Caitlyn Collins, Marie Skłodowska-Curie Actions, Individual Fellowship, European Union
 2019 Nina Derron, ETH Medal for Outstanding Master Thesis, ETH Zürich
 2019 Graeme Paul, ESB Student Runner-up Award, European Society of Biomechanics (ESB)
 2019 Ariane Scheuren, Travel Grant, International Federation of Musculoskeletal Research Societies (IFMRS)
 2019 Elliott Goff, Travel Grant, International Federation of Musculoskeletal Research Societies (IFMRS)
 2019 Xiao-Hua Qin, Travel Grant, International Society of Bone Morphometry (ISBM)
 2019 Kensuke Kataoka, Young Researchers' Exchange Fellowship, Bilateral Japanese-Swiss Science and Technology Program, Japan Society for the Promotion of Science (JSPS)
 2020 Caitlyn Collins, Finalist, New Investigator Recognition Award (NIRA), Orthopaedic Research Society (ORS)
 2020 Matthias Grass, ETH Medal for Outstanding Master Thesis, ETH Zürich
 2020 Hui Liu, CSC Doctoral Fellowship, Chinese Scholarship Council (CSC)
 2020 Wanwan Qiu, CSC Doctoral Fellowship, Chinese Scholarship Council (CSC)
 2020 Daniel Greenfeld, ETH Medal for Outstanding Master Thesis, ETH Zürich
 2021 Dilara Yilmaz, ECTS Travel Award, European Calcified Tissue Society (ECTS)
 2021 Jianhua Zhang, Acta Student Award
 2021 Caitlyn Collins, FIRST (First Independent Research Support & Transition) Award, American Society for Bone and Mineral Research (ASBMR)
 2021 Neashan Mathavan, Young Investigator Award, American Society for Bone and Mineral Research (ASBMR)
 2021 Jenny Gehlen, 2021 Global Undergraduate Award in the Life Sciences
 2021 Danielle Whittier, NSERC Postdoctoral Fellowship Award, Canada
 2022 Neashan Mathavan, Marie Skłodowska-Curie Actions, Individual Fellowship, European Union
 2022 Julia Griesbach, ESB Travel Award, European Society of Biomechanics (ESB)
 2022 Gian Schädli, Personalized Health and Related Technologies, iPostdoc Fellowship, ETH Domain
 2022 Gian Schädli, compagOs, Stage 1 and 2 Award (10,000/40,000 CHF), Venture Kick
 2022 Gian Schädli, Winner, Start-Up Pitch Session @ BMT 2022, Joint Annual Conference of the Austrian, German and Swiss Societies for Biomedical Engineering
 2023 Bregje de Wildt, NWO Rubicon Postdoctoral Fellowship Award, The Netherlands
 2023 Gian Schädli, compagOs, Stage 3 Award (100,000 CHF), Venture Kick
 2023 Francisco Correia Marques, ESB Student Award, European Society of Biomechanics (ESB)
 2023 Julia Griesbach, Young Investigator Travel Grant, American Society for Bone and Mineral

2023	Research (ASBMR) Dilara Yilmaz, Young Investigator Travel Grant, American Society for Bone and Mineral Research (ASBMR)
2023	Wanwan Qiu, Poster Award, Journal of Materials Science: Materials in Medicine, European Society of Biomaterials (ESB)
2023	Bregje de Wildt, NBTE Best Thesis Award, Dutch Society for Tissue Engineering and Biomaterials (NBTE)

Research Visits/Sabbaticals:

1991 - 1994	Visiting Scientist, Center for Biomechanics, Department of Bone Pathology UKE (Prof. Delling), University of Hamburg, Germany (periodically)
1996	Visiting Scientist, Biomechanics Section, Institute of Orthopedics (Prof. Huiskes), University of Nijmegen, The Netherlands
1996	Visiting Scientist, Human Performance Laboratory (Prof. Nigg), The University of Calgary, Canada
2001	Visiting Scientist, The Jackson Laboratory (Drs. Donahue and Beamer), Bar Harbor, USA
2016 - 2017	Russell Severance Springer Visiting Professor, Department of Mechanical Engineering, University of California, Berkeley, USA
2017 - 2019	Visiting Professor, Department of Bioengineering, Imperial College, London, UK
2019	NUSS Visiting Professor, Yong Loo Lin School of Medicine, National University of Singapore (NUS), Singapore

Visiting Professors:

2008	Itai Bab, The Hebrew University, Jerusalem, Israel
2013	Charles S. Sfeir, University of Pittsburgh, Pittsburgh, USA
2017	Yoshitaka Kameo, Kyoto University, Kyoto, Japan
2019	Elise F. Morgan, Boston University, Boston, USA
2021	Karen L. Troy, Worcester Polytechnic Institute, Worcester, USA
2021	Pedro Paulo Chaves de Souza, Federal University of Goiás, Brazil
2022	Pankaj Pankaj, The University of Edinburgh, UK

Professional Societies:

2015	Elected Member	Swiss Academy of Engineering Sciences (SATW)
2015	Elected Fellow	European Alliance for Medical and Biological Engineering and Science (EAMBES)
2022	Elected Fellow	World Council of Biomechanics (WCB)
2022	Elected Fellow	American Society for Bone and Mineral Research (ASBMR)
2021 -	Secretary	International Federation of Musculoskeletal Research Societies (IFMRS)
2018 -	Board of Directors	International Federation of Musculoskeletal Research Societies (IFMRS)
2015 -	Board of Directors	International Society of Bone Morphometry (ISBM)
2020 -	Chair	Scholarship Fund, Swiss-American Society (SAS), Zürich, Switzerland
2014 - 2015	President	Swiss-American Society (SAS), Zürich, Switzerland
2013 - 2014	Vice President	Swiss-American Society (SAS), Zürich, Switzerland
2012 -	Executive Board	Swiss-American Society (SAS), Zürich, Switzerland
2013 - 2016	Board of Directors	International Bone and Mineral Society (IBMS)
2008 - 2010	President	European Society of Biomechanics (ESB)
2004 - 2008	Vice President	European Society of Biomechanics (ESB)
2002 - 2010	Council	European Society of Biomechanics (ESB)
2008 - 2010	Past President	Swiss Society for Biomedical Engineering (SSBE)
2003 - 2008	President	Swiss Society for Biomedical Engineering (SSBE)
2001 - 2010	Executive Board	Swiss Society for Biomedical Engineering (SSBE)
2006 - 2008	Chair	Imaging and Diagnostics Committee, Orthopedic Research Society (ORS)
1995 -	Member	European Society of Biomechanics (ESB)
1997 -	Member	American Society of Biomechanics (ASB)
1997 -	Member	American Society for Bone and Mineral Research (ASBMR)
1999 -	Member	International Society of Biomechanics (ISB)
2000 - 2016	Member	International Bone and Mineral Society (IBMS)
2001 -	Member	Swiss Society for Biomedical Engineering (SSBE)

2002 -	Member	Orthopedic Research Society (ORS)
2008 -	Member	Tissue Engineering and Regenerative Medicine International Society (TERMIS)
2015 -	Member	International Society of Bone Morphometry (ISBM)
2016 -	Member	European Calcified Tissue Society (ECTS)
2017 -	Member	Swiss Society for Aging Research (SSFAR)
2023 -	Member	International Society for Stem Cell Research (ISSCR)

Professional Leadership Roles:

1996	First International Symposium on "Bone Architecture and the Competence of Bone", Leuven, Belgium, Organizing Co-Chair
1997	Second Int. Symposium on "Bone Architecture and the Competence of Bone", Crieff, Scotland, Organizing Committee, Scientific Co-Chair
1998	Third Int. Symposium on "Bone Architecture and the Competence of Bone", Kartause Ittingen, Switzerland, Organizing Committee, Scientific Co-Chair
2000	Fourth Int. Symposium on "Bone Architecture and the Competence of Bone", Big Sur, USA, Organizing Committee, Scientific Co-Chair
2002	Fifth Int. Symposium on "Bone Architecture and the Competence of Bone", Monterey, USA, Organizer and Chair
2005	Sixth Int. Symposium on "Bone Architecture and the Competence of Bone", Salzburg, Austria, Organizing Committee, Scientific Co-Chair, Session Chair "Bone Changes in Osteoarthritis"
1998	20th Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), San Francisco, USA, Consulting Committee, Working Group, "Non-Invasive Assessment of Bone Architecture"
1999	21st Annual Meeting ASBMR, St. Louis, USA, Organizing Committee, Working Group, "Non-Invasive Assessment of Bone Architecture"
2000	22nd Annual Meeting ASBMR, Toronto, Canada, Organizer and Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
2001	23rd Annual Meeting ASBMR, Phoenix, USA, Organizer and Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
2002	24th Annual Meeting ASBMR, San Antonio, USA, Organizer and Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
2003	25th Annual Meeting ASBMR, Minneapolis, USA, Organizer and Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
2004	26th Annual Meeting ASBMR, Seattle, USA, Organizer and Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
2005	27th Annual Meeting ASBMR, Nashville, USA, Organizer and Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
2006	28th Annual Meeting ASBMR, Philadelphia, USA, Organizer and Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
2007	29th Annual Meeting ASBMR, Honolulu, USA, Co-Organizer and Co-Chair, Working Group, "Non-Invasive Assessment of Bone Architecture"
1998	11th Meeting of the European Society of Biomechanics, Toulouse, France, Session Chair "Bone Research (2)"
2000	14th International Workshop on Bone Densitometry, Warnemünde, Germany, Session Chair "Biomechanics".
2001	XVIIIth Congress of the International Society of Biomechanics, Zürich, Switzerland, Session Chair "Cellular Aspects of Bone Remodelling", "Biomaterials 1", "Biomaterials 2"
2002	IVth World Congress of Biomechanics, Calgary, Canada, Session Chair "Bone Biomechanics I: Healing and Adaptation"
2002	12th Annual Meeting European Orthopedic Research Society, Lausanne, Switzerland, Member International Scientific Committee and Plenary Lecturer
2003	49th Annual Meeting Orthopedic Research Society, New Orleans, USA, Plenary Lecturer in Instructional Workshop on "New Advances in Musculoskeletal Imaging"
2003	Gemeinsame Jahrestagung der österreichischen, Deutschen und Schweizerischen Gesellschaft für Biomedizinische Technik, Salzburg, Austria, Session Chair "Biomedical Imaging III"
2003	NIH/NIAMS Invited Meeting on "Bone Quality", Bethesda, USA, Introductory Lecturer
2004	6th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Madrid, Spain, Member Advisory Panel and Plenary Lecturer
2004	16th International Bone Densitometry Workshop, Annecy, France, Member International Scientific Committee, Invited Speaker, Session Chair "Biomechanics"

- 2004 IUTAM Symposium on "Mechanics of Biological Tissue", Graz, Austria, Invited Lecturer and Session Chair "Soft Tissue Biomechanics"
- 2004 14th Congress of the European Society of Biomechanics, 's-Hertogenbosch, The Netherlands, Member International Scientific Committee, Keynote Lecturer and Session Chair "Bone Imaging"
- 2004 14th Conference of the European Orthopaedic Research Society (EORS), The Royal Tropical Institute, Amsterdam, The Netherlands, Member International Scientific Committee
- 2004 2004 Annual Meeting of the Swiss Society for Biomedical Engineering (SSBE), Zürich, Switzerland, Organizer and Chair
- 2005 NIH/NIAMS-ASBMR Scientific Meeting on "Bone Quality: What Is It and Can We Measure It?", The Hyatt Regency Bethesda, Bethesda, USA, Plenary Lecturer
- 2005 2nd Joint Meeting European Calcified Tissue Society (ECTS) and International Bone and Mineral Society (IBMS), Geneva, Switzerland, Plenary Lecturer
- 2005 2005 Annual Meeting of the Swiss Society for Biomedical Engineering (SSBE), Zürich, Switzerland, Plenary Lecturer
- 2005 27th Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), Nashville, USA, Plenary Lecturer
- 2006 52nd Annual Meeting of the Orthopaedic Research Society (ORS), Chicago, USA, Program Reviewer, Session Moderator "Imaging"
- 2006 7th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Antibes, France, Member Advisory Panel and Plenary Lecturer
- 2006 5th World Congress of Biomechanics, Munich, Germany, Member International Scientific Committee, Organizer and Chair "Imaging Thread", Organizer and Chair "Bone Tissue Mechanics", Speaker "Imaging in Tissue Engineering"
- 2006 Gemeinsame Jahrestagung der Deutschen, österreichischen und Schweizerischen Gesellschaft für Biomedizinische Technik, Zürich, Switzerland, Member Organizing Committee, Awards Chair
- 2006 Xth Congress of the International Society of Bone Morphometry (ISBM), Philadelphia, USA, Member International Scientific Committee, Plenary Lecturer
- 2006 17th International Bone Densitometry Workshop, Kyoto, Japan, Member International Scientific Committee, Plenary Lecturer and Session Chair "CT (animal)"
- 2007 53rd Annual Meeting of the Orthopaedic Research Society (ORS), San Diego, USA, Topic Chair "Imaging & Diagnostics", Session Moderator "Imaging"
- 2007 34th European Symposium on Calcified Tissues, European Calcified Tissue Society (ECTS), Copenhagen, Denmark, Training Course on Bone Quality, Invited Lecturer
- 2007 17th Scientific Meeting of the International Bone and Mineral Society (IBMS), Montreal, Canada, Symposium Chair "Bone Imaging", Plenary Lecturer
- 2007 29th Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), Honolulu, USA, Member Scientific Program Committee, Co-Chair "Plenary Symposium I: Emerging Technologies in Functional Bone Imaging"
- 2008 SPIE International Symposium on Medical Imaging: Physiology, Function, and Structure from Medical Images, San Diego, USA, Member Program Committee
- 2008 54th Annual Meeting of the Orthopaedic Research Society (ORS), San Francisco, USA, Topic Chair "Imaging & Diagnostics", Session Moderator "Tissue Imaging"
- 2008 18th International Bone Densitometry Workshop, Pugnochiuso, Italy, Plenary Lecturer and Session Chair "Bone Structure and Function"
- 2008 TERMIS-EU 2008 Annual Meeting, Porto, Portugal, Member International Scientific Advisory Board, Symposium Chair "Advanced Imaging for Functional Tissue Engineering and Regenerative Medicine", Invited Symposium Speaker "Advances on Multidisciplinary Research for the Tissue Engineering of Bone and Cartilage"
- 2008 16th Meeting Congress of the European Society of Biomechanics, Lucerne, Switzerland, Member Scientific Advisory Board, Co-Chair "Hard Tissue", Session Chair "Trabecular Bone"
- 2008 30th Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), Montréal, Canada, Member Scientific Program Committee, Category Chair "Bone Biomechanics and Quality"
- 2009 ESB 2009 Workshop "Movement Biomechanics and Sport", European Society of Biomechanics, Zürich, Switzerland, Organizer and Co-Chair
- 2009 3rd Switzerland-Japan Workshop on Biomechanics, Engelberg, Switzerland, Organizer and Chair
- 2009 22nd European Conference on Biomaterials, European Society of Biomaterials, Lausanne, Switzerland, Member National Scientific Committee, Invited Speaker, Session Chair "Biomechanics"
- 2009 ICCB 2009, IV International Congress on Computational Bioengineering, Bertinoro, Italy, Member International Scientific Committee, Session Chair "Musculoskeletal system - cell"
- 2010 37th European Symposium on Calcified Tissues, European Calcified Tissue Society (ECTS), Glasgow, UK, Member Scientific Programme Committee
- 2010 17th Congress of the European Society of Biomechanics, Edinburgh, UK, Member International

- 2010 Scientific Committee, Session Chair "Plenary Speaker 1"
Biomechanics 2010, International Conference of the Polish Society of Biomechanics, Warsaw, Poland, Member Honour Committee
- 2010 6th World Congress of Biomechanics, Singapore, Member International Scientific Committee, Track Chair "Bone", Invited Speaker, Session Chair "Osteoporosis and Bone Strength II"
- 2011 XXIIIrd Congress of the International Society of Biomechanics, Brussels, Belgium, Member International Scientific Committee, Session Chair "ISB/ESB Keynote Speaker", Session Chair "Bone - Computational Mechanics ", Session Chair "Bone - from Cells to Tissue"
- 2011 EMBEC 2011, 5th European Conference of the International Federation for Medical and Biological Engineering, Budapest, Hungary, Member International Advisory Committee
- 2011 3rd Joint Meeting European Calcified Tissue Society (ECTS) and International Bone and Mineral Society (IBMS), Athens, Greece, Programme Reviewer
- 2012 10th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Berlin, Germany, Member Advisory Panel and Plenary Lecturer
- 2012 Osteologie 2012, Basel, Switzerland, Member Programme Committee, Session Chair "Bioimaging and Biomechanics", Invited Lecturer
- 2012 22nd Interdisciplinary Research Conference on Biomaterials, GRIBOI 2012, Uppsala, Sweden, Session Chair "Biomechanics", Invited Lecturer
- 2012 39th European Symposium on Calcified Tissues, European Calcified Tissue Society (ECTS), Stockholm, Sweden, Member Scientific Programme Committee
- 2012 First Annual Research Day, Department of Health Sciences and Technology, ETH Zürich, Zürich, Switzerland, Organizer and Chair, Head Scientific Programme Committee, Session Chair "Medical Engineering 1", Moderator Panel Discussion
- 2012 18th Congress of the European Society of Biomechanics (ESB), Lisbon, Portugal, Member Scientific Committee, Session Chair "Multiscale Modelling in Biomechanics I"
- 2012 3rd TERMIS World Congress, Vienna, Austria, Member International Advisory Committee, Co-Chair, Symposium on "Micro- and nano-tomographic imaging in tissue engineering and regenerative medicine", Keynote Lecturer
- 2012 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), Vienna, Austria, Co-Chair, Mini-Symposium on "Multiscale and multiphysics modelling in bone mechanobiology (3MBM)", Invited Lecturer
- 2012 18th International Biomedical Science & Technology Symposium (BIOMED 2012), Tokat, Turkey, Member International Advisory Board
- 2012 First Stepping Stone Symposium in Medical Technologies, Sino Swiss Science and Technology Cooperation (SSSTC) Initiative, Zürich, Switzerland, Co-Organizer and Co-Chair, Moderator Panel
- 2013 11th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Salt Lake City, USA, Member Advisory Panel and Invited Speaker, Session Chair "Bone Mechanics II"
- 2013 40th European Symposium on Calcified Tissues, European Calcified Tissue Society (ECTS), Lisbon, Portugal, Scientific Advisor, Programme Reviewer
- 2013 TERMIS-EU 2013 Annual Meeting, Istanbul, Turkey, Member International Advisory Board
- 2013 Second Annual Research Day, Department of Health Sciences and Technology, ETH Zürich, Zürich, Switzerland, Organizer and Chair, Head Scientific Programme Committee, Moderator Panel Discussion
- 2013 19th Congress of the European Society of Biomechanics (ESB), Patras, Greece, Member Scientific Committee, Session Chair "Imaging"
- 2013 ICCB 2013, V International Congress on Computational Bioengineering, Leuven, Belgium, Member International Scientific Committee, Keynote Speaker
- 2013 Second Stepping Stone Symposium in Medical Technologies, Sino Swiss Science and Technology Cooperation (SSSTC) Initiative, Zhejiang, China, Co-Organizer
- 2013 ICBME 2013, 15th International Conference on Biomedical Engineering, Singapore, Member International Advisory Committee
- 2014 41st European Symposium on Calcified Tissues, European Calcified Tissue Society (ECTS), Prague, Czech Republic, Scientific Advisor
- 2014 TERMIS-EU 2014 Annual Meeting, Genoa, Italy, Member International Advisory Board, Plenary Speaker
- 2014 7th World Congress of Biomechanics, Boston, USA, Member International Scientific Committee, Invited Speaker, Symposium Chair "High resolution imaging in mechanobiology", Symposium Co-chair "Multiscale techniques in biomechanics and mechanobiology"
- 2014 4th Japan-Switzerland Workshop on Biomechanics (JSB2014), Shima, Japan, Member Advisory Board, Member Scientific Committee, Invited Speaker
- 2014 12th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Amsterdam, The Netherlands, Member Technical Board

- 2015 4th Joint Meeting of European Calcified Tissue Society (ECTS) and the International Bone and Mineral Society (IBMS), Rotterdam, The Netherlands, Scientific Advisor
- 2015 21st Congress of the European Society of Biomechanics (ESB), Prague, Czech Republic, Perspective Talk, Session Chair "Tissue Engineering - Scaffold"
- 2015 13th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Montreal, Canada, Member Technical Committee
- 2015 ICCB 2015, VI International Congress on Computational Bioengineering, Barcelona, Spain, Member International Scientific Committee
- 2015 MouseAGE Workshop on Modelling and Simulation in the Aging Mouse, Lisbon, Portugal, Co-Organizer, Invited Speaker
- 2016 43rd Annual European Calcified Tissue Society Congress (ECTS 2016), Rome, Italy, Scientific Advisor, Programme Reviewer, Invited Speaker
- 2016 TERMIS-EU 2016 Annual Meeting, Uppsala, Sweden, Member Scientific Advisory Board
- 2016 22nd Congress of the European Society of Biomechanics (ESB), Lyon, France, Member Scientific Committee, Session Chair "Imaging"
- 2016 10th Australasian Biomechanics Conference (ABC10), Melbourne, Australia, Session Co-Chair "Mechanobiology", Keynote Speaker
- 2017 44th Annual European Calcified Tissue Society Congress (ECTS 2017), Salzburg, Austria, Scientific Advisor, Programme Reviewer, Invited Speaker/Moderator "New Investigator Mentoring Session"
- 2017 21st International Bone Densitometry Workshop (IBDW) and the 7th European Symposium on Ultrasonic Characterization of Bone (ESUCB), Banz, Germany, Member Scientific Advisory Board
- 2017 European Medical and Biological Engineering Conference (EMBEC) and Nordic-Baltic Conference on Biomedical Engineering and Medical Physics (NBC), Tampere, Finland, Member Scientific Committee
- 2017 23rd Congress of the European Society of Biomechanics (ESB), Seville, Spain, Member Scientific Committee, Co-Chair "Cowin Tribute Session" & "Mechanobiology Session VI"
- 2017 ICCB 2017, VII International Congress on Computational Bioengineering, Compiègne, France, Member International Scientific Committee, Plenary Speaker
- 2017 5th Japan-Switzerland Workshop on Biomechanics (JSB2017), Zermatt, Switzerland, Member Advisory Board, Member Swiss National Scientific Committee, Invited Speaker
- 2018 45th Annual European Calcified Tissue Society Congress (ECTS 2018), Valencia, Spain, Scientific Advisor, Programme Reviewer, Invited Speaker, Workshop on Bone Bioengineering, Regeneration and Implants, Invited Speaker, UCB Lunch-Time Symposium
- 2018 1st International Conference on Materials, Mimicking, Manufacturing from and for Bio Application (BioM&M 2018), Milan, Italy, Member Scientific Committee, Plenary Speaker
- 2018 8th World Congress of Biomechanics, Dublin, Ireland, Keynote Speaker, Symposium Chair "Advanced Bioimaging"
- 2019 22nd International Workshop on Quantitative Musculoskeletal Imaging (QMSKI), Lake Louise, Canada, Member Scientific Advisory Board
- 2019 46th Annual European Calcified Tissue Society Congress (ECTS 2019), Budapest, Hungary, Member External Reviewers Panel
- 2019 TERMIS-EU 2018 Annual Meeting, Rhodes, Greece, Symposium Co-Chair "Musculoskeletal organoids for disease modelling and personalized therapies", Invited Speaker
- 2019 6th International Conference on Computational and Mathematical Biomedical Engineering (CMBE), Sendai City, Japan, Member International Advisory Committee
- 2019 25th Congress of the European Society of Biomechanics (ESB), Vienna, Austria, Member International Scientific Committee, Track Chair "Multi-scale Modelling in Biomechanics", Huiskes Medal Lecture
- 2019 XXVII Congress of the International Society of Biomechanics (ISB 2019), Calgary, Canada, Member International Advisory Board, Muybridge Award Lecture
- 2019 XIVth Congress of the International Society of Bone Morphometry (ISBM), Orlando, USA, Member International Scientific Committee, Session Organizer and Chair "Intra-Vital Imaging of Bone"
- 2020 47th Annual European Calcified Tissue Society Congress (ECTS 2020), Marseille, France, Member External Reviewers Panel, Chair ECTS/IFMRS Joint Session on Knowledge Portal
- 2021 48th Annual European Calcified Tissue Society Congress (ECTS 2021), Digital Congress, Member External Reviewers Panel, Chair ECTS/ISBM Joint Session on Frontiers in Bone Morphometry
- 2021 26th Congress of the European Society of Biomechanics (ESB), Milano, Italy, Member International Scientific Committee
- 2021 ASBMR 2021 Annual Meeting, American Society of Bone and Mineral Research (ASBMR), San Diego, USA, Member Program Advisory Committee, Invited Speaker
- 2022 ICCB 2022, IX International Congress on Computational Bioengineering, Lisbon, Portugal,

2022 Member International Scientific Committee, Chair Plenary Session
49th Annual European Calcified Tissue Society Congress (ECTS 2022), Helsinki, Finland, Member External Reviewers Panel, Invited Speaker

2022 23rd International Workshop on Quantitative Musculoskeletal Imaging (QMSKI), Noordwijk, The Netherlands, Member Scientific Advisory Board

2022 27th Congress of the European Society of Biomechanics (ESB), Porto, Portugal, Session Co-chair "Mechanobiology Session II" & "Mechanobiology Session III"

2022 International Symposium on Biomechanics: Challenges of the Next Decade, Graz, Austria, Member International Scientific Committee, Keynote Speaker

2022 XVth Congress of the International Society of Bone Morphometry (ISBM), Odense, Denmark, Member International Scientific Committee, Member Programm Organizing Committee, Session Organizer "Spatial Genomics", Invited Speaker

2022 ASBMR 2022 Annual Meeting, American Society of Bone and Mineral Research (ASBMR), San Diego, USA, Abstract Reviewer, Invited Speaker

2022 TERMIS-AP 2022, Jeju, Korea, Member International Advisory Board

2023 50th Annual European Calcified Tissue Society Congress (ECTS 2023), Liverpool, UK, Member External Reviewers Panel

2023 MaP Graduate Symposium 2023, MaP Doctoral School and Competence Center for Materials and Processes (MaP), ETH Zurich, Zurich, Switzerland, Session Chair

2023 28th Congress of the European Society of Biomechanics (ESB), Maastricht, The Netherlands, Member International Scientific Committee, Track Co-chair "Biomedical Imaging"

2023 50th International Musculoskeletal Biology Workshop, Orthopaedic Research Society (ORS), Zermatt, USA, Session Chair "Imaging Mechanobiology at Work", Invited Speaker

2023 6th Japan-Switzerland Workshop on Biomechanics (JSB2023), Hokkaido, Japan, Member Advisory Board, Member Swiss National Scientific Committee, Invited Speaker

2023 ICCB 2023, X International Congress on Computational Bioengineering, Vienna, Austria, Member International Scientific Committee, Plenary Speaker

2023 ASBMR 2023 Annual Meeting, American Society of Bone and Mineral Research (ASBMR), Vancouver, Canada, Invited Speaker

2024 ORS 2024 Annual Meeting, Orthopaedic Research Society (ORS), Long Beach, USA, Abstract Reviewer

2024 51st Annual European Calcified Tissue Society Congress (ECTS 2023), Marseille, France, Member External Reviewers Panel, Invited Speaker

2024 29th Congress of the European Society of Biomechanics (ESB), Edinburgh, UK, Member International Scientific Committee, Track Chair "Education"

2024 24th International Workshop on Quantitative Musculoskeletal Imaging (QMSKI), Barossa Valley, Australia, Member Scientific Advisory Committee

External Examiner for Dissertations, Tenure, and Promotions:

Boston University, USA
Cleveland Clinic, USA
Columbia University, New York, USA
Cornell University, Ithaca, USA
Cranfield University, UK
Eindhoven University of Technology, The Netherlands
Hebrew University of Jerusalem, Israel
Harvard University, Boston, USA
Imperial College, London, UK
Keele University, Staffordshire, UK
McGill University, Montréal, Canada
Mount Sinai Medical School, New York, USA
Queensland University of Technology, Brisbane, Australia
Oxford University, UK
State University of New York, Stony Brook, USA
Technical University Hamburg-Harburg, Germany
Technical University of Vienna, Austria
Trinity College Dublin, Ireland
University of Basel, Switzerland
University of Calgary, Canada
University of California, Berkeley, USA
University of California, San Francisco, USA
University of Edinburgh, UK
University of Galway, Ireland

University of Geneva, Switzerland
 University of Melbourne, Australia
 University of Southampton, UK
 University of Portsmouth, UK
 University of Western Australia, Perth, Australia
 University of Zürich, Switzerland
 Wright State University, Dayton, USA

Granting and Funding Agencies:

Consultant	The Whitaker Foundation, USA
Reviewer	AO Research Commission, Switzerland
Reviewer	Veterans Affairs Cooperative Studies Evaluation Committee, USA
Reviewer	Deutsche Forschungsgemeinschaft, Germany
Evaluator	European Union, Sixth Framework Program
Member/Chair	Medical Review Commission, European Synchrotron Radiation Facility (ESRF), Chair 2005-2007
Reviewer	Swiss National Science Foundation, Switzerland
Reviewer	Research Grants Council, Hong Kong
Reviewer	Research Council, Katholieke Universiteit Leuven, Belgium
Reviewer	Bundesministeriums für Bildung und Forschung (BMBF), Germany
Reviewer	Science Foundation Ireland, Ireland
Reviewer	ERC Starting, Consolidator and Advanced Grants, European Research Council (ERC)
Reviewer	National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs), UK
Assessor	Australian Research Council (ARC), Australia
Reviewer	MRC, Research Councils UK (RCUK), UK
Reviewer	Agence Nationale de la Recherche (ANR), France
Reviewer	Fund for Scientific Research (FNRS), Belgium
Reviewer	Swiss Data Science Center (SDSC), Switzerland
Reviewer	Collegium Helveticum, The Joint Institute for Advanced Studies (IAS), Switzerland
Reviewer	Austrian Science Fund (FWF), Austria

Editorial Boards:

2021 -	Associate Editor	Frontiers in Bioengineering and Biotechnology - TERM
2015 -	Editorial Board	Biomechanics and Modeling in Mechanobiology
2015 -	Editorial Board	Digital Medicine
2020 -	Editorial Board	Biomaterials and Biosystems
since 1997	Ad Hoc Reviewer	Bone
since 1999	Ad Hoc Reviewer	Journal of Bone and Mineral Research
since 2009	Ad Hoc Reviewer	Biomechanics and Modeling in Mechanobiology
since 2015	Ad Hoc Reviewer	Science Translational Medicine
since 2018	Ad Hoc Reviewer	Nature
since 2019	Ad Hoc Reviewer	Nature Materials
since 2020	Ad Hoc Reviewer	Nature Communications
since 2020	Ad Hoc Reviewer	PNAS
since 2020	Ad Hoc Reviewer	Science Advances
since 2023	Ad Hoc Reviewer	Scientific Reports
Previous positions:		
2007 - 2009	Associate Editor	Biomedizinische Technik / Biomedical Engineering
2002 - 2015	Editorial Board	Computer Methods in Biomechanics and Biomedical Engineering
2004 - 2010	Editorial Board	Journal of Biomechanics
2005 - 2006	Editorial Board	Critical Reviews in Biomedical Engineering
2007 - 2009	Editorial Board	Engineering in Medicine & Biology Series
2007 - 2015	Editorial Board	Molecular & Cellular Biomechanics
2007 - 2016	Editorial Board	Bone
2007 - 2021	Editorial Board	Journal of Tissue Engineering and Regenerative Medicine
2008 - 2010	Faculty Member	Faculty of 1000 Medicine
2010 - 2016	Editorial Board	BoneKEy, Nature Publishing Group
2014 - 2023	Editorial Board	Journal of the Royal Society Interface

since 1998	Ad Hoc Reviewer	Computer Methods in Biomechanics and Biomedical Engineering
since 1999	Ad Hoc Reviewer	Annals of Biomedical Engineering
since 1999	Ad Hoc Reviewer	Journal of Biomechanical Engineering
since 1999	Ad Hoc Reviewer	Medical Physics
since 1999	Ad Hoc Reviewer	IEEE Transactions on Medical Imaging
since 1999	Ad Hoc Reviewer	Osteoporosis International
since 2000	Ad Hoc Reviewer	Electronics Letters
since 2000	Ad Hoc Reviewer	Calcified Tissue International
since 2002	Ad Hoc Reviewer	International Journal of Oral and Maxillofacial Surgery
since 2004	Ad Hoc Reviewer	Journal of Biomechanics
since 2005	Ad Hoc Reviewer	Biotechnology and Bioengineering
since 2005	Ad Hoc Reviewer	Medical Engineering & Physics
since 2005	Ad Hoc Reviewer	Journal of Biotechnology
since 2006	Ad Hoc Reviewer	Biomedizinische Technik / Biomedical Engineering
since 2006	Ad Hoc Reviewer	Nature Physics

Part II: Research and Teaching Contributions

A. Narrative Report

Dr. Müller is a Professor of Biomechanics at the Department of Health Sciences and Technology and is the Director of the Institute for Biomechanics at ETH Zürich in Switzerland. He studied electrical engineering at ETH Zürich, where he also received his doctoral degree in 1994. Subsequently, he served as a project manager for the micro-computed tomography project of the EU Concerted Action BIOMED1 "Assessment of Bone Quality in Osteoporosis". At that time, Dr. Müller was involved in the development of a compact desktop micro-tomographic imaging system that since has been commercialized and is now marketed worldwide. In 1996, he moved to Boston where he served as a tenure-track Assistant Professor of Orthopedic Surgery at Harvard Medical School and the Associate Director of the Orthopedic Biomechanics Laboratory. Between 2000 and 2011, he was first an SNF Professor of Bioengineering at the Department of Information Technology and Electrical Engineering and then Associate and Full Professor of Biomechanics at the Department of Mechanical and Process Engineering at ETH Zürich. In 2012, he was one of the founding members of the Department of Health Sciences and Technology, which he headed from 2014 to 2016. The research he has completed and is currently pursuing employs state-of-the-art biomechanical testing and simulation techniques as well as novel bioimaging and visualization strategies for musculoskeletal tissues. Today, these techniques are successfully employed for the quantitative assessment and monitoring of structure function relationships in tissue regeneration, growth and adaptation. His approaches are now often used for precise phenotypic characterization of tissue response in mammalian genetics, mechanobiology as well as tissue engineering and regenerative medicine. Dr. Müller is a prolific author of more than 1,300 scientific articles and abstracts. His work has been cited over 45,000 times on Google Scholar with an h-index of 109. He has received numerous awards, including more recently the Mike Horton Award from the European Calcified Tissue Society (ECTS), the Huiskes Medal for Biomechanics from the European Society of Biomechanics (ESB) and the Muybridge Award from International Society of Biomechanics (ISB). He is an elected member of the Swiss Academy of Engineering Sciences (SATW) and a Fellow of the European Alliance for Medical and Biological Engineering and Science (EAMBES), the World Council of Biomechanics (WCB), and the American Society for Bone and Mineral Research (ASBMR). In 2017, the European Research Council (ERC) awarded him with a prestigious ERC Advanced Grant. He is also active as an organizer of international symposia and workshops as well as an editorial board member and reviewer for scientific journals and funding agencies. He is a former President of the European Society of Biomechanics (ESB) and the Swiss Society for Biomedical Engineering (SSBE) and currently serves as the Secretary on the International Federation of Musculoskeletal Research Societies (IFMRS) and on the Board of Directors of the International Society of Bone Morphometry (ISBM). He has held scientific and management positions on more than 80 research grants and currently receives funding from Swiss National Science Foundation, European Union, ERC Advanced, COST, and various ETH intramural funds. Dr. Müller is a founder and co-organizer of the ETH graduate program in Biomedical Engineering. He is teaching courses on "Imaging and Computing in Medicine", "Orthopaedic Biomechanics" and "Multiscale Bone Biomechanics" at ETH Zürich. He co-founded three spin-off companies, Pearl Technology AG, developing and marketing novel patient positioning systems for medical imaging procedures using patented technology from ETH Zürich, b-cube AG, now a subsidiary of Scanco Medical, and most recently compagoOs, a diagnostics biotechnology company engineering personalized cancer in bone organoids.

B. Funding Information

1990 - 1994	Swiss National Science Foundation (Grant No. 31-29971.90), Doctoral Fellow
1995	Merck Research Laboratories, "3D-pQCT measurements on forearm BMD, cortical thickness and trabecular structure in normal healthy volunteers and osteoporotic patients", Co-Investigator
1996 - 1997	Alberta Heritage Foundation Full-Time Fellowship (declined), "Microstructural bone in the progress

- of adaptive bone remodeling", Principal Investigator
- 1996 Swiss National Science Foundation, Advanced Researcher Award (Grant No. 823A-043040), "Biomechanical competence of microstructural bone in the progress of adaptive bone remodeling", Principal Investigator
- 1996 - 1998 Scanco Medical AG, Instrumentation Development Grant, Principal Investigator
- 1996 - 1998 Boehringer Mannheim, "The effect of preventative treatment with ibandronate on the mechanical, densitometric and architectural properties of metastatic bone", Co-Investigator
- 1997 - 1999 Roche Diagnostics, "A study to determine the effects of ibandronate on bone mass, strength and architecture after 16 months of treatment in the ovariectomized cynomolgus monkey", Co-Principal Investigator
- 1997 Biomedical Engineering Discovery Fund, Center for Engineering in Medicine, Harvard Medical School / Whitaker Foundation, "3-D micro-tomographic imaging for the nondestructive characterization of trabecular bone", Principal Investigator
- 1997 Genetics Institute, Bone Biology and Applications, "Ability of intraosseous injection of rhBMP-2 to restore and maintain tibial bone mass in ovariectomized osteopenic rats", Principal Investigator
- 1997 IGEA s.r.l., Biomedical Physics Laboratory, "Micro-tomographic imaging in the human proximal phalange", Principal Investigator
- 1998 - 2001 Forsyth Dental Center, Harvard School of Dental Medicine, "Micro-tomographic imaging in the analysis of infection-stimulated infraosseous bone resorption", Principal Investigator
- 1998 Advanced Tissue Sciences, "Reproducibility and accuracy of micro-tomography in porous biomaterials", Principal Investigator
- 1999 - 2001 Biomedical Engineering Research Grant, The Whitaker Foundation, "Image-guided assessment of bone failure", Principal Investigator
- 1999 State University of New York, Stony Brook, Center for Biotechnology, "Quantitative assessment of femoral bone architecture in a sheep vibration model using micro-tomographic imaging", Principal Investigator
- 1999 - 2000 Rhode Island Hospital and Brown University, "The effect of limb lengthening on the vasculature in rat femora as assessed by micro-computed imaging", Principal Investigator
- 1999 - 2002 Columbia University, New York, "The effect of in vivo mechanical loading and anabolic treatment on rat caudal vertebrae as assessed by micro-computed tomography", Principal Investigator
- 1999 - 2000 Georgia Institute of Technology, "Micro-tomographic imaging and quantitative bone morphometry of tibial bone and cartilage grafts in an in vivo rabbit model", Principal Investigator
- 1999 - 2000 Deutsche Forschungsgemeinschaft (DFG LO 730/2-11.8.), "In-situ-Analyse und Neuentwicklung von Messmethoden in der Osteoporosediagnostik: Wertigkeit für die Beurteilung des individuellen Frakturrisikos", Collaborator/Consultant
- 2000 - 2004 National Institutes of Health (NIAMS/RO1 AR046530), "Genetic analysis of vertebral strength", Co-Principal Investigator
- 2000 - 2004 National Institutes of Health (NIAMS/RO1 AR041481), "Structural consequences of post-yield behavior of bone", Collaborator/Consultant
- 2000 - 2004 Swiss National Science Foundation, (Grant No. 620-58097.99), "Micro-compression: A novel technique for image-guided assessment of bone failure, repair, and adaptation", Principal Investigator
- 2000 - 2004 National Institutes of Health (NIDCR/RO1 DE013416), "Designed scaffold architecture affects bone regeneration", Principal Investigator on Subcontract
- 2001 - 2005 National Institutes of Health (NIAMS/RO1 AR043618), "Genetic and dynamic analyses of peak bone density", Collaborator/Consultant
- 2001 - 2005 National Institutes of Health (NIAMS/RO1 AR045433), "Genetic regulation of IGF-1 in peak bone density of mice", Collaborator/Consultant
- 2001 - 2005 National Institutes of Health (NIAMS/RO1 AR047867), "Response of the osteoporotic skeleton to in vivo loading", Collaborator/Consultant
- 2001 - 2003 Arthritis Foundation, Biomedical Science Grant, "Pathogenic mechanisms of focal bone erosions in rheumatoid arthritis", Collaborator
- 2001 - 2002 University of Heidelberg, "Surface treatment effects on titanium implant osteointegration as assessed by micro-computed tomography", Principal Investigator
- 2001 - 2005 National Institutes of Health (NIDCR/RO1 DE013747), "Innate immunity and periodontal disease in mice", Principal Investigator on Subcontract
- 2001 - 2005 National Institutes of Health (NIDCR/RO1 DE011664), "Immunity to disseminating dentoalveolar infections", Principal Investigator on Subcontract
- 2002 - 2006 ETH Strategic Excellence Project (SEP 2-74153-02), "Load regulated genes in trabecular bone", Principal Investigator
- 2002 - 2006 European Union, Shared-Cost RTD Action (STEMGENOS QLK3-CT-2002-02039), "Engineered mesenchymal stem cells combined with gene therapy for osteoarticular diseases", Principal Investigator on Consortium Contract
- 2003 - 2004 Robert Mathys Foundation, "Vertebral endplate morphology: a functional imaging study", Co-

- Principal Investigator
- 2003 - 2005 Swiss National Science Foundation, (Grant No. 200021-102036), "Investigation of the influence of micro-flow effects in liquid composite moulding processes on the laminate quality", Co-Investigator
- 2003 - 2005 Deutsche Forschungsgemeinschaft (DFG LO 730/3-1), "Skelettale Mikrostruktur und mechanische Kompetenz beim alternden Menschen", Co-Investigator
- 2003 - 2006 ETH Intramural Funding (TH 00124/41-2631.5), "Functional phenomics of bone: high-throughput determination of bone strength and its application in locating strength-related genes", Principal Investigator
- 2003 - 2006 Novartis, "Imaging and quantitative morphometry of cerebrovascular alterations in mouse models for Alzheimer's disease", Co-Principal Investigator
- 2003 - 2005 Robert Mathys Foundation, "Micro-tomographic imaging of novel porous biomaterials in a sheep model of critical size bone defects", Co-Principal Investigator
- 2003 - 2007 European Union, Integrated Project (GENOSTEM LSH-2003-503161), "Adult mesenchymal stem cell engineering for connective tissue disorders. From the bench to the bed side", Principal Investigator on Consortium Contract
- 2004 - 2009 European Union, Network of Excellence (EXPERTISSUES NMP3-CT-2004-500283), "Novel therapeutic strategies for tissue engineering of bone and cartilage using second generation biomimetic scaffolds", Principal Investigator on Consortium Contract, Member Steering and Management Committee
- 2004 - 2006 Swiss National Science Foundation, (Grant No. PP-104317/1), "Genetic control of bone function as determined from image-guided failure assessment and large-scale computational modeling in the murine spine", Principal Investigator
- 2004 - 2006 Bundesamt für Berufsbildung und Technologie, KTI/CTI MedTech (6976.1 MTS-LS), "Minimally invasive delivery of osteogenic actives in degradable fibrin-based scaffolds for bone repair", Principal Investigator
- 2004 - 2005 Roche Research Foundation (76-2004), "High-throughput phenotyping of vertebral bone mechanical function", Principal Investigator
- 2004 - 2007 ETH Intramural Funding (TH 26.04-1), "Osteoinductive biomaterials and adult human stem cells for tissue engineering of skeletal tissues - a systems engineering approach", Co-Principal Investigator
- 2005 - 2010 National Institutes of Health (NIAMS/R01 AR049896), "Idiopathic osteoporosis in premenopausal women", Collaborator/Consultant
- 2005 - 2010 National Institutes of Health (NIAID/R01 AI065200), "Osteoporosis in HIV-infected postmenopausal women", Collaborator/Consultant
- 2005 - 2010 National Institutes of Health (NIDDK/R01 DK069350), "Bone properties in hypoparathyroidism: effects of PTH", Collaborator/Consultant
- 2005 - 2010 National Institutes of Health (NIAMS/R01 AR027065), "Epidemiology of age-related bone loss and fractures", Co-Investigator
- 2005 - 2007 Swiss National Science Foundation, (Grant No. 200021-109267), "Influence of macro-pores on the mechanical stability of restored soil", Co-Investigator
- 2005 - 2008 ETH Cluster "BioEngineering, BioSystems, BioTechnology" (BEST-Cluster 3/04), "BEST Bioengineering Cluster (BEC)", Principal Investigator
- 2005 - 2008 Schwyzer Foundation, "Rheumaaktivität, Intervention und Lebensqualität", Co-Principal Investigator
- 2005 - 2006 Lonza, "Investigation of slugs and slug pellets using micro-tomographic technology", Principal Investigator
- 2006 - 2011 AO Foundation, Clinical Priority Program "Fracture fixation in osteoporotic bone" (FFOB/CPP1), Principal Investigator on Consortium Contract
- 2006 - 2010 Swiss National Science Foundation, (Grant No. 100017/1), "Micro finite element analysis of human bone structures", Co-Investigator
- 2008 - 2012 Robert Mathys Foundation, "Biodegradable porous HA/TCP scaffolds for tissue engineering applications", Principal Investigator
- 2008 - 2012 National Competence Center in Biomedical Imaging (NCCBI), "High-throughput micro- and nano-tomographic phenotyping for characterization of bone ultrastructure and quality using synchrotron light", Co-Principal Investigator
- 2008 - 2012 European Union, Integrated Project (VPHOP FP7-ICT-2008-223865), "The osteoporotic virtual physiological human", Principal Investigator on Consortium Contract, Member Project Board
- 2008 - 2012 European Union, Integrated Project (ANGIOSCAFF FP7-NMP-2008-214402), "Angiogenesis-inducing bioactive and bioresponsive scaffolds in tissue engineering", Principal Investigator on Consortium Contract, Member Executive Committee
- 2009 - 2013 National Institutes of Health (NIA/P01 AG004875), "Risk Factors for Fractures Among the Elderly", Co-Investigator
- 2009 - 2012 Bundesamt für Berufsbildung und Technologie, KTI/CTI MedTech (9853.1 PF/LS), "Comprehensive morphological characterization of arthritis in animal models by microCT - innovative biomarkers for assessment of arthritic cartilage and bone", Co-Principal Investigator

- 2010 - 2013 Swiss National Science Foundation/NRP63 "Stem Cells and Regenerative Medicine"/ERA-NET "EuroNanoMed" (EAREG 406340-131009/1), "Ear tissue regeneration using human cells and novel nano-cellulose scaffolds", Principal Investigator on Consortium Contract
- 2010 - 2015 National Institutes of Health (NIAMS/R01 AR027065), "Epidemiology of age-related bone loss and fractures", Co-Investigator
- 2010 - 2015 SystemsX.ch/Swiss National Science Foundation (51PH-0_131370/1), "Single cell microfluidic imaging for spatial mapping and quantification of gene expression in an in vivo model of bone adaptation", Principal Investigator
- 2010 - 2013 Swiss National Science Foundation (205321_132779/1), "Cell-based framework for nanoscopic bone imaging and computational fluid dynamics in osteoporosis research", Principal Investigator
- 2010 - 2016 AO Foundation, Clinical Priority Program "Fracture Fixation in Osteoporotic Bone" (CF2009_01), "Development of a model for quantification of fracture healing at distal radius fractures by HR-pQCT", Principal Investigator
- 2011 - 2015 ETH Independent Investigator Research Award (ETHIRA, ETH-39 11-1), "Multimodal biomechanical imaging of human trabecular bone", Principal Investigator
- 2012 - 2016 European Union, Integrated Project (BIODESIGN FP7-NMP-2012-262948), "Rational bioactive materials design for tissue regeneration", Principal Investigator on Consortium Contract, Member Executive Committee
- 2014 - 2015 European Union, Marie-Curie Action, Intra-European Fellowship (BONEMIMIC FP7-PEOPLE-2012-IEF-329389) "3D tissue-engineered model of bone adaptation", Coordinator
- 2014 - 2017 Swiss National Science Foundation/SCOPES Joint Research Project (IZ73Z0-152327), "Intelligent scaffolds as a tool for advanced tissue regeneration", Principal Investigator
- 2014 - 2018 European Cooperation in Science and Technology, COST Action (MouseAGE OC-2013-2-16802 BM1402), "Development of a European network for preclinical testing of interventions in mouse models of age and age-related diseases", Deputy Chair of Action, Member Core Group, Member Management Committee
- 2016 - 2018 Swiss National Science Foundation/State Secretariat for Education, Research and Innovation (SNF IZCNZ0-174586 / SERI C16.0057), "Determining the 3D gene and protein expression of osteocytes using Local in vivo Environment (LivE) imaging in aged mice with osteoporosis", Principal Investigator
- 2016 - 2017 ETH Zürich, Innovedum Focus Project (1489), "Flipping from the very beginning: Designing a new lecture", Principal Investigator
- 2017 - 2018 European Union, Marie-Curie-COFUND (CaP+MECHLOAD WHRI-ACADEMY FP7-PEOPLE-2013-COFUND, Project Number 608765) "Enhanced bone revascularization through biomaterials, mechanical loading, and computational biomechanics", Host Coordinator
- 2017 - 2021 Swiss National Science Foundation/DACH (320030L_170205), "Local remodelling and mechanoregulation of bone fracture healing in healthy, aged, and osteoporotic humans", Principal Investigator
- 2017 - 2023 European Research Council (ERC), ERC Advanced, (MechAGE ERC-2016-ADG-741883), "In vivo single-cell mechanomics of bone adaptation and regeneration in the aging mouse", Coordinator, Principal Investigator
- 2018 - 2022 European Cooperation in Science and Technology, COST Action (COMULIS OC-2017-1-22289 CA17121), "Correlated multimodal imaging in life sciences", Member Management Committee
- 2019 - 2023 European Cooperation in Science and Technology, COST Action (GEMSTONE OC-2018-1-23069 CA18139), "Genomics of musculoskeletal traits translational network", Member Management Committee
- 2019 - 2023 European Union, Marie Skłodowska-Curie Actions, Innovative Training Network (FIDELIO H2020-MSCA-ITN-2019, ITN-ETN 860898), "Training network for research into bone fragility in diabetes in Europe - towards a personalised medicine approach", Principal Investigator on Consortium Contract, Work Package Leader, Member Executive Board
- 2019 - 2023 Swiss National Science Foundation (200021_188522), "Subtractive 3D micro-printing of functional osteocyte networks as novel in vitro bone models", Principal Investigator
- 2020 - 2021 European Union, Marie Skłodowska-Curie Actions, Individual Fellowship (HealinguFE H2020-MSCA-IF-2018, Project Number 841316), "Development of an in silico model for prediction of in vivo human bone fracture healing using micro-finite element analysis", Coordinator
- 2021 - 2022 Swiss National Science Foundation (IZCOZ0_198152, COST Action CA18139 GEMSTONE), "Spatial genomics of musculoskeletal regeneration in a translational mouse model of premature aging", Principal Investigator
- 2022 - 2024 European Union, Marie Skłodowska-Curie Actions, Individual Fellowship (MechanoHealing H2020-MSCA-IF-2020, Project Number 101029062), "Bone healing mechanomics in a mouse model of accelerated aging", Coordinator
- 2022 - 2025 ETH Zürich, Competence Center for Materials and Processes (MaP), "ALIVE - Advanced Engineering with Living Materials", Principal Investigator, Member Executive Board, Spokesperson Zurich Joint subproject

- 2022 - 2024 ETH Zürich, Innovedum Focus Project (3194), "Integrate Jupyter notebooks into the classroom to promote IT excellence", Principal Investigator
- 2022 - 2026 Swiss National Science Foundation (407940_206501, National Research Program, NRP 79), "Human organoid-on-chip: a novel experimental tool to replace animal models of rare bone disease", Co-Investigator
- 2022 - 2024 ETH Domain, Strategic Focus Area (SFA), Personalized Health and Related Technologies (PHRT-487), "compagOs: a personalized bone organoid diagnostic framework for predicting drug response in children with rare bone diseases", Host
- 2023 - 2027 Swiss National Science Foundation (CRSII5_213520, Sinergia, SLIH4BONE), "Sustained local ionic homeostatic imbalance to trigger ectopic bone formation and boost orthotopic bone formation", Applicant
- 2024 - 2027 Australian Research Council (DP240102160, Discovery Projects), "Replicating the cartilage micromechanical environment", Co-Investigator

C. Report of Current Research Activities

European Research Council/ERC Advanced: "In vivo single-cell mechanomics of bone adaptation and regeneration in the aging mouse" (Coordinator, Principal Investigator) Osteoporosis is characterized by a reduction in bone mass and increased fracture risk and has been partly attributed to the decrease in mechanical usage of the skeleton. A detailed understanding of the molecular mechanisms governing load-regulated bone remodeling could therefore lead to the identification of molecular targets for the development of novel therapies. By combining single-cell "omics" technologies with well-established tissue-scale models of bone mechanobiology, this project proposes to develop the technology required to allow spatially resolved in vivo single-cell mechanomics of bone adaptation and regeneration. CRISPR/Cas technology will be exploited to generate fluorescent reporter mice to identify the different cell types involved in the bone remodeling process. By combining RNA-sequencing of single cells isolated by laser-capture microdissection with micro-finite element analysis and time-lapsed in vivo micro-CT, we will link the transcriptome of hundreds of single cells to their local mechanical in vivo environment (LivE). This will allow investigation of molecular responses of the cells to LivE changes with aging in established mouse models of bone adaptation and regeneration. Additionally, cellular and multiscale computational modeling will be used to run in silico simulations of real-world events for better understanding of diseases of aging in mice and to maximize the use of the high quality in vivo mechanomic data. Findings will lead to a systems level understanding of the spatio-temporal regulation of gene expression during the process of load-induced bone adaptation and regeneration in the aging mouse.

European Union/COST Action: "Genomics of musculoskeletal traits translational network" (Member Management Committee) The musculoskeletal system is a key element for healthy aging, being mobility a fundamental component of quality of life, health, and independence of aging individuals. The unprecedented amount of discoveries arising from genome-wide association studies (GWAS) have set a new era full of translational potential in the field of musculoskeletal biology. Coupled to the growing understanding of monogenetic disorders, the GWAS discoveries have set a roadmap characterizing the biological pathways underlying the musculoskeletal metabolism. The musculoskeletal field is now confronted with new biology arising in the form of novel factors clustering in known molecular pathways but also with novel factors whose role and function remains to be elucidated. Several opportunities to increase the amount of discoveries like the imminence of whole-genome sequencing efforts, the advent of a new generation of "very-low cost" GWAS arrays and the availability of very large mega GWAS studies like the UKBIOBANK are now in place. The challenge is now about bringing the knowledge arising from high-throughput analysis of increasingly available BIG DATA to a larger set of researchers, who can both contribute to 1) generating additional genetic discoveries and 2) setting the ground for their functional characterization in order to translate these genetic discoveries into meaningful clinical applications. To do this, GEMSTONE will be the mechanism to reach out to a wider range of researchers active in musculoskeletal biology, in order to fuel the production of discoveries and their biological relevance, which will allow their translation to treatments and new molecular definitions.

European Union/Marie Skłodowska-Curie Actions, Innovative Training Network: "Training network for research into bone fragility in diabetes in Europe - towards a personalised medicine approach" (Principal Investigator on Consortium Contract, Work Package Leader, Member Executive Board) Diabetes mellitus has emerged as a novel risk factor for fragility fractures. While in type 1 diabetes the 3-fold overall relative risk for fractures may mostly derive from low bone mineral density (BMD), in type 2 diabetes, the fracture risk is increased about 2-fold, despite a normal or even higher BMD. This suggests that bone fragility in each form of diabetes develops by distinct mechanisms that to date remain largely unknown and may require an individualized approach for effective treatment. As the diabetes epidemic is increasing worldwide with aging, and the fractures that are associated with diabetes cause an increase in morbidity, mortality, and healthcare costs, diabetes-induced osteoporosis imposes a significant burden on our society and our healthcare system. FIDELIO offers a comprehensive, multidisciplinary training program for Early Stage Researchers (ESRs) in this emerging field, unravelling i) the biological mechanisms that contribute to altered bone quality parameters with subsequent bone fragility in diabetes, ii) identify predictive markers for patient stratification and individualized interventions, and iii) develop novel imaging techniques to determine bone quality aspects. The research will employ well-defined patient cohorts, preclinical models of diabetic bone disease, in vitro studies, genetic

databases, artificial intelligence, and cutting-edge imaging technologies in a highly collaborative and interdisciplinary environment.

Swiss National Science Foundation: "Subtractive 3D micro-printing of functional osteocyte networks as novel in vitro bone models" (Principal Investigator) This project aims at developing 3D micro-printed living osteocyte networks as in vitro organoid models that resemble the functional and microstructural features of bone. By creating an in vitro 3D cell culture that more accurately mimics the native 3D microenvironments of osteocytes, researchers will be able to better understand the role of connectivity and cell-cell communication in osteocyte biology. As a result, this project will provide insights to bridge the gap between tissue engineering and bone biology. The project will employ a novel 3D micro-printing approach to reconstruct interconnected 3D osteocyte networks as an in vitro model of bone organoids for basic and translational research. After mixing human mesenchymal stem cells (hMSCs) with in situ gelling components, a cell-laden matrix is formed as a mimic of the extracellular matrix of bone cells. Using two-photon subtractive photolithography, this matrix is photocleaved locally to form LCN-mimicking physical microchannels in accordance with high-resolution imaging data of healthy LCNs. The hypothesis is that these microchannels will guide the cells to establish intercellular contacts and form 3D cellular networks with predictable morphologies and functions. The functional signatures of osteocytes within 3D micro-printed niches will be examined by state-of-the-art biochemical assays. Finally, this in vitro organoid model will be validated by testing the cellular responsiveness of living osteocytes to biochemical stimuli such as parathyroid hormone and biomechanical stimuli by perfusion culture.

Swiss National Science Foundation/COST Action: "Spatial genomics of musculoskeletal regeneration in a translational mouse model of premature aging" (Principal Investigator) The overall objectives of the proposed project are to develop a molecular-based spatio-temporal understanding of musculoskeletal mechanobiology during regeneration and to investigate how this mechano-sensitivity is compromised with age. Via a cross-disciplinary approach (micro-FE-based individualized femur defect loading model, time-lapsed in vivo micro-CT, spatial single cell transcriptomics of the callus and the surrounding muscle), the project aims (I) to link the transcriptome of single cells in the fracture callus and the surrounding muscle to their local mechanical in vivo environment (LivE), (II) to investigate molecular responses of single cells at the injury site to LivE changes with aging and (III) to achieve a systems level understanding of the spatio-temporal regulation of gene expression during the process of load-induced bone regeneration in the aging mouse. Detailed understanding of the spatio-temporal molecular mechanisms governing load-regulated bone regeneration will help to identify novel molecular therapeutic targets for age-related impaired fracture healing.

European Union/Marie Skłodowska-Curie Actions, Individual Fellowship: "Bone healing mechanomics in a mouse model of accelerated aging" (Coordinator) Delayed bone healing or failed non-unions account for 5 – 10% of all bone fractures and present a challenging problem in regenerative medicine. Bone healing is a mechano-sensitive process; thus, mechanical stimuli can either enhance or impair fracture healing. The molecular mechanisms underlying this phenomenon are complex and poorly understood. Consequently, clinical applications which harness this mechano-sensitivity to enhance healing are limited. It has also contributed to a lack of consensus on whether bone exhibits age-associated declines in mechano-sensitivity. With this in mind, this project aims at the development of a multi-scale, multi-disciplinary approach to develop a molecular-based understanding of bone healing mechanobiology and to investigate how this mechano-sensitivity is compromised with age. Using an established femur defect model in young and aged mice, the proposed approach will apply state-of-the-art techniques to spatially map: (i) the local mechanical environment, (ii) the molecular profiles of single cells, and (iii) the local tissue nanostructure within the fracture callus. Identification of the molecular mechanisms of mechanically-driven bone formation will drive the development of safe, targeted and individualized mechanical intervention therapies. Furthermore, insights into age-associated declines in mechano-sensitivity will better equip surgeons to optimize outcomes in compromised healing environments.

ETH Zürich, Competence Center for Materials and Processes (MaP): "ALIVE - Advanced Engineering with Living Materials" (Principal Investigator) The ALIVE Initiative aims at elucidating and applying the design principles of living systems as a basis for sustainable, intelligent, and resilient materials and technologies of the future. The approach encompasses the study of natural systems and the development of bio-hybrid or bio-mimetic synthetic systems bridging across scales, from the nano to the macro and structural scale. The primary foci are to develop a) hierarchical systems- where living aspects are integrated across length scales, and b) circular technologies- where the lifetimes of devices and their materials are synchronized. Shifting from a currently passive inanimate to a self-aware living environment requires a radical paradigm change. To impact society beyond the scientific forefronts, a collaborative team effort provides the breeding ground. The initiative brings together over 20 professorships from material science, engineering, biosystems science and possible impact areas such as architecture and health.

Swiss National Science Foundation/NRP 79: "Human organoid-on-chip: a novel experimental tool to replace animal models of rare bone disease" (Co-Investigator) In this project funded by the National Research Programme on "Advancing 3R – Research, Animals and Society", we propose to develop a human osteogenesis imperfecta OI-on-chip model by interfacing patient-derived bone organoids with microfluidic perfusion culture. By embedding patient-derived bone cells within a macroporous hydrogel, personalized bone organoids are formed through in vitro osteocytic differentiation under microfluidic stimulation. Our preliminary data has demonstrated the feasibility of on-chip

generation of human bone organoids in a macroporous polyethylene glycol (PEG) hydrogel. The architecture and full biodegradability of this matrix allows cells to form a 3D network with ease and reconstructs an osteoid-like environment containing mineralized collagen. We hypothesize that microfluidic generation of patient-derived bone organoids in a synthetic environment offers a powerful tool to dissect the mechanisms of developmental dysregulation in OI in vitro for replacing animal models. This hypothesis will be tested in four specific aims that will: 1) establish OI organoids comprising a 3D bone-cell-network from patient-derived osteoblasts in PEG hydrogels; 2) study the structural and physical changes in the extracellular matrix in OI organoids and age-matched controls by second-harmonic imaging and mechanical testing; 3) examine flow-induced mechanotransduction in OI and healthy organoids using Ca²⁺ imaging and biochemical assays; 4) validate this in vitro organoid-on-chip model through verification of cellular and transcriptional responses to the treatment with clinically relevant drugs.

Swiss National Science Foundation/Sinergia: "Sustained local ionic homeostatic imbalance to trigger ectopic bone formation and boost orthotopic bone formation" (Applicant) Being able to trigger bone formation in a spatially controlled manner in an ectopic (soft tissue) site is considered to be a prerequisite to heal large bone defects. This property called "osteinduction" can be achieved by various surgical and pharmaceutical means. Certain materials have been shown to induce bone formation within their pores after implantation in soft tissues, which is the demonstration of an osteoinductive potential. Unfortunately, this osteoinductive potency is limited and the underlying mechanism is still debated. As these materials were shown to mineralize prior to ossification, it was recently proposed that the local consumption of calcium and phosphate levels during calcification may provoke a local decrease of extracellular calcium concentration, and that this local decrease modulates inflammation following the bone graft substitutes (BGS) implantation to trigger an osteoinductive response. It was also proposed that this mechanism is involved in heterotopic ossification (HO), a very common and sometimes highly debilitating pathology characterized by the formation of mature bone in soft tissues. The first goal of the project is to demonstrate experimentally that a local decrease of the extracellular calcium concentration is critical to the formation of bone in soft tissues. The second goal is to exploit this knowledge to boost the bone forming ability of cell-free, drug-free calcium phosphate BGS. We want to achieve this by controlling the mineralization rate / the uptake of ions by BGS.

Australian Research Council/Discovery Projects: "Replicating the cartilage micromechanical environment" (Co-Investigator) Through a novel, image-guided mechanical evaluation of cell- and tissue-level remodelling, this project aims to unlock new insights into the complex mechanical microenvironment of cartilage and directly influence new strategies in tissue engineering. The research will reveal contributions of cells and extracellular matrix components to mechanical integrity over time. It will build a world-first strain map of the cartilage microenvironment and quantification of dynamic structural remodelling that occurs, providing key targets to improve tissue engineering strategies. The project will also drive innovation in micromechanical testing technology, deliver functional solutions in mechanobiology and advance materials for biological integration.

D. Report of Teaching

a. Lectures and Courses

- 1990 - 1995 Teaching Assistant, "Biomedical Engineering I&II" (35-388), Department of Electrical Engineering, ETH Zürich, Switzerland, 40 graduate students, 20 hours of teaching every year
- 1995 - 2011 Lecturer, "Computers in Medicine" (402-0962-00), Department of Physics, ETH Zürich, Switzerland, 20 post-graduate students, 80 hours of teaching every two years
- 1998 - 1999 Co-Moderator, "Imaging Seminar" (HST-590), Harvard/M.I.T. Division of Health Sciences and Technology (HST), Boston, 20 graduate students, 20 hours of teaching yearly
- 1998 - 2000 Speaker, "Tutorial in Medical Engineering and Medical Physics" (HST-595), Harvard/M.I.T. Division of Health Sciences and Technology (HST), Boston, 20 graduate students, 2 hours of teaching yearly
- 2000 - 2004 Lecturer, "Introduction to the Major in Biomedical Engineering" (151-0991-00), Department of Mechanical and Process Engineering, ETH Zürich, Switzerland, 30 undergraduate students, 10 hours of teaching yearly
- 2000 - 2006 Visiting Lecturer, "Special Topics in Biomedical Engineering: Orthopedic Biomechanics (219r)", Division of Engineering and Applied Sciences, Harvard University, Boston, USA, 10 graduate students, 4 hours yearly
- 2001 - 2008 Co-Organizer, "Current Research in Biomedical Engineering" (227-0970-00), Colloquium, Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 40 participants, 2 hours weekly
- 2001 - 2015 Supervisor, "Medical Physics" (402-0340-00), Thesis Program, Department of Physics, ETH Zürich, Switzerland
- 2001 - 2017 Lecturer, "Introduction to Biomedical Engineering I" (376-0021-00), Departments of Health Sciences and Technology, Mechanical and Process Engineering, and Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 250 undergraduate students, 20 hours of teaching yearly
- 2005 - 2006 Lecturer, "Quantitative Methods in Biomedicine" (151-0978-00), Department of Mechanical and Process

- 2006 - 2010 Engineering, ETH Zürich, Switzerland, 15 undergraduate students, 20 hours of teaching yearly
Lecturer, "Biomedical Engineering B" (227-0386-00), Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 50 graduate students, 3 hours of teaching yearly
- 2007 - 2008 Lecturer, "Micro and Nano-Tomography of Biological Tissues" (227-0965-00), Department of Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 15 students, 20 hours of teaching yearly
- 2007 - 2017 Lecturer, "Introduction to Biomedical Engineering II" (376-0022-00), Departments of Health Sciences and Technology, Mechanical and Process Engineering, and Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 200 undergraduate students, 20 hours of teaching yearly
- 2010 - 2018 Lecturer, "Zurich Summer School on Biomedical Imaging" (227-0396-00), Departments of Biology, Physics, and Information Technology and Electrical Engineering, ETH Zürich and University of Zürich, Switzerland, 50 graduate students, 1 hour of teaching yearly
- 2011 Lecturer, "Introduction to Health Sciences and Technology I" (376-0003-00), Department of Health Sciences and Technology, ETH Zürich, Switzerland, 160 undergraduate students, 4 hours of teaching
- 2016 Visiting Lecturer, "Orthopedic Biomechanics" (MECENG C176), Department of Mechanical Engineering, UC Berkeley, USA, 75 undergraduate and graduate students, 2 hours
- 2016 Visiting Lecturer, "Biomechanics: Analysis and Design" (BIOENG 102), Department of Bioengineering, UC Berkeley, USA, 70 undergraduate and graduate students, 2 hours
- 2001 - Lecturer, "Orthopaedic Biomechanics" (376-1397-00), Departments of Health Sciences and Technology, Mechanical and Process Engineering, and Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 50 graduate students, 20 hours of teaching yearly
- 2012 - Co-Organizer, "Colloquium in Biomechanics" (376-1974-00), Departments of Health Sciences and Technology, Mechanical and Process Engineering, and Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 80 participants, 2 hours weekly
- 2013 - Lecturer, Advanced School "Bone Cell and Tissue Mechanics", CISM, International Centre for Mechanical Sciences, Udine, Italy, 30 graduate students and postdocs, 10 hours of teaching in one week every two years
- 2017 - Lecturer, "Multiscale Bone Biomechanics" (376-0021-00), Departments of Health Sciences and Technology, Mechanical and Process Engineering, and Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 25 graduate students, 50 hours of teaching yearly
- 2018 - Lecturer, "Imaging and Computing in Medicine" (376-0021-00), Departments of Health Sciences and Technology, Mechanical and Process Engineering, and Information Technology and Electrical Engineering, ETH Zürich, Switzerland, 140 undergraduate students, 20 hours of teaching yearly

b. Advisory and Supervisory Responsibility

Lecturers

- 2004 - 2007 Harry van Lenthe, Ph.D., "Orthopaedic Bioengineering", "Orthopaedic Biomechanics"
- 2005 - 2008 Alfredo Franco-Obregón, Ph.D., "Molecular and Cell Biology for Engineers"
- 2005 - 2014 Jörg Goldhahn, M.D., "Bone Biology and Consequences for Human Health"
- 2007 - 2010 Martin Stauber, Ph.D., "Computers in Medicine"
- 2007 - 2008 Marco Stambanoni, Ph.D., "Micro- and Nano-Tomography of Biological Tissues"
- 2008 - 2013 Philipp Schneider, Ph.D., "Micro- and Nano-Tomography of Biological Tissues"
- 2008 - 2016 Kathryn S. Stok, Ph.D., "Orthopaedic Biomechanics"
- 2009 - 2013 Davide Ruffoni, Ph.D., "Biomechanics I"
- 2009 - Gisela Kuhn, V.M.D., "Bone Biology and Consequences for Human Health"
- 2011 - 2016 Sandra Hofmann, Ph.D., "Bionics and Medical Implants"
- 2015 - 2020 Patrik Christen, Ph.D., "Introduction to Biomedical Engineering", "Orthopaedic Biomechanics"
- 2017 - 2020 Marina Rubert, Ph.D., "Development Strategies for Medical Implants"
- 2019 - 2020 Duncan Tourolle, Ph.D., "Multiscale Bone Biomechanics"
- 2019 - Esther Wehrle, V.M.D., Ph.D., "Bone Biology and Consequences for Human Health"
- 2020 - Xiao-Hua Qin, Ph.D., "Multiscale Bone Biomechanics"
- 2020 - 2022 Caitlyn Collins, Ph.D., "Imaging and Computing in Medicine"
- 2021 - Neashan Mathavan, Ph.D., "Development Strategies for Medical Implants"

Fellows

- 1997 - 1998 David C. Carrington, M.D., "3D micro-CT of infection-stimulated infraosseous bone resorption"
- 1999 - 2000 Toru Uchiyama, M.D., Ph.D., "Quantitative endpoints in murine models of bone architecture"
- 2000 - 2002 Dietrich von Stechow, M.D., "Anabolic and catabolic bone action in murine model of osteoporosis"
- 2001 - 2002 Steven K. Boyd, Ph.D., "Image-guided assessment of micro-structural failure mechanisms"
- 2002 - 2004 G. Harry van Lenthe, Ph.D., "Designed scaffold architecture affects bone regeneration"
- 2003 - 2007 Marco Stambanoni, Ph.D., "Micro- and nano-tomography at the Swiss Light Source"

2004 - 2006 Jess Snedeker, Ph.D., "Adult mesenchymal stem cell engineering for tendon repair"
 2005 - 2006 Martin Stauber, Ph.D., "Computational modeling of nanoscale imaging"
 2007 - 2008 Philipp Schneider, Ph.D., "Genetic control of bone structure function"
 2007 - 2010 Thomas Kohler, Ph.D., "Characterization and quality control for bone scaffold engineering"
 2007 - 2009 Gisela Kuhn, V.M.D., "Vascular imaging in animal models of human disease"
 2007 - 2010 Sandra Hofmann, Ph.D., "Bone tissue engineering using porous scaffolds"
 2008 - 2009 Davide Ruffoni, Ph.D., "Computational mechanics of bone-implant failure"
 2008 - 2013 Duncan J. Webster, Ph.D., "Tissue and cell level modeling in osteoporosis"
 2009 - 2010 Ming K. Chang, Ph.D., "Roles of macrophages in load-induced bone adaptation"
 2010 - 2012 Thomas L. Mueller, Ph.D., "Visualization and simulation of implant failure in osteoporotic bone"
 2011 - 2013 Friederike Schulte, Ph.D., "Monitoring dynamic morphometry in fracture healing in vivo"
 2014 - 2016 Carly Taylor, Ph.D., "3D protein expression of osteocytes in aged mice"
 2014 - 2016 Marina Rubert, Ph.D., "3D tissue-engineered model of bone adaptation and regeneration"
 2014 - 2016 Patrik Christen, Ph.D., "In vivo mechanoregulation of fracture healing in human bone"
 2014 - 2019 Esther Wehrle, V.M.D., Ph.D., "Mechanomolecular regulation of in vivo fracture healing"
 2015 - 2016 Zihui Li, Ph.D., "Effects of loading, disease and treatment on osteocyte number and shape"
 2016 - 2017 Jing Zhou, Ph.D., "Evaluation of hydrogels for osteocyte lacuna-canalicular network formation"
 2017 - 2018 Angad Malhotra, Ph.D., "Enhanced bone revascularization"
 2018 - 2020 Penny Atkins, Ph.D., "Shape-based trabecular morphometrics in localized fracture healing"
 2018 - 2019 Xiao-Hua Qin, Ph.D., "Biomimetic 3D laser microprinting of functional bone models"
 2018 - 2019 Dana Akilbekova, Ph.D., "3D bioprinting of human organotypic bone fracture model"
 2018 - 2020 Caitlyn Collins, Ph.D., "In silico model of in vivo human bone fracture healing"
 2019 - 2020 Kensuke Kataoka, Ph.D., "In vivo single-cell bone mechanomics in the aging mouse"
 2020 - 2021 Neashan Mathavan, Ph.D., "Spatial genomics of musculoskeletal regeneration in aging"
 2021 - 2023 Danielle Whittier, Ph.D., "Disease-specific computational modeling in type 1 diabetes"
 2021 - Gian Nutal Schädli, Ph.D., "Personalized bone organoid diagnostic framework in rare bone diseases"
 2021 - Yogesh D. Bansod, Ph.D., "Agent-based modeling of bone adaptation and regeneration"
 2021 - Chris Steffi, Ph.D., "Volumetric bioprinting of a 3D heterocellular human bone organoid"
 2022 - Amit Singh, Ph.D., "Spatial mechanomics of bone adaptation and regeneration"
 2022 - Friederike Schulte, Ph.D., "Bone mechanoregulation in health, disease and treatment"
 2023 - Stefanie Wissmann, Ph.D., "Multiphoton intravital imaging of heterotopic ossification"

Research Staff/Intern Trainees

2003 - 2004 Rhiannon Evison, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2004 - 2005 Josh Klinck, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2005 - 2006 Jacqueline Lim, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2005 - 2006 Philip Morley, B.S., The University of Vancouver, IAESTE Student Exchange Program, 12 month trainee
 2006 - 2007 Sean Gifford, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2007 - 2008 Kristen Jorgenson, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2008 - 2009 Maureen Saunders, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2008 - 2010 Alina Levchuk, B.S., The City College of New York, Whitaker International Fellowship, 18 month trainee
 2009 - 2010 Kathleen Koch, B.S., Yale University, Whitaker International Fellowship, 12 month trainee
 2009 - 2010 Olivia Norton, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2009 - 2010 Rachel Sondergaard, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2009 - 2010 Izoldi Maria Kammenou, M.S., National Technical University of Athens, Research Assistant
 2009 - 2012 Iliaria Chiapparini, M.S., Politecnico di Milano, Research Assistant
 2010 - 2011 Colin Firminger, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2011 - 2012 Thomas Steiner, M.S., The University of Bern, Research Assistant
 2011 - 2012 Ryan Choo, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2011 - 2012 Marie Godla, B.S., Harvey Mudd College, Whitaker International Fellowship, 12 month trainee
 2011 - 2011 Stephanie Ting, M.S., University of Tokyo, Doctoral Exchange Program, 3 month trainee
 2011 - 2012 Sophie Borleffs, B.S., Delft University of Technology, University Traineeship Program, 4 month trainee
 2011 - 2012 Pauline Roels, B.S., Delft University of Technology, University Traineeship Program, 4 month trainee
 2011 - 2014 Marcella von Salis-Soglio, Dr. med. vet., University of Zürich, Staff Research Assistant
 2012 - 2013 Ana Villarreal, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2012 - 2013 Samantha Paulsen, B.S., University of Wisconsin, Madison, Whitaker International Fellowship, 12 month trainee
 2012 - 2013 Robin Wilson, B.S., Case Western Reserve University, Whitaker International Fellowship, 12 month trainee
 2013 - 2014 Duncan Pawson, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2013 - 2014 Scott Stanger, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
 2013 - 2014 Steve Ho, Ph.D. student, University of California, Davis, B.S., University of Michigan, Ann Arbor, Whitaker International Fellowship, 11 month trainee

2013 - 2014 Maria Skoura, M.S., Aristotle University of Thessaloniki, Student Internship, 4 month trainee
2013 - 2014 Rowen Softley, B.S., The University of Surrey, Student Internship, 4 month trainee
2013 - 2014 Bryce Besler, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2014 - 2014 Ramin Oftadeh, Ph.D. student, Northeastern University, Whitaker International Fellowship, 2 month trainee
2014 - 2015 Elliott Goff, B.S., University of Missouri-Kansas City, Whitaker International Fellowship, 18 month trainee
2014 - 2016 Iina Lehtoviita, M.S., Tampere University of Technology, Staff Research Assistant
2014 - 2015 Lukas Storz, B.S., ETH Zürich, Student Internship, 8 month trainee
2015 - 2016 Erica Floreani, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2015 - 2016 Mariya Shtil, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2016 - 2018 Jolanda Baumgartner, Ph.D., M.S., ETH Zürich, Staff Research Associate
2016 - 2017 Ryan Plett, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2016 - 2017 Felix Crazz, B.S., Delft University of Technology, University Traineeship Program, 6 month trainee
2016 - 2017 Aksel Gudde, B.S., Delft University of Technology, University Traineeship Program, 6 month trainee
2016 - 2017 Vittoria Storni, M.S., ETH Zürich, Staff Research Assistant
2017 - 2018 Gianna Marano, M.S., ETH Zürich, Staff Research Assistant
2017 - 2018 Stephanie Sebastian, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2018 - 2019 Carmen Eskesen, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2018 - 2019 Christopher O'Neil, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2018 Suzanne Wermink, B.S., Delft University of Technology, University Traineeship Program, 3 month trainee
2018 Freek van der Heijden, B.S., Eindhoven University of Technology, University Traineeship Program, 3 month trainee
2019 Charlotte Roth, B.S. Biosciences, ETH Zürich, Staff Research Assistant
2019 - 2020 Bryant Schroeder, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2019 Arthur van Kootwijk, B.S., Delft University of Technology, University Traineeship Program, 4 month trainee
2020 Sebastien Callens, Ph.D. student, Delft University of Technology, IDEA League Fellowship, 3 month trainee
2020 - 2021 Hui Liu, M.S. Biomedical Engineering, Guangxi Medical University, Staff Research Assistant
2021 Frederik Trommer, M.S., The University of Sheffield, INSIGNEO Travel Award, 4 month trainee
2021 Sebastian Zanner, Ph.D. student, University of Southern Denmark, ITN Secondment, 3 month trainee
2021 - 2022 Cael McLennan, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee
2022 Abhay Khosla, B.S., The University of Calgary, Engineering Internship Program, 8 month trainee
2022 Lejla Emini, Ph.D. student, Dresden University of Technology, ITN Secondment, 2 month trainee
2023 - 2024 Yna Arpon, B.S., The University of Calgary, Engineering Internship Program, 12 month trainee

Doctorate Theses (Examiner)

1. Martin Stauber, Dr. sc., 2005, ETH Zürich, "Volumetric spatial decomposition of porous microstructures - a framework for element based analysis of trabecular bone", Examiner (Referent)
2. Thomas Kohler, Dr. sc., 2007, ETH Zürich, "A service-oriented platform for visualization and high-throughput structural characterization in bone phenomics", Examiner (Referent)
3. Stefan Heinzer, Dr. sc., 2007, ETH Zürich, "Hierarchical 3D imaging and quantification of brain microvasculature in a mouse model for Alzheimer's disease", Examiner (Referent)
4. Kathryn Stok, Dr. sc., 2007, ETH Zürich, "Biological quantification of murine osteoarticular joints following treatment using stem cell-based gene therapy", Examiner (Referent)
5. Philipp Schneider, Dr. sc., 2007, ETH Zürich, "Ultrastructural phenotyping of murine bone using synchrotron micro- and nano-computed tomography", Examiner (Referent)
6. Romain Voide, Dr. sc., 2007, ETH Zürich, "Functional phenotyping of bone: a hierarchical assessment of bone failure characteristics", Examiner (Referent)
7. Ara Nazarian, Dr. sc., 2008, ETH Zürich, "Relative interaction of material and structure in normal and pathologic bone", Examiner (Referent)
8. Duncan Webster, Dr. sc., 2008, ETH Zürich, "A combined experimental and computational model for genetic control of micro structural bone adaptation", Examiner (Referent)
9. Henri Hagenmüller, Dr. sc., 2008, ETH Zürich, "Combining micro-computed tomography monitoring and mechanical loading in bone tissue engineering", Examiner (Referent)
10. Tom L. Mueller, Dr. sc., 2009, ETH Zürich, "Bioimaging and biomechanics of bone competence and implant stability", Examiner (Referent)
11. Elad Wasserman, Dr. sc., 2010, ETH Zürich, "Differentially load-regulated gene expression in mouse trabecular osteocytes", Examiner (Referent)
12. Benjamin Thimm, Dr. sc., 2010, ETH Zürich, "The importance of multi-modality imaging for the assessment of combined bone and vascular tissue engineering", Examiner (Referent)

13. Andreas Wirth, Dr. sc., 2011, ETH Zürich, "Assessment of implant stability in low quality bone by micro-structural finite element analysis", Examiner (Referent)
14. Friederike Schulte, Dr. sc., 2011, ETH Zürich, "In silico bone biology in a murine model of bone adaptation", Examiner (Referent)
15. Floor Lambers, Dr. sc., 2011, ETH Zürich, "Functional bone imaging in an in vivo mouse model of bone adaptation, aging and disease", Examiner (Referent)
16. Josep Solà i Carós, Dr. sc., 2011, ETH Zürich, "Continuous non-invasive blood pressure estimation", Examiner (Referent)
17. Umberto Emanuele, Dr. sc., 2012, ETH Zürich, "A comprehensive mechano-physiological cycling model", Examiner (Referent)
18. Samuel Basler, Dr. sc., 2012, ETH Zürich, "Towards a biomechanical understanding of implant stability using functional bioimaging and computational modeling", Examiner (Referent)
19. David Christen, Dr. sc., 2012, ETH Zürich, "Nonlinear failure prediction in human bone - a clinical approach based on high resolution imaging", Examiner (Referent)
20. Laura Nebuloni, Dr. sc., 2013, ETH Zürich, "Monitoring of angiogenesis in applications of tissue engineering through time-lapsed imaging of the microvascular network", Examiner (Referent)
21. André Butscher, Dr. sc., 2013, ETH Zürich, "Powder based three-dimensional printing of calcium phosphate structures for scaffold engineering", Examiner (Referent)
22. Silke Wüst, Dr. sc., 2013, ETH Zürich, "3D bioprinting of multicellular skeletal tissues", Examiner (Referent)
23. Tatiana Benavides Damm, Dr. sc., 2014, ETH Zürich, "Ground-based study of gravitational forces acting on muscle cells", Examiner (Referent)
24. Roberto Carretta, Dr. sc., 2014, ETH Zürich, "Post-yield mechanics of single trabeculae - a combined experimental and computational approach", Examiner (Referent)
25. Luc Nimeskern, Dr. sc., 2014, ETH Zürich, "Functional characterization of auricular cartilage in tissue engineering and regenerative medicine", Examiner (Referent)
26. Andreas Trüssel, Dr. sc., 2015, ETH Zürich, "Spatial mapping and high throughput microfluidic gene expression analysis of osteocytes in mechanically controlled bone remodeling", Examiner (Referent)
27. Alexander Zwahlen, Dr. sc., 2015, ETH Zürich, "Combined experimental and computational multiscale failure assessment in human trabecular bone", Examiner (Referent)
28. Alina Levchuk, Dr. sc., 2015, ETH Zürich, "In silico investigation of bone adaptation in health and disease", Examiner (Referent)
29. Sandro Badilatti, Dr. sc., 2015, ETH Zürich, "Large-scale simulations of load-adaptive bone remodeling in human vertebrae from native osteoporotic to augmented bone", Examiner (Referent)
30. Jolanda Vetsch, Dr. sc., 2015, ETH Zürich, "Perfusion bioreactors for bone tissue engineering - a combined experimental and computational approach", Examiner (Referent)
31. Marios Georgiadis, Dr. sc., 2015, ETH Zürich, "Imaging framework to assess bone ultrastructure organization", Examiner (Referent)
32. Zihui Li, Dr. sc., 2015, ETH Zürich, "Time-lapsed in vivo bone response to implantation in a mouse model of disease and treatment", Examiner (Referent)
33. Michele Casanova, Dr. sc., 2016, ETH Zürich, "Quantitative phenotyping of bone fracture repair", Examiner (Referent)
34. Duncan Betts, Dr. sc., 2019, ETH Zürich, "A micro-scale multi-physics framework for fracture healing and bone remodelling", Examiner (Referent)
35. Ariane Scheuren, Dr. sc., 2020, ETH Zürich, "Longitudinal assessment of frailty and osteosarcopenia in an in vivo model of premature aging", Examiner (Referent)
36. Jianhua Zhan, Dr. sc., 2020, ETH Zürich, "3D bioprinting of functional human bone tissues", Examiner (Referent)
37. Felicitas Flohr, Dr. sc., 2020, ETH Zürich, "A biomimetic 3D in vitro osteocyte model using micro 3D printed lacuno-canalicular networks (μ LCNs)", Examiner (Referent)
38. Graeme Paul, Dr. sc., 2020, ETH Zürich, "Individualised multiscale mechanoregulation of fracture healing in mice", Examiner (Referent)
39. Nicholas Ohs, Dr. sc., 2020, ETH Zürich, "A computational framework for the longitudinal assessment of mechanoregulation of fracture healing", Examiner (Referent)
40. Gian Schädli, Dr. sc., 2021, ETH Zürich, "A framework for time-lapsed micro-CT imaging of nanocomposite scaffolds in dynamic compression bioreactors", Examiner (Referent)
41. Elliott Goff, Dr. sc., 2022, ETH Zürich, "Osteocyte lacunar biomarkers in human rare bone diseases", Examiner (Referent)
42. Daniele Boaretti, Dr. sc., 2023, ETH Zürich, "A micro-multiphysics in silico model for single-cell mechanics of bone in the aging mouse, Examiner (Referent)
43. Matthias Walle, Dr. sc., 2023, ETH Zürich, "Mechanoregulation of bone remodelling in diabetes mellitus using HR-pQCT patient data in vivo", Examiner (Referent)
44. Julia Griesbach, Dr. sc., 2023, ETH Zürich, "A personalized in silico model for treatment prediction in osteogenesis imperfecta bone organoids", Examiner (Referent)

45. Anke de Leeuw, Dr. sc., 2023, ETH Zürich, "Three-dimensional bioprinting of functional osteogenesis imperfecta bone organoids for personalized medicine", Examiner (Referent)
46. Dilara Yilmaz, Dr. sc., 2023, ETH Zürich, "CRISPR/Cas mediated prematurely aged fluorescent reporter mice to characterize in vivo single cell mechanomics of osteoblasts and osteoclasts", Examiner (Referent)
47. Christian Gehre, Dr. sc., 2024, ETH Zürich, "Microprinting of biomimetic 3D osteocyte networks to model bone mechanotransduction", Examiner (Referent)
48. Francisco Correia Marques, Dr. sc., 2024, ETH Zürich, "A computational pipeline to investigate spatial mechanomics during in vivo bone adaptation and regeneration", Examiner (Referent)
49. Charles Ledoux, Dr. sc., 2024, ETH Zürich, "A personalized micro-multiphysics agent-based model to predict bone treatment effects in high fracture risk patients", Examiner (Referent)
50. Wanwan Qiu, Dr. sc., 2024, ETH Zürich, "Advanced hydrogels for multiscale 3D photofabrication of bone organoids", Examiner (Referent)
51. Jack Kendall, Dr. sc., 2025, ETH Zürich, "In silico micro-multiphysics agent-based modelling of bone regeneration and mechanotherapy in the prematurely ageing mouse", Examiner (Referent)
52. Doris Zauchner, Dr. sc., 2025, ETH Zürich, "Osteogenesis-imperfecta-on-a-chip: an experimental tool to study matrix defects in brittle bone disease", Examiner (Referent)
53. Margherita Bernero, Dr. sc., 2026, ETH Zürich, "Engineering viscoelastic hydrogels for dynamic bone tissue culture towards an actuated joint-on-chip model", Examiner (Referent)
54. Marion Horrer, Dr. sc., 2026, ETH Zürich, "Molecular and cellular responses to mechanical and molecular interventions in healthy and osteogenesis imperfecta bone-on-a-chip models", Examiner (Referent)
55. Farida Elharouni, Dr. sc., 2027, ETH Zürich, "TBD", Examiner (Referent)
56. Nico Giger, Dr. sc., 2027, ETH Zürich, "TBD", Examiner (Referent)
57. Sara Lindenmann, Dr. sc., 2027, ETH Zürich, "TBD", Examiner (Referent)

Doctorate Theses (Co-examiner, External Examiner)

1. Dieter Ulrich, Dr. sc. techn., 1999, ETH Zürich, "Evaluation of the mechanical properties of bone with consideration of its microarchitecture", Co-examiner (Korreferent)
2. Steven K. Boyd, Ph.D., 2001, The University of Calgary, "Bone microstructure in knee OA", External Examiner
3. Christian Stöcklin, Dr. sc. techn., 2001, ETH Zürich, "Morphometric characterization of biological structures", Co-examiner (Korreferent)
4. Philipp Thurner, Dr. sc. nat., 2004, ETH Zürich, "Novel staining techniques for imaging of cellular and extracellular matter using synchrotron radiation based micro-tomography", Thesis Advisor, Co-examiner (Korreferent)
5. George Raeber, Dr. sc. nat., 2004, ETH Zürich, "Cell migration in molecular engineered synthetic PEG hydrogels", Co-examiner (Korreferent)
6. Iordanis Chatziprodromou, Dr. sc. techn., 2005, ETH Zürich, "CFD for a biomechanical model of cerebral aneurysms", Co-examiner (Korreferent)
7. Eelco Verhulp, dr.ir., 2006, Eindhoven University of Technology, "Analysis of trabecular bone failure", External Examiner
8. Beat Schäffer, Dr. sc., 2007, ETH Zürich, "Compaction of restored soil by heavy agricultural machinery", Co-examiner (Korreferent)
9. Yankel Gabet, D.M.D, Ph.D., 2008, Hebrew University of Jerusalem, "Enhancement of early osseointegration of orthopaedic and dental titanium implants", External Examiner
10. Lutz-Christian Gerhardt, Dr. sc., 2008, ETH Zürich, "Tribology of human skin in contact with textiles for decubitus prevention", Co-examiner (Korreferent)
11. Fabian Anderegg, Dr. sc., 2011, ETH Zürich, "Osteoclasts cultured on micro-patterned surfaces: dynamics and architecture of the adhesion-cytoskeleton complex", Co-examiner (Korreferent)
12. Elbert Baas, Ph.D., 2011, Keele University, "In vitro bone regeneration and micro-mechanical strain in scaffolds", External Examiner
13. Giuseppe Barbarino, Dr. sc., 2011, ETH Zürich, "Modeling the mechanical behavior of the face", Co-examiner (Korreferent)
14. Samuela Rigozzi, Dr. sc., 2011, ETH Zürich, "Structure and function in tendon: experimental studies on the ultrastructural determinants of tendon biomechanical function", Co-examiner (Korreferent)
15. Alireza Roshan-Ghias, Ph.D., 2011, EPFL, "Biomechanical aspects of osteogenesis in load-bearing tissue engineering scaffolds: in vivo experiment, mathematical model and clinical considerations", External Examiner
16. Cyril Flaig, Dr. sc., 2012, ETH Zürich, "A highly scalable memory efficient multigrid solver for μ -finite element analyses", Co-examiner (Korreferent)
17. Patrik Christen, dr. ir., 2013, Eindhoven University of Technology, "Deciphering the secret message within bone microstructure", External Examiner

18. Kevin S. Mader, Dr. sc., 2013, ETH Zürich, "High-throughput, synchrotron based tomographic microscopy tools for the quantitative characterization of complex structures: a bone and foam study", Co-examiner (Korreferent)
19. Claudia Weigt, Dr. met. vet., 2013, University of Zürich, "Interaction of mechanical loading with osteoporosis treatment in ovariectomized mice", Thesis Advisor, Co-examiner (Korreferent)
20. Gion Fessel, Dr. sc., 2014, ETH Zürich, "Investigating the mechanical repercussions of collagen cross-links in tendon aging, disease and as potential treatment for injuries", Co-examiner (Korreferent)
21. Roland Zemp, Dr. sc., 2015, ETH Zürich, "The human being in the office environment from a biomechanical point of view", Co-examiner (Korreferent)
22. Felix Kurth, Dr. sc., 2015, ETH Zürich, "A world-to-chip strategy for the analysis of *in vivo* stimulated cells", Co-examiner (Korreferent)
23. Anna Woloszyk, Ph.D., 2016, University of Zürich, "The potential of dental stem cells in regenerative medicine", Co-examiner (Korreferent), Chair Thesis Committee
24. Maria Lourdes Muerza Cascante, Ph.D., 2016, Queensland University of Technology, "Engineering an *in vitro* model of the haematopoietic stem cell niche", External Examiner
25. Marta Peña Fernández, Ph.D., 2018, University of Portsmouth, "X-ray biomechanical imaging and digital volume correlation of bone: from regeneration to structure", External Examiner
26. Martin Frank, Ph.D., 2021, TU Wien, "Mechanical characterization of individual trabeculae", External Examiner
27. Tatiana Kochetkova, Ph.D., 2023, University of Bern, "Quantifying bone extracellular matrix properties for improved clinical fracture risk prediction", External Co-referee

Graduate Theses

1. Tor Hildebrand, Dipl. El.-Ing. ETH, 1992, ETH Zürich, "Marching Cubes: Ein Algorithmus zur Glättung von 3D-Knochenstrukturen"
2. Jan Hohe, Dipl. El.-Ing., 1998, Technical University of Karlsruhe, "Dynamic visualization and animation of the micro-biomechanics of bone"
3. Sonia Mezzour, Dipl. Masch.-Ing. ETH, 1999, ETH Zürich, "Microfabricated structure models for micro-tomographic imaging"
4. Drazen Jarak, Dipl. El.-Ing. ETH, 1999, ETH Zürich, "Computation of local displacement vectors in bone microstructures under load I"
5. Tobias Bösch, Dipl. El.-Ing. ETH, 1999, ETH Zürich, "Computation of local displacement vectors in bone microstructures under load II"
6. Ara Nazarian, M.S., 2001, Boston University (BU), "Image-guided micro-compression: A novel technique for the nondestructive assessment of local bone failure"
7. Martin Huber, Dipl. Masch.-Ing. ETH, 2001, ETH Zürich, "Finite Elemente Modellierung und Validierung experimenteller Dehnungsberechnungen"
8. René Beutler, Dipl. Inf.-Ing. ETH, 2002, ETH Zürich, "3D Kompressionsschema für interaktive Visualisierung sehr grosser Volumendaten"
9. Laurent Rapillard, Dipl. Mech.-Ing. EPF, 2002, Swiss Federal Institute of Technology Lausanne (EPFL), "Augmentation of human vertebral trabecular bone using a new biopolymer"
10. Stanislav Puncer, Dipl. Masch.-Ing. ETH, 2003, ETH Zürich, "Entwicklung eines webbasierten Mikrotomographie Projektmanagement- und Evaluationstools"
11. Lukas Giger, Dipl. Masch.-Ing. ETH, 2003, ETH Zürich, "Topologische Bildanalyse von mutierten Mausköpfen"
12. Romain Voide, Dipl. Masch.-Ing. ETH, 2003, ETH Zürich, "Device for controlled compressive and shear deformation of cartilage in the rabbit elbow model"
13. Diego Meier, Dipl. Masch.-Ing. ETH, 2004, ETH Zürich, "Image-guided torsional testing of rat femurs with distal defects"
14. Thomas Krähenbühl, Dipl. Masch.-Ing. ETH, 2004, ETH Zürich, "Stem cell based tissue engineering of bone and cartilage implants"
15. Corinne Mattmann, Dipl. El.-Ing. ETH, 2004, ETH Zürich, "Site-specific measurement of micro-structural bone adaptation and prediction of adapting bone architecture I"
16. Andreas Kuhn, Dipl. El.-Ing. ETH, 2004, ETH Zürich, "Site-specific measurement of micro-structural bone adaptation and prediction of adapting bone architecture II"
17. Henri Hagenmüller, Dipl. Masch.-Ing. ETH, 2004, ETH Zürich, "The effect of endplate disruption on solute transport patterns within the intervertebral disc"
18. Etienne Auger, Dipl. El.-Ing. ETH, 2004, ETH Zürich, "Development of an imaging module for spatial characterisation of water transport within intervertebral discs"
19. Michael Bauernschmitt, Dipl. Masch.-Ing. ETH, 2004, ETH Zürich, "Development of a sample revolver for micro-computed tomography I"
20. Tom L. Mueller, Dipl. Masch.-Ing. ETH, 2004, ETH Zürich, "Development of a sample revolver for micro-computed tomography II"

21. Martin Renggli, Dipl. Masch.-Ing. ETH, 2004, ETH Zürich, "Microstructural FE modeling of glass fiber composites"
22. Silvio Hochreutener, Dipl. Masch.-Ing. ETH, 2004, ETH Zürich, "Correction of metal-related artifacts in μ CT images"
23. Gisela Kuhn, Dipl. NDS Med. Phys. ETH, 2004, ETH Zürich, "Implementierung und Verifikation eines Algorithmus zur Erzeugung der 3D-Baumstruktur von mikrostrukturellen Hirnvaskulaturen"
24. Philipp Schneider, Dipl. NDS Med. Phys. ETH, 2004, ETH Zürich, "Development and validation of corrosion casting for the assessment of murine bone vasculature using synchrotron radiation micro-computed tomography"
25. Sabine Wenig, Dipl. NDS Med. Phys. ETH, 2004, ETH Zürich, "Dentalimplantat im Knochen: In-Vitro-Test und FE-Simulation von Ausdrehversuchen"
26. Martin Vogt, Dipl. NDS MTM, 2005, Berner Fachhochschule, Hochschule für Technik und Informatik (HTI), "Functional imaging of the bone-implant interface"
27. Christoph Teichler, Dipl. Masch.-Ing. ETH, 2005, ETH Zürich, "Development of a continuous finite element model for analysis of metastatic bone lesions"
28. Patrick Naef, Dipl. Masch.-Ing. ETH, 2005, ETH Zürich, "The effect of cement augmentation and disc degeneration on the failure mechanisms of adjacent and intermediate vertebral levels"
29. Felix Hofer, Dipl. Masch.-Ing. ETH, 2005, ETH Zürich, "Finite element modelling for in vivo micro-computed tomography data: high-throughput characterization of bone mechanical properties"
30. Clara Sandino Velasquez, M.S. in Statistics, 2005, Université de Neuchâtel, "Biostatistical analysis of the trabecular and cortical microstructure of 166 human radii as assessed by high-resolution 3D-pQCT"
31. Andreas Wirth, Dipl. Masch.-Ing. ETH, 2006, ETH Zürich, "Finite element modeling of bone-implant systems as assessed from in vivo human high resolution computed tomography"
32. Daniel Thommen, Dipl. Masch.-Ing. ETH, 2006, ETH Zürich, "Design and implementation of a tendon bioreactor for investigating the effect of mechanical loading on tendon homeostasis"
33. Matthias Burkhardt, Dipl. NDS Med. Phys. ETH, 2006, ETH Zürich, "Effects of pulsed electromagnetic field (PEMF) stimulation on proliferation, differentiation and gene expression analysis of osteoblasts-like cells in vitro"
34. Etienne Schwyter, M.S. Electrical Engineering ETH, 2006, ETH Zürich, "Multi-modal registration of micro-computed tomography and magnetic resonance imaging for development of three-dimensional models of articular joints"
35. Gian Saratz, Dipl. Masch.-Ing. ETH, 2006, ETH Zürich, "Development of a computational model for prediction of the change in the structural response of failed human vertebrae"
36. Evelyne Huber, M.S. Computational Science and Engineering ETH, 2006, ETH Zürich, "Development and validation of a software algorithm for inferring mechanical properties of tendon by analyzing cell displacements in confocal fluorescence endomicroscopy"
37. David Christen, Dipl. El.-Ing. ETH, 2007, ETH Zürich, "Local strains registration of bone microstructure under load"
38. Guy Spörri, Dipl. Ing. ETH, 2007, ETH Zürich, "Are rat cancellous and cortical bones comprised of the same material?"
39. Alexandre Sabben, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "The effect of enzymatic degradation on MR derived diffusion and mechanical properties of annulus fibrous tissue: an experimental study"
40. Sébastien Aubert, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Optimisation of custom hearing aid shells for more comfort and reduced occlusion"
41. Micha Röllinghof, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Development of the osseous part for a novel hybrid implant concept based on the BoneWelding® technology I"
42. Stephan Saladin, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Development of the osseous part for a novel hybrid implant concept based on the BoneWelding® technology II"
43. Michael Hofmann, Dipl. Masch.-Ing. ETH, 2007, ETH Zürich, "Image guided failure assessment of whole bones under multiple loading conditions in a micro-computed tomography patient scanner"
44. Raymond Ochsenbein, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Development of a computational model for prediction of the change in the structural response of failed human vertebrae"
45. Samuel Basler, M.S. Biomedical Engineering ETH, 2008, ETH Zürich, "Automation and validation of a biomechanical testing device for image-guided failure assessment of bone-implant systems"
46. Wim Vereecken, M.S. Mechanical Engineering ETH, 2008, ETH Zürich, "Mechanical competence of bone-implant structures - experimental validation of image-based finite element analyses"
47. Patrizia Fischer, M.S. Biomedical Engineering ETH, 2008, ETH Zürich, "PearlsPressure: a new fixation method for medical imaging"
48. Christoph Gugl, M.S. Biomedical Engineering ETH, 2008, ETH Zürich, "Orthopedic implants for fracture fixation in osteoporotic bone: a design, testing and validation study"
49. Christoph Schröter, M.S. Biomedical Engineering ETH, 2009, ETH Zürich, "A new fixation method for medical imaging of the head"

50. Daniela Spichtig, M.S. Biology, 2009, University of Zürich, "Coculture of endothelial cells with tissue engineered bone-like tissue on 3D silk fibroin and calcium phosphate scaffolds"
51. Silke Wüst, M.S. Mechanical Engineering, 2009, University of Stuttgart, "Optimization of cell cultivation to yield maximum ECM production on silk fibroin scaffolds"
52. Daniel García Garcerá, M.S. Mechanical Engineering ETH, 2009, ETH Zürich, "Combining local bone morphometry and micro-finite element (μ FE) analysis to investigate localization phenomena in trabecular bone"
53. Sandro Badilatti, M.S. Biomedical Engineering ETH, 2009, ETH Zürich, "In silico modeling of the growth of new bone trabeculae"
54. Oliver Wechsler, M.S. Movement Sciences ETH, 2009, ETH Zürich, "Design of a flow perfusion bioreactor that allows monitoring of bone-like tissue development"
55. Andres Montero Ortiz, M.S. Mechanical Engineering ETH, 2009, ETH Zürich, "Potential of innovative materials, geometries and surfaces for the optimization of small mechanical connections"
56. Emma Cooling, Erasmus Exchange Program, M.S. Mechanical Engineering, 2009, University of Edinburgh, "Development of the humidity-chamber for uCT and SLS measurements of Hexabrix stained samples"
57. Herlien Declerck, Erasmus Exchange Program, M.S. Biomedical Engineering, 2010, K. U. Leuven, "Development of an automatic multiscale analysis tool for bones scanned with micro-CT"
58. Melanie Burkhardt, M.S. Nanosciences, 2010, University of Basel, "Roles of macrophages in mechanical load-induced bone formation on 3D silk fibroin scaffolds"
59. Alexander Zwahlen, M.S. Mechanical Engineering ETH, 2010, ETH Zürich, "In silico modeling of post-menopausal bone loss and mechanical adaptation"
60. Stefan Schori, M.S. Mechanical Engineering ETH, 2010, ETH Zürich, "Strain mapping for the assessment of bone microcracking"
61. Omara Picazo, M.S. Mechanical Engineering ETH, 2010, ETH Zürich, "Optimization of implant design for image-guided failure assessment"
62. Thomas Steiner, M.S. Biomedical Engineering, 2010, University of Bern, "Quantitative imaging strategies for tissue-engineered cartilage constructs"
63. Ivan Zderic, M.S. Movement Sciences ETH, 2010, ETH Zürich, "Displacement detection and tracking of single trabeculae and mechanical tensile test"
64. Juri Steiner, M.S. Movement Sciences ETH, 2010, ETH Zürich, "The role of bone cement on the mechanical properties of trabecular bone and on augmentation of orthopaedic screws: A combined experimental-finite element study"
65. Qian Cheng, M.S. Biomedical Engineering ETH, 2010, ETH Zürich, "Spatial mapping of osteocytes in trabecular bone"
66. Jolanda Vetsch, M.S. Movement Sciences ETH, 2010, ETH Zürich, "Validation of an in-house designed flow perfusion bioreactor"
67. Marius Wiederkehr, M.S. Movement Sciences ETH, 2010, ETH Zürich, "Optimisation and characterisation of a mechanical testing system for murine bones"
68. Alina Levchuk, M.S. Biomedical Engineering, 2010, "Dynamic 3D investigation and strain mapping for microdamage behavior in murine cortical bone"
69. Marco Hitz, MAS Medical Physics ETH, 2010, ETH Zürich, "Redesign and validation of mechanical stimulation unit"
70. Roman Schneider, M.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Establishment of osteoinductive hydrogels with different properties and gelation methods for 3D cell printing"
71. Sabrina Dirksen, M.S. Biomedical Engineering ETH, 2011, ETH Zürich, "Mechanobiological potential of human dental pulp stem cells in vitro"
72. Nathalie Cuerq, M.S. Biomedical Engineering ETH, 2011, ETH Zürich, "Quantification of gene expression in single osteocytes"
73. Jack Traxler, M.S. Biomedical Engineering ETH, 2011, ETH Zürich, "Dynamic image-guided failure assessment of bone-implant systems"
74. Manfred Maurer, M.S. Mechanical Engineering ETH, 2011, ETH Zürich, "The role of microstructure in predicting failure of cellular architectures"
75. Benoit Luisier, M.S. Movement Sciences ETH, 2011, ETH Zürich, "The influence of collagen on elastic and inelastic properties of a single trabecula tested in three point bending test"
76. Pascal Schütz, M.S. Movement Sciences ETH, 2011, ETH Zürich, "Measurement of the collagen content in bone with near-infrared spectrophotometry (NIRS)"
77. Sami Abdel Jaber, M.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Non-linear finite-element analysis of the bone-implant interface"
78. Gratianna Vaisson, M.S. Molecular Medicine, 2011, Cranfield University and Joseph Fourier University, Grenoble, "The influence of flow velocity on human mesenchymal stem cells cultured in a perfusion bioreactor"
79. Rahel Meister, M.S. Movement Sciences ETH, 2012, ETH Zürich, "Comparison of different cell seeding techniques for bone tissue engineering"

80. Davide Perina, M.S. Biomedical Engineering ETH, 2012, ETH Zürich, "Development of a fixation device for magnetic resonance imaging of the forearm"
81. Benjamin Hinterberger, M.S. Mechanical Engineering ETH, 2012, ETH Zürich, "Changes in trunk kinematics following a sudden perturbation event in low back pain patients compared to healthy subjects"
82. Youzhong Liu, M.S., 2012, National Institute of Applied Sciences (INSA), Lyon, "Fluid flow simulations in scaffolds for bone tissue engineering"
83. Michael Pedroni, M.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Effect of surface preparation on nanoindentation analysis of rodent bone tissue"
84. Duncan Betts, M.S. Biomedical Engineering ETH, 2013, ETH Zürich, "Numerical evaluation of the bone-implant interface"
85. Martial Willmann, M.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Validation of ptychographic computed tomography for quantitative assessment of the lacuno-canalicular network"
86. Willi Kuo, M.S. Chemistry ETH, 2013, ETH Zürich, "Developing contrast agents for micro-computed tomographic imaging of scaffold materials in tissue engineering"
87. Remo Sommer, M.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Understanding bone remodeling and the mechanostat"
88. Elisa Fattorini, M.S. Biomedical Engineering ETH, 2013, ETH Zürich, "Evaluation of bone response to implant insertion in a mouse model in vivo"
89. Lukas Sommerhalder, M.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Modeling of biodegradation in augmented spine"
90. Oliver Gschwend, M.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Quantitative measurements of bone ultrastructure orientation"
91. Anna Balmelli, M.S. Movement Sciences ETH, 2013, ETH Zürich, "Nanoindentation analysis of the spatial anisotropy of bone mechanics"
92. Michael Vogt, M.S. Mechanical Engineering ETH, 2014, ETH Zürich, "A finite element model of trabecular bone with anisotropic material properties based on bone ultrastructure orientation"
93. Stefan Plüss, M.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Development of an instrumented vehicle to perform imitation jumps in ski jumping"
94. Lena Wiegmann, M.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Development of a multiscale simulation framework for bone failure prediction"
95. Silvia Holler, M.S. Cellular and Molecular Biotechnologies, 2014, University of Trento, "A scalable quantitative protein expression assay for osteocytes from caudal vertebrae of mice"
96. Suchandrima Das, M.S. Biomedical Engineering ETH, 2015, ETH Zürich, "A structural, mechanical and biological map of human shoulder joints with rotator cuff tears"
97. Jenny Wu, M.S. Biomechanical Engineering, 2015, Delft University of Technology, "Development of a framework to perform longitudinal micro-CT monitoring on ex vivo embryonic chick femur cultures"
98. Dino Causevic, M.S. Mechanical Engineering ETH, 2016, ETH Zürich, "Development of a electromotor-driven power station"
99. Vittoria Storni, M.S. Biomedical Engineering ETH, 2016, ETH Zürich, "Influence of surface curvature and fluid shear stress on the formation of mineralized tissue - a validation study"
100. Stefanie Hohermuth, M.S. Biomedical Engineering ETH, 2016, ETH Zürich, "In vitro comparison of the osteoinductive properties of BMP2 loaded biomaterials for critical size bone defect regeneration"
101. Gianna Marano, M.S. Biomedical Engineering ETH, 2016, ETH Zürich, "Bone modelling and remodelling and its mechanobiological control in young females with adolescent idiopathic scoliosis"
102. Jan Kleffmann, M.S. Physics ETH, 2017, ETH Zürich, "Computational simulation of gene regulatory networks in adolescent idiopathic scoliosis patients"
103. Fabian Keller, M.S. Mechanical Engineering ETH, 2018, ETH Zürich, "Desktop GPU-accelerated big bone remodelling simulation of coupled micro-finite element analysis and Boolean networks"
104. Basil Aeppli, M.S. Health Sciences and Technology ETH, 2018, ETH Zürich, "Development of a localised micromechanics approach to aid histological information in a femur defect loading model"
105. Nina Derron, M.S. Biomedical Engineering ETH, 2018, ETH Zürich, "Osteocyte morphological and functional responses to lacuno-canalicular geometry in a micro-3D printed osteocyte model"
106. Pavel Adamek, M.S. Health Sciences and Technology ETH, 2018, ETH Zürich, "Registration and visualization of in vitro mineralized tissue remodeling from time-lapse micro-computed tomography"
107. Alessandro Stagni, M.S. Mechanical Engineering, 2018, Politecnico di Milano, "Influence of lacunae on bone strength and accumulation of microdamage"
108. Paul Vallaster, M.S. Biomedical Engineering, 2019, TU Wien, "Computational analysis of mechanical strains in animal models of adaptation and regeneration"
109. Charles Ledoux, M.S. Chemical Engineering, 2019, Politecnico di Milano, "Cell scale simulations of bone tissue: micro-multi-physics modelling of osteoporosis and its treatments"
110. Charlotte Roth, M.S. Biosciences, 2019, Julius-Maximilians-University Würzburg, "Local in vivo environment imaging in models of bone defect regeneration and ageing"
111. Nicole Grob McDonald, M.S. Biomedical Engineering ETH, 2019, ETH Zürich, "Combining high-resolution micro-CT imaging of osteocyte lacunae with protein expression data in single osteocytes"

112. Ignasi Belda, M.S. Biomedical Engineering, 2019, KTH Royal Institute of Technology, "Visualization and characterization of collagen type I in three-dimensional bioprinted bone organoids"
113. Chiara Bregoli, M.S. Biomedical Engineering, 2019, Politecnico di Milano, "Importance of lacunar morphology and microcrack patterns in human rare bone disease"
114. Federica Buccino, M.S. Biomedical Engineering, 2019, Politecnico di Milano, "Importance of lacunar morphology and microcrack patterns in human rare bone disease"
115. Matthias Grass, M.S. Mechanical Engineering ETH, 2020, ETH Zürich, "Recovery of human cardiomyocytes following extended ischemia"
116. Francesco Vicentini, M.S. Mechanical Engineering, 2020, Politecnico di Milano, "Organ-scale failure initiates microcracks that favor lacunar morphology in human bone"
117. Daniel Greenfeld, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Biomechanical modeling of the hip range of motion"
118. Sheila Peterhans, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Identification of human osteoblast and osteocyte cells in 3D bioprinted engineered bone-like tissues"
119. Francisco Correia Marques, M.S. Biomedical Engineering ETH, 2020, ETH Zürich, "Effects of image quality on the quantification of mechanoregulation for patients"
120. Yannick Fischer, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Sequential staining, imaging and 2D-2D-registration of bone sections from Acp-mCherry reporter mice"
121. Adam Korczak, M.S. Mechanical Engineering ETH, 2021, ETH Zürich, "Biomimetic fibrillar hydrogels to create 3D osteocyte models"
122. Fabienne Minacci, M.S. Health Sciences and Technology ETH, 2021, ETH Zürich, "Histological characterization of mechano-responsive targets within their local environment during the remodeling phase of fracture healing"
123. Alice Colombo, M.S. Biomedical Engineering, 2021, Politecnico di Milano, "Bioprinted 3D scaffolds incorporating barium titanate coated calcium phosphate nanoparticles as a model to study bone mineralization"
124. Chiara Proserpio, M.S. Biomedical Engineering, 2021, Politecnico di Milano, "Bioprinted 3D scaffolds incorporating barium titanate coated calcium phosphate nanoparticles as a model to study bone mineralization"
125. Claudia Sabato, M.S. Biomedical Engineering, 2021, Politecnico di Milano, "Development of a staining methodology for the evaluation of morphological changes of 3D bioprinted structures"
126. Monica Brodersen, M.S. Health Sciences and Technology ETH, 2021, ETH Zürich, "3D laser microprinting of void-forming hydrogels for a vascularized bone-on-chip model"
127. Angela Hüppin, M.S. Health Sciences and Technology ETH, 2021, ETH Zürich, "Identification and quantification of skeletal muscle tissue in micro-CT images of a mouse femur osteotomy study of aging"
128. Jack Kendall, M.S. Mechanical Engineering ETH, 2021, ETH Zürich, "Multiphysics modeling of revascularization during bone healing"
129. Margherita Bernero, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Investigating the effect of matrix stress relaxation on osteocyte network formation in a 3D hydrogel"
130. Doris Zauchner, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Effect of fluidic shear stress on bone-cell-network maturation in a 3D microfluidic perfusion culture"
131. Lorena Gregorio, M.S. Health Sciences and Technology ETH, 2021, ETH Zürich, "Degenerative changes of bone cells in a prematurely aged male mouse model"
132. Ben Kodiyan, M.S. Biology ETH, 2021, ETH Zürich, "In vitro characterization of hallmarks of type XI osteogenesis imperfecta"
133. Tanja Minacci, M.S. Health Sciences and Technology ETH, 2021, ETH Zürich, "Time-lapsed mineral formation in osteogenesis imperfecta patient-derived trabecular bone organoids under dynamic loading"
134. Philipp Steiner, M.S. Mechanical Engineering ETH, 2021, ETH Zürich, "Suppression of subject motion induced artefacts in HR-pQCT scans using deep neural networks"
135. Nicole Jucker, M.S. Biomedical Engineering, 2022, University of Basel, "The impact of perfusion culture on hMSC differentiation and functional maturation in a 3D bioprinted bone model"
136. Leana Bissig, M.S. Biomedical Engineering ETH, 2022, ETH Zürich, "The impact of dynamic perfusion culture on cellular spatial organization and matrix maturation in a 3D bioprinted in vitro bone model"
137. Catherine Weidlich, M.S. Mechanical Engineering ETH, 2022, ETH Zürich, "Validation of mechanoregulation methods of human studies: impact of cortical and trabecular segmentation"
138. Theresa Weiger, M.S. Mechanical Engineering ETH, 2022, ETH Zürich, "Evaluation of segmentation accuracy and the reproducibility of advanced image analyses for hip preservation surgery between image modalities and/or settings"
139. Mirthe Kamphuis, M.S. Biomedical Engineering, 2023, Eindhoven University of Technology, "Developing quantitative computational models of osteocyte networks for biomimetic 3D bone bioprinting"
140. Jakob Dietz, M.S. Biomedical Engineering ETH, 2023, ETH Zürich, "Optimization of a bioresin for volumetric bioprinting of perfusable cell-laden constructs"
141. Christopher Goenczoel, M.S. Electrical Engineering ETH, 2023, ETH Zürich, "Semantic segmentation of osteocytes from bone histological sections"

142. Sebastian Bensland, M.S. Electrical Engineering ETH, 2023, ETH Zürich, "Data-driven approaches to early Alzheimer's detection: an analysis of a multi armed bandit decision making task"
143. Iva Grujic, M.S. Bioengineering, 2023, Imperial College, "A gelatine-free bioink for 3D bioprinted highly mineralized bone organoids"

Undergraduate Theses

1. Christoph Brodmann, Cand. El.-Ing. ETH, 1990, ETH Zürich, "Analyse der Spongiosastruktur aus Computer-Tomogrammen I"
2. Klaus Meier, Cand. El.-Ing. ETH, 1990, ETH Zürich, "Analyse der Spongiosastruktur aus Computer-Tomogrammen II"
3. Tor Hildebrand, Cand. El.-Ing. ETH, 1991, ETH Zürich, "3D-Strukturextraktion durch erweiterte Haralick-Methode"
4. Christoph Maier, Cand. Masch.-Ing. ETH, 1992, ETH Zürich, "Morphometrische Analyse zweidimensionaler Knochenstrukturen I"
5. Matthias Roost, Cand. Masch.-Ing. ETH, 1992, ETH Zürich, "Morphometrische Analyse zweidimensionaler Knochenstrukturen II"
6. Niklas Thulin, Cand. El.-Ing. ETH, 1994, ETH Zürich, "Schnelle Visualisierung von voxelbasierten 3D-Objekten"
7. Stefan Wengi, Cand. Inf.-Ing. ETH, 1994, ETH Zürich, "3D-Graphik-Editor zur Bearbeitung von Knochenmikrostrukturen"
8. Bharati B. Kommineni, B.S. Mechanical Engineering, 1997, Massachusetts Institute of Technology (M.I.T.), "Structural and morphological properties of rat trabecular bone assessed by micro-computed tomography"
9. Kristin L. Pierson, B.S. Mechanical Engineering, 1997, Massachusetts Institute of Technology (M.I.T.), "Validation of micro-computed tomography for macaque trabecular bone"
10. Stefan Gerber, Cand. Masch.-Ing. ETH, 1997, ETH Zürich, "Failure of bone microstructures under load"
11. Daniel Aschwanden, Cand. El.-Ing. ETH, 1997, ETH Zürich, "Adaptive thresholding for the segmentation of 3D bone microstructure"
12. Jennifer Barragan, B.S. Biomedical Engineering, 1998, Boston University (BU), "Micro-biomechanics of trabecular bone architecture in the course of simulated bone atrophy"
13. Christian Spagno, Cand. El.-Ing. ETH, 1998, ETH Zürich, "Control electronics for stress and strain measurements of bone microstructures under load"
14. Michael Düring, Cand. Masch.-Ing. ETH, 1998, ETH Zürich, "Structure models for micro-tomographic measurements"
15. Michele A. Tantillo, B.S. Biomedical Engineering, 1999, Boston University (BU), "Image-guided assessment of local bone failure"
16. Parish A. Patel, B.S. Biomedical Engineering, 1999, Boston University (BU), "Arbitrary image reconstruction for large-scale micro-tomographic data"
17. Maneesh Amancharla, S.B. Mechanical Engineering, 2000, Harvard University (HU), "Stepwise micro-compression and image-guided failure assessment of compressively loaded whole rat vertebral bone"
18. Urs Fasel, Cand. Masch.-Ing. ETH, 2001, ETH Zürich, "Cellular contributions to local bone strength: a finite element study"
19. An Willems, Cand. Masch.-Ing. ETH, 2002, ETH Zürich, "Development of an in-situ staining device for bone samples"
20. Nikolaus Correll, Cand. El.-Ing. ETH, 2002, ETH Zürich, "Modellbasierte Segmentierung von Mäuseknochen"
21. Lorenz Bühler, Cand. El.-Ing. ETH, 2002, ETH Zürich, "Entwicklung einer Java Applikation für webbasierte 3D Visualisierungen und Bearbeitungen von microCT Bilddatensätzen I"
22. Samuel Kasper, Cand. El.-Ing. ETH, 2002, ETH Zürich, "Entwicklung einer Java Applikation für webbasierte 3D Visualisierungen und Bearbeitungen von microCT Bilddatensätzen II"
23. Urs Hugentobler, Cand. Masch.-Ing. ETH, 2002, ETH Zürich, "Evaluation einer Datenbank und Entwicklung eines Datenmanagementkonzepts für ein webbasiertes Analysesystem I"
24. Stanislav Puncer, Cand. Masch.-Ing. ETH, 2002, ETH Zürich, "Evaluation einer Datenbank und Entwicklung eines Datenmanagementkonzepts für ein webbasiertes Analysesystem II"
25. Philipp Brun, Cand. Masch.-Ing. ETH, 2002, ETH Zürich, "Development of sample holders for an in-situ tensile testing device"
26. Diego Meier, Cand. Masch.-Ing. ETH, 2003, ETH Zürich, "Development of sample holders for an in-situ tensile testing device II"
27. Andrea Schmid, Cand. Masch.-Ing. ETH, 2003, ETH Zürich, "Development of sample holders for an in-situ tensile testing device III"
28. Thomas Krähenbühl, Cand. Masch.-Ing. ETH, 2003, ETH Zürich, "Cell survival in micro-tomography systems"
29. Christian Eberle, Cand. Masch.-Ing. ETH, 2003, ETH Zürich, "Design and validation of an IGFA torsion testing module I"

30. Michael Bauernschmitt, Cand. Masch.-Ing. ETH, 2003, ETH Zürich, "Design and validation of an IGFA torsion testing module II"
31. Kurtis Wheeler, Cand. El.-Ing. ETH, 2003, ETH Zürich, "Evaluation of an in-situ mechanical testing device"
32. Stefan Tuchschnid, Cand. El.-Ing. ETH, 2003, ETH Zürich, "Entwicklung einer webbasierten Applikation zur Visualisierung dreidimensionaler Datensätze"
33. Janine Antifakos, Cand. Werk.-Ing. ETH, 2003, ETH Zürich, "Knochenstrukturanalyse durch Thinning"
34. Nishant Mohan, B.Tech., 2003, Final Year, IIT Guwahati, India, "Phase contrast imaging and holotomography: simulations and experiments"
35. Andreas Egli, Cand. El.-Ing. ETH, 2003, ETH Zürich, "Entwicklung einer webbasierten Java Applikation zur Bearbeitung und Konversion von verschiedenen zwei- und dreidimensionalen Bildformaten"
36. Stefan Schlegel, Cand. Inf.-Ing. ETH, 2003, ETH Zürich, "Biomedical information technology toolsets for communication, interaction and education in micro-CT imaging"
37. Oliver Tomaschewski, Cand. Masch.-Ing. ETH, 2003, ETH Zürich, "Vertebral endplate morphology: a functional imaging study"
38. Stephan Moser, Cand. El.-Ing. ETH, 2003, ETH Zürich, "Development of intra-modality image registration methods for assessment of micro-structural bone adaptation I"
39. Michael Kuhn, Cand. El.-Ing. ETH, 2003, ETH Zürich, "Development of intra-modality image registration methods for assessment of micro-structural bone adaptation II"
40. Marco Schröder, Cand. El.-Ing. ETH, 2003, ETH Zürich, "Biomedical information technology toolsets for communication, interaction and education in micro-CT imaging II"
41. Christoph Teichler, Cand. Masch.-Ing. ETH, 2004, ETH Zürich, "Finite element modeling of a screw implant in bone"
42. Christian Hitz, Cand. El.-Ing. ETH, 2004, ETH Zürich, "Prozessentwicklung und -integration an der Swiss Light Source I"
43. Stefan Schuler, Cand. El.-Ing. ETH, 2004, ETH Zürich, "Prozessentwicklung und -integration an der Swiss Light Source II"
44. Srujan Linga, B.Tech., 2004, Final Year, IIT Guwahati, India, "Phase contrast tomography for soft tissue imaging"
45. Emmanuel Vinit, Cand. Masch.-Ing. ETH, 2004, ETH Zürich, "Development and evaluation of a mechanical testing protocol for the functional assessment of tendon"
46. Susanne Schweizer, Cand. Biol. ETH, 2004, ETH Zürich, "Phantom development for micro-computed tomography"
47. Dominik Neller, Cand. Phys. ETH, 2004, ETH Zürich, "Development of a multi-functional biomechanical testing platform for image-guided failure assessment of bone"
48. Daniel Thommen, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Development of a mechanical testing apparatus for the functional assessment of tendon"
49. Philip Dawsey, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Untersuchung des Einflusses des Injektionsdrucks im LCM-Prozess auf die Gewebestruktur"
50. Jelena Curcic, Cand. El.-Ing. ETH, 2005, ETH Zürich, "Integration of tension and torsion in a multi-functional biomechanical testing platform for image-guided failure assessment of bone"
51. Markus Rindlisbacher, Cand. Bau.-Ing. ETH, 2005, ETH Zürich, "Assessment of microstructure and fracture of foamed cementitious materials"
52. Maria del Carmen Fuentes, B.S. Mechanical Engineering ETH, 2005, ETH Zürich, "Linear and nonlinear constitutive laws for glenohumeral cartilage: a theoretical and numerical analysis based on experimental measurements"
53. Katja Schmid, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Non-invasive uCT-based structural rigidity analysis can predict reduction in the load bearing capacity of rat bone"
54. Isabella Degen, Cand. El.-Ing. ETH, 2005, ETH Zürich, "Aimpack - eine Plattformunabhängige C-Bibliothek für universelle I/O Operationen von dreidimensionalen Bilddatensätzen"
55. Andreas Wirth, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Development of a biomechanical testing device for image-guided failure assessment of bone-implant systems"
56. Marcel Reichen, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Entwurf einer mechanischen Stimulationseinheit für Functional Tissue Engineering von Knochen und Knorpel"
57. Anna C. Rienmüller, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Effekt von Röntgenstrahlung durch uCT-Bildgebung auf menschliche mesenchymale Stammzellen"
58. Stefan Keller, Cand. El.-Ing. ETH, 2005, ETH Zürich, "Entwicklung einer Java Applikation für verteilte 3D Visualisierungen von microCT Bilddatensätzen I"
59. Daniel Koller, Cand. El.-Ing. ETH, 2005, ETH Zürich, "Entwicklung einer Java Applikation für verteilte 3D Visualisierungen von microCT Bilddatensätzen II"
60. Basem Dokhan, Cand. El.-Ing. ETH, 2005, ETH Zürich, "Fast and accurate prediction of microstructural bone failure"
61. Jörg Helfenstein, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Image-based computational model of loaded articular cartilage"

62. Joel Stampfli, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Analyse von Lufteinschlüssen von Compositesbauteilen"
63. Friederike Gerhard, Cand. Dipl. Inf. Ing., 2005, Friedrich-Alexander-Universität Erlangen-Nürnberg, "Development and validation of a software algorithm for analyzing laser speckle interferometric images"
64. Girish Singhal, B.Tech., 2005, Final Year, IIT Guwahati, India, "Image guided failure assessment using 3D stereoscopic laser interferometry"
65. Elvane Stojkaj, Cand. El.-Ing. ETH, 2005, ETH Zürich, "Effects of pulsed electromagnetic field (PEMF) on differentiation and proliferation of osteoblast-like cells (MC-3T3-E1) in vitro"
66. David Christen, Cand. El.-Ing. ETH, 2005, ETH Zürich, "Development of a fully immersive visualization cave environment for micro-computed tomography data"
67. Reto Jost, Cand. Masch.-Ing. ETH, 2005, ETH Zürich, "Deformable image registration for strain calculation"
68. Guy Spörri, Cand. Ing. ETH, 2006, ETH Zürich, "Image-guided failure assessment of murine vertebral bodies"
69. Olivier Morax, Cand. Ing. ETH, 2006, ETH Zürich, "Comparison of structural rigidity analysis to dual energy X-ray absorptiometry and radiography to detect human breast cancer lesions in rat femur"
70. Praveen Yenduri, B.Tech., 2006, Final Year, IIT Guwahati, India, "Improved local tomographic reconstruction using global reference data"
71. Patrizia Fischer, B.S. Mechanical Engineering ETH, 2006, ETH Zürich, "Development of a fixation device for in vivo CT patient measurements"
72. Martin Walti, B.S. Mechanical Engineering ETH, 2006, ETH Zürich, "Validation of a biomechanical testing device for image-guided failure assessment of bone-implant systems"
73. Marina Nagel, B.S. Mechanical Engineering ETH, 2006, ETH Zürich, "Biomechanical testing device for image-guided failure assessment of titanium-implant anchorage in low-density bone"
74. Robert Vorburger, Semester Project, M.S. Electrical Engineering ETH, 2006, ETH Zürich, "Development of a topography matching programme for 3-D data sets"
75. Alexandre Sabben, Semester Project, M.S. Biomedical Engineering ETH, 2006, ETH Zürich, "Design and evaluation of scaffolds for tissue engineering of bone and cartilage"
76. Peter Vogel, Semester Project, B.S. Mechanical Engineering ETH, 2006, ETH Zürich, "Untersuchung verschiedener Beamhardening-Korrekturen bei der Dichte-Kalibrierung von microCT-Bilddaten"
77. Raymond Ochsenbein, Semester Project, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Finite element modeling of bone-implant systems"
78. Patrick Bönzli, Semester Project, M.S. Electrical Engineering ETH, 2007, ETH Zürich, "Improvement of the visualisation of large scale finite element analysis results"
79. Helena Zec, Semester Project, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Optimization of undecalcified bone cryosectioning for osteocyte identification, counting, and isolation by Laser Capture Microdissection (LCM) techniques"
80. Peter Vogel, B.S. Mechanical Engineering ETH, 2007, ETH Zürich, "Characterization and mechanical testing of tissue engineered bone"
81. Christoph Schröter, B.S. Mechanical Engineering ETH, 2007, ETH Zürich, "Automation of a biomechanical testing device for image-guided failure assessment of bone-implant systems: design"
82. Samuel Basler, Semester Project, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Automation of a biomechanical testing device for image-guided failure assessment of bone-implant systems: control"
83. Patrizia Fischer, Semester Project, M.S. Biomedical Engineering ETH, 2007, ETH Zürich, "Correction of metal-related artifacts in μ CT images"
84. Abhay Kapoor, B.Tech., 2007, Final Year, IIT Guwahati, India, "Time-lapsed imaging and registration of in vivo bone adaptation in the mouse tail"
85. Christoph Schröter, Semester Project, M.S. Biomedical Engineering ETH, 2008, ETH Zürich, "An in silico simulation model for trabecular bone modeling and remodeling"
86. Peter Vogel, Semester Project, M.S. Biomedical Engineering ETH, 2008, ETH Zürich, "Investigation of microdamage in murine bone under dynamic load"
87. Guillaume Petit-Pierre, Semester Project, M.S. Mechanical Engineering ETH, 2008, ETH Zürich, "Multi-body modelling and simulation of a total knee arthroplasty"
88. Andres Montero Ortiz, Semester Project, M.S. Mechanical Engineering ETH, 2008, ETH Zürich, "Automated generation of physiological load cases for high-resolution computed tomography based finite element models of the distal radius"
89. Christian Buser, B.S. Mechanical Engineering ETH, 2008, ETH Zürich, "Inverse dynamics of the knee joint"
90. Stephanie Kochbeck, B.S. Mechanical Engineering ETH, 2008, ETH Zürich, "Strength of the base plate fixation of a reversed shoulder prosthesis"
91. Alexandra Krause, B.S. Mechanical Engineering ETH, 2008, ETH Zürich, "Effects of common sterilization methods on the structure and properties of 3D silk fibroin scaffolds"
92. Tarun Kumar, B.Tech., 2008, Final Year, IIT Guwahati, India, "Investigation of the correlation between in vivo bone adaptation and the local mechanical milieu in the mouse tail"
93. Sandro Badilatti, Semester Project, M.S. Biomedical Engineering ETH, 2008, ETH Zürich, "Effects of porosity on fluid flow in bone"

94. Amit Samdariya, B.Tech., 2009, Final Year, IIT Dehli, India, "Automation and validation of a mechanical testing system for tissue-engineered cartilage and bone constructs"
95. Alexander Zwahlen, Semester Project, M.S. Mechanical Engineering ETH, 2009, ETH Zürich, "Multi functional measuring system for micro- and nanomechanical investigation of isolated myofibrils and very small muscle cells"
96. Jeremy Wernli, Semester Project, M.S. Mechanical Engineering ETH, 2009, ETH Zürich, "Processing and analysis of force, torque and displacement data from image-guided failure assessment of bone-implant systems"
97. Arnd Viehöfer, Semester Project, 2009, RWTH Aachen, "Bone Modelling using ANSYS"
98. Catherine Germanier, Semester Project, M.S. Biomedical Engineering ETH, 2009, ETH Zürich, "Quantitative imaging strategies for cells, fibres and molecular densities in cartilage tissue"
99. Vasudha Gudipati, Semester Project, M.S. Mechanical Engineering ETH, 2009, ETH Zürich, "Development and validation of a sample embedding procedure for image-guided failure assessment of bone-implant systems"
100. Roman Schneider, Semester Project, M.S. Mechanical Engineering ETH, 2009, ETH Zürich, "Quasistatische Momentenberechnung am Sprung-, Knie-, und Hüftgelenk beim Treppensteigen"
101. Luc Nimeskern, Semester Project, M.S. Biomedical Engineering ETH, 2009, ETH Zürich, "Examination of osteoarthritis in mice using atomic force microscopy"
102. Omiros Exarchos, Semester Project, M.S. Biomedical Engineering ETH, 2009, ETH Zürich, "Experimental quantification of implant failure loads in bones with varying quality"
103. Alina Levchuk, Semester Project, M.S. Biomedical Engineering ETH, 2009, ETH Zürich, "Development and implementation of the validation technique for the dynamic image guided failure assessment (DIGFA)"
104. Michele Casanova, B.S. Mechanical Engineering ETH, 2009, ETH Zürich, "Translation of the center of the humeral head with respect to the glenoid"
105. Marius Elkuch, B.S. Mechanical Engineering ETH, 2010, ETH Zürich, "Optimization of porous silk fibroin scaffolds for cartilage like tissue engineering: the influence of different pore sizes on chondrocyte behaviour"
106. Remo Sommer, B.S. Mechanical Engineering ETH, 2010, ETH Zürich, "Validation of μ CT analysis of pore size determination in silk fibroin scaffolds"
107. Michael Luternauer, B.S. Civil Engineering, Hochschule für Technik Zürich, 2010, "Biomechanical testing of polymer and metal screw implants"
108. Philip Crivelli, B.S. Mechanical Engineering ETH, 2010, ETH Zürich, "Completion of construction and commissioning of an automated, high-throughput mechanical testing apparatus for tissue-engineered constructs"
109. Annette Sitzler, B.S. Mechanical Engineering, 2010, University of Lübeck, "Sample mounting setup for dynamic image-guided failure assessment of bone-implant systems"
110. Oliver Gschwend, B.S. Mechanical Engineering ETH, 2010, ETH Zürich, "The impact of inter-myofibrillar connections and desmin on sarcomere dynamics"
111. Reto Fortunati, B.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Optimization of laser microscopy and the development of a microfluidic-interface chip to assist spatial mapping and quantification of gene expression in individual osteocytes"
112. Johanna Wolf, Semester Project, M.S. Physics ETH, 2011, ETH Zürich, "Strain mapping based on osteocyte lacunae shape and organization"
113. Lukas Sommerhalder, B.S. Mechanical Engineering ETH, 2010, ETH Zürich, "Imaging of polymeric scaffolds in a physiological environment"
114. Mayank Goyal, B.Tech., 2010, Final Year, IIT Guwahati, India, "Quantitative analysis of high resolution SR-mCT images: algorithms for repeatable region finding"
115. David Larsson, Semester Project, M.S. Material Science, 2011, KTH Stockholm, "Finite element modeling of the lacuno-canalicular network for strain prediction based on quantitative bone imaging"
116. Felix Knab, B.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Assessment of reproducibility and resolution dependency of SR CT measurements for ultrastructural bone morphometry"
117. Stefan Plüss, B.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Design of a save locking mechanism for a smith press I"
118. Dominique Seuret, B.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Design of a save locking mechanism for a smith press II"
119. Michel Meisterhans, Semester Project, M.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Development of a novel coring technique for accurate preparation of trabecular bone specimens"
120. David Obwegeser, B.S. Mechanical Engineering ETH, 2011, ETH Zürich, "Automation of blood vessels segmentation from micro-computed tomography images"
121. Claudia Thurnherr, B.S. Mechanical Engineering ETH, 2011, ETH Zürich, "The influence of bone ultrastructural features on failure initiation and propagation - a finite element study"
122. Harshit Bangar, B.Tech., 2011, Final Year, IIT Guwahati, India, "Image processing algorithms for in vivo quantification of joint structures"

123. Oliver Gschwend, Semester Project, M.S. Mechanical Engineering ETH, 2011, ETH Zürich, "A first investigation of sarcomere dynamics in the ancestor Branchiostoma lanceolatum as a simplified model for human muscle mechanics"
124. Sophie Borleffs, Semester Project, M.S. Biomechanical Engineering, 2012, Delft University of Technology, "3D bioprinting in tissue engineering"
125. Pauline Roels, Semester Project, M.S. Biomechanical Engineering, 2012, Delft University of Technology, "Multimodal imaging framework to study the role of local mineralization for bone mechanobiology and bone mechanics"
126. Michael Vogt, B.S. Mechanical Engineering ETH, 2012, ETH Zürich, "Design and validation of 2-phase hydrogel constructs simulating vasculature in bone tissue engineering"
127. Kailash Atal, B.Tech., 2012, Final Year, IIT Guwahati, India, "Image processing algorithms for in vivo quantification of joint structures"
128. Malhar Mehta, B.Tech., 2012, Third Year, IIT Bombay, India, "Finite element analysis of loaded trabecular bone"
129. Duncan Betts, Semester Project, M.S. Biomedical Engineering ETH, 2012, ETH Zürich, "In silico bone remodeling based on realistic mechanobiological rules"
130. Elisa Fattorini, Semester Project, M.S. Biomedical Engineering ETH, 2012, ETH Zürich, "The interplay between targeted and non-targeted bone remodeling in a mouse model in vivo"
131. Remo Sommer, Semester Project, M.S. Mechanical Engineering ETH, 2012, ETH Zürich, "Finite element modeling of bone mechanotransduction based on local microstructure and mineralization on a sub-cellular level"
132. Lukas Sommerhalder, Semester Project, M.S. Mechanical Engineering ETH, 2012, ETH Zürich, "Computational fluid dynamics simulations to investigate fluid flow within bone lacuno-canalicular network (LCN)"
133. Carlos Gütler, B.S. Mechanical Engineering ETH, 2012, ETH Zürich, "Segmentation of the lacuno-canalicular network (LCN) from ptychographic X-ray computed tomography data and implications on computational fluid dynamics (CFD) simulations"
134. Martial Willmann, Semester Project, M.S. Mechanical Engineering ETH, 2012, ETH Zürich, "Finite element analysis and simulation of bone remodelling"
135. Hortense Le Ferrand, Master Project, M.S. Material Science ETH, 2012, ETH Zürich, "Production of polymeric scaffolds exhibiting controlled porosity"
136. Vitaly Koren, B.S. Mechanical Engineering ETH, 2012, ETH Zürich, "Design and validation of 3D printed horizontally aligned 2-phase hydrogel constructs simulating natural tissue"
137. Philipp Wissmann, Semester Project, M.S. Mathematics ETH, 2012, ETH Zürich, "Segmentation and characterization of single trabeculae"
138. Irina Ritsch, Semester Project, M.S. Interdisciplinary Sciences ETH, 2013, ETH Zürich, "Single osteocyte gene expression analysis"
139. Michael Vogel, Semester Project, M.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Finite element modelling of bone micro-structure failure in osteogenesis imperfecta"
140. Bastian Chaton, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Raman spectroscopy for bone fracture healing"
141. Martin Zenker, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Optimization of the properties of a porous poly(l-lactide-co- ϵ -caprolactone) scaffold for cartilage engineering"
142. Steve Schaffer, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Implementation of an analytical solution for predicting cartilage biphasic mechanics from experimental data"
143. Jonas Widmer, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Feasibility of using auxiliary electrodes for controlling fibre deposition"
144. Janik Schneeberger, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Estimating retinal image quality from wavefront aberrometry"
145. Florian Bolliger, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Development of an optoelectric marker setup for tracking positions and displacements of fractures fixation devices relative to the fixed bone"
146. Stefan Anthamatten, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Biomechanische Betrachtungsweise von Aufschlägen"
147. Johanna Menze, B.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Biomechanical analysis of different swimming start techniques"
148. Vishal Kansal, B.Tech., 2013, Third Year, IIT Bombay, India, "Mechanical stimuli inside bone-scaffold constructs: a finite element study"
149. Angela Mühlenbroich, Semester Project, M.S. Interdisciplinary Sciences ETH, 2013, ETH Zürich, "3D printing of silk fibroin scaffolds"
150. Manuela Estermann, Semester Project, M.S. Biomedical Engineering ETH, 2013, ETH Zürich, "Characterization of inverse opal porous silk fibroin scaffolds"
151. Andreas Frutiger, Semester Project, M.S. Material Science ETH, 2013, ETH Zürich, "Development and implementation of an interface for bone failure analysis"

152. Lena Wiegmann, Semester Project, M.S. Mechanical Engineering ETH, 2013, ETH Zürich, "Evaluation of side artifacts in cancellous bone"
153. Agnese Beretta Piccoli, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "The lacuno-canalicular network development during bone fracture repair: a first quantification"
154. Cornelia Burri, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "A testing and analysis protocol for rabbit knee joints"
155. Patrick Weber, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Image processing of clinical CT for quantitative assessment of joint health in human fingers"
156. Dino Causevic, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Testing and further development of a MATLAB-based algorithm for the quantification of spinal curvature"
157. Philipp Fisch, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Are osteocytes controlling the trabecular bone adaptation process by sclerostin?"
158. Michael Kühni, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Designing a weight-bearing harness system during walking"
159. Jann Schraner, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Development of a sensor system to supervise strength training"
160. Charlotte Bischoff, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Raman spectroscopy of bone: can we trust it?"
161. Marcel Thomas, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Lacunar quantification in the fracture callus: a first study"
162. Maria Rasmussen, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Quantitative evaluation of fracture morphologies in human trabecular bone"
163. Nishad Shah, B.Tech., 2014, Third Year, IIT Bombay, India, "The influence of misaligned murine vertebrae on trabecular strain energy density determined from micro finite element analysis"
164. Harsha Vardhan, B.Tech., 2014, Third Year, IIT Guwahati, India, "In silico simulations of homeostatic remodeling in a human femur"
165. Lukas Frey, Semester Project, M.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Design of a permeability measurement device for silk fibroin scaffolds"
166. Peter Hangartner, Semester Project, M.S. Mechanical Engineering ETH, 2014, ETH Zürich, "A model for mineralized collagen fiber arrangement in trabecular bone"
167. Corinna Weber, B.S. Mechanical Engineering ETH, 2014, ETH Zürich, "Analysis and optimization of the CMI-project processes"
168. Aleksandra Sadowska, Semester Project, M.S. Biomedical Engineering ETH, 2015, ETH Zürich, "Primary mouse osteocytes: isolation, characterization and biocompatibility testing for 3D printing"
169. Fabian Keller, B.S. Mechanical Engineering ETH, 2015, ETH Zürich, "The power of images: intuitive representation of bone microarchitecture with state of the art technology"
170. Eyan Noronha, B.Tech., 2015, Third Year, IIT Bombay, India, "Automated texture based segmentation of woven and cortical bone"
171. Julia Braun, Research Project, M.S. Material Science ETH, 2015, ETH Zürich, "In silico model for degradation and incorporation of biomaterials in bone"
172. Gianna Marano, Semester Project, M.S. Biomedical Engineering ETH, 2015, ETH Zürich, "Effect of whole body vibration therapy on bone strength and local tissue loading in osteopenic girls with adolescent idiopathic scoliosis"
173. Julia Pfund, Semester Project, M.S. Mathematics ETH, 2015, ETH Zürich, "On the influence of the initial vector on the convergence of some iterative methods in biomechanics"
174. Zhiyang Yu, Semester Project, M.S. Biomedical Engineering ETH, 2015, ETH Zürich, "In-vitro assessment of hMSC differentiation on fluorescent PLGA scaffolds with and without BMP-2 in a perfusion bioreactor"
175. Vittoria Storni, Semester Project, M.S. Biomedical Engineering ETH, 2015, ETH Zürich, "Evaluation of side artifacts in trabecular bone"
176. Elia Guzzi, Semester Project, M.S. Biomedical Engineering ETH, 2015, ETH Zürich, "Validation of elastoplastic finite element modeling for human trabecular bone"
177. Mikey Furer, B.S. Mechanical Engineering ETH, 2015, ETH Zürich, "Commissioning of an instrumented ski-cross startgate"
178. Robmann Serjoshia, B.S. Mechanical Engineering ETH, 2015, ETH Zürich, "Development of a measuring system for the determination of the damping behavior of mountainbikes"
179. Matthias Santschi, Semester Project, M.S. Biomedical Engineering ETH, 2016, ETH Zürich, "Towards highly multiplex labelling of osteocyte regulatory proteins for the determination of a link between protein and bone remodelling activity in mouse vertebral bone"
180. Fabian Keller, Semester Project, M.S. Mechanical Engineering ETH, 2016, ETH Zürich, "Development of a highly parallel full space cellular automata model for bone remodelling simulations"
181. Bastian Telgen, Semester Project, M.S. Mechanical Engineering ETH, 2016, ETH Zürich, "Determination of in vivo bone loading conditions in the cast of distal radius fracture patients"
182. Ole Blank, Semester Project, M.S. Mechanical Engineering ETH, 2016, ETH Zürich, "A multiscale computational model of mechanobiological signalling in bone remodelling"

183. Remo Felber, B.S. Mechanical Engineering ETH, 2016, ETH Zürich, "The sensitivity of force-model alignment in micro-FE analysis"
184. Jan Speckien, B.S. Mechanical Engineering ETH, 2016, ETH Zürich, "Development of a calibration device for pressure distribution measurement systems"
185. Sheel Nidhan, B.Tech., 2016, Third Year, IIT Bombay, India, "Defining μ -FE boundary conditions: a generic approach"
186. Felix Craz, Semester Project, M.S. Biomedical Engineering, 2017, Delft University of Technology, "Computational modelling of fluid flow induced mechanoregulation in trabecular bone"
187. Aksel Gudde, Semester Project, M.S. Biomedical Engineering, 2017, Delft University of Technology, "Identifying the nature of mechanical signalling in bone"
188. Romain Dayer, Semester Project, M.S. Biomedical Engineering ETH, 2017, ETH Zürich, "Towards multiplexed local in vivo environment imaging of different bone cells"
189. Matthias Grass, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2017, ETH Zürich, "Predicting angiogenesis using bone fracture healing outcomes"
190. Nicoló Fanelli, Research Project, M.S. Material Science ETH, 2017, ETH Zürich, "Bone healing simulation by cellular automaton"
191. Joshua Jeffrey, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2017, ETH Zürich, "3D bioprinting of biomimetic mineralized silk fibroin scaffolds for bone tissue engineering"
144. Mathias Cherbuin, Semester Project, M.S. Biomedical Engineering ETH, 2017, ETH Zürich, "Computational model development and validation of external fixators used in fracture healing"
145. Odysseas Avramiotis, Semester Project, M.S. Biomedical Engineering ETH, 2017, ETH Zürich, "Modelling external fixator behaviour dependant on fracture callous and bone stiffness changes during fracture healing"
192. Rudrajit Das, B.Tech., 2017, Third Year, IIT Bombay, India, "Mathematical analysis of regulatory networks of bone metabolism"
193. Jonathan McKinley, Semester Project, M.S. Mechanical Engineering, 2017, UC Berkeley, "Finite element based lacuna segmentation"
194. Matthias Grass, Semester Project, M.S. Mechanical Engineering ETH, 2017, ETH Zürich, "Load-driven 3D bone remodelling simulations using time-lapsed HR-pQCT images"
195. Basil Aeppli, Research Internship, M.S. Health Sciences and Technology ETH, 2017, ETH Zürich, "Development of an error model for instrumented fixator ex vivo"
196. Stefano van Gogh, Semester Project, M.S. Biomedical Engineering ETH, 2018, ETH Zürich, "Registration and staining methods to assess local mechanical regulation of protein expression during fracture repair"
197. Denis Cener, Practical Internship, M.S. Health Sciences and Technology ETH, 2018, ETH Zürich, "Simulation of bone remodelling using a molecular-cellular network model"
198. Suzanne Wermink, Semester Project, M.S. Biomedical Engineering, 2018, Delft University of Technology, "Towards advanced designs for micro-3D printed osteocyte models"
199. Toshi Parmar, B.Tech., 2018, Third Year, IIT Bombay, India, "Deriving metabolic regulatory networks from the bone microstructure"
200. Freek van der Heijden, Semester Project, M.S. Biomedical Engineering, 2018, Eindhoven University of Technology, "Implementation of an in silico model for cell behaviour in a mechanically loaded tissue engineered scaffold"
201. Michelle Rüegg, Semester Project, M.S. Mechanical Engineering ETH, 2018, ETH Zürich, "The effect of boundary conditions on the mechanical environment in models of loading in mice bones"
202. Malavika Nambiar, Research Internship, M.S. Biomedical Engineering, 2018, Delft University of Technology, "Tissue characterization and registration of fracture callus in femur defects treated with collagen scaffolds"
203. Hande Eyisoğlu, Research Internship, M.S. Biomedical Engineering, 2018, Delft University of Technology, "3D bioprinting of graphene oxide composite scaffolds for improvement scaffold morphology"
204. Matthias Walle, Semester Project, M.S. Mechanical Engineering, 2018, Technical University of Munich, "Biomaterials combined with mechanical loading: effect on bone defect healing and revascularization"
205. Simona Züger, Semester Project, M.S. Biomedical Engineering ETH, 2018, ETH Zürich, "Tissue staining and registration to assess local mechanical regulation of β -catenin expression in bone and fracture callus"
206. Denis Cener, Research Internship, M.S. Health Sciences and Technology ETH, 2019, ETH Zürich, "In-silico modelling of loading frequency-dependent bone adaptation"
207. Lorenz Kehrbein, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2017, ETH Zürich, "Prediction of strain-gauged fixator deformation and its relation to real world bone callous deformation in a femur defect model"
208. Eliane Müller, Semester Project, M.S. Biomedical Engineering ETH, 2018, ETH Zürich, "A comparison of different bioprinting modes for the fabrication of accurate, reproducible and biocompatible alginate-gelatin bone scaffolds"
209. Helena David, Semester Project, M.S. Mechanical Engineering ETH, 2018, ETH Zürich, "A double-crosslinking approach for high fidelity 3D bioprinting of cell-laden scaffolds"
210. Jack Kendall, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2019, ETH Zürich, "Identification and registration of fracture fragments of time-lapse distal radius scans"

211. Francisco Correia Marques, Semester Project, M.S. Biomedical Engineering ETH, 2018, ETH Zürich, "Stability and convergence of a load-adaptive bone adaptation algorithm"
212. Oliver Marti, Research Internship, M.S. Health Sciences and Technology ETH, 2019, ETH Zürich, "Evaluating osteocyte markers in three-dimensional (3D) in vitro culture environments"
213. Sarthak Consul, B.Tech., 2019, Third Year, IIT Bombay, India, "Segmentation of lacunar objects from ultra high resolution micro-CT bone scans"
214. Lara Zamboni, Semester Project, B.S. Biology ETH, 2019, ETH Zürich, "Automated algorithm for the initialization of a cell based micro-multiphysics model using time-lapsed in vivo images of murine vertebral bone"
215. Yannick Fischer, Research Internship, M.S. Health Sciences and Technology ETH, 2019, ETH Zürich, "Phenotyping and histological confirmation of fluorescent reporter mouse model for osteoclasts"
216. Solenn Riedel, Research Internship, M.S. Chemistry ETH, 2019, ETH Zürich, "Photo-cleavable hydrogels for 3D- μ -printing of bone microenvironments"
217. Sarah Egger, Research Internship, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Functional analysis of hMSC-derived osteocyte networks"
218. Ximena Sutter, Research Internship, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Biomimetic CAD models for 3D- μ -printing of synthetic lacunar-canalicular networks"
219. Jack Kendall, Semester Project, M.S. Mechanical Engineering ETH, 2020, ETH Zürich, "Isolation and tracking of fracture fragments over time using registration of time-lapse distal radius scans"
220. Anna-Katharina Zehnder, Research Internship, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Dynamic compressive loading influence osteogenic differentiation and mineral formation in 3D bioprinted cell-laden scaffolds"
221. Marsel Ganeyev, Semester Project, M.S. Biofabrication, 2020, Bayreuth University, "Effects of long-term mechanical loading on bone-like tissue formation in 3D bioprinted cell-laden scaffolds"
222. Takashi Graf von Normann-Ehrenfels, B.S. Mechanical Engineering ETH, 2020, ETH Zürich, "In-vivo quantification of dorsal collapse during fracture healing of the distal radius"
223. Monica Brodersen, Research Internship, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Engineering 3D osteocyte networks in void-forming hydrogels"
224. Philipp Campos, Semester Project, M.S. Mechanical Engineering ETH, 2020, ETH Zürich, "Designing CAD models for subtractive 3D- μ -printing of cell guidance signals"
225. Ben Kodiyan, Research Project I, M.S. Biology ETH, 2020, ETH Zürich, "Bioprinting of patient-derived bone cells: influence of isolation and experimental culture conditions used on the bone phenotype"
226. Aditya Khanna, B.Tech., 2020, Third Year, IIT Bombay, India, "Improved image registration in bone fracture healing"
227. Gaonhae Hwang, Bachelor Thesis, B.S., 2020, Pusan National University, South Korea, "Phenotyping and histological confirmation of fluorescent reporter mouse model for osteoblasts"
228. Tanja Minacci, Research Internship, M.S. Health Sciences and Technology ETH, 2020, ETH Zürich, "Influence of piezoelectric scaffolds on cell differentiation and mineralization under cyclic loading"
229. Reto Graf, Semester Project, M.S. Mechanical Engineering ETH, 2020, ETH Zürich, "Time-lapsed micro-CT analysis of 3D bioprinted patient-specific bone tissue engineering scaffolds: the effect of cell density"
230. Pascal Muff, Semester Project, M.S. Biomedical Engineering ETH, 2020, ETH Zürich, "Immunohistochemical assessment of in vitro formed mineral"
231. Angela Hüppin, Research Internship, M.S. Health Sciences and Technology ETH, 2021, ETH Zürich, "Protocol for osteocyte imaging in aged mouse bones"
232. Sandra Zimmerman, Semester Project, M.S. Biomedical Engineering ETH, 2020, ETH Zürich, "Phenotyping and histological confirmation of fluorescent reporter mouse model for osteoclasts"
233. Diego Zamagni, Semester Project, M.S. Biomedical Engineering ETH, 2020, ETH Zürich, "Two-photon micropatterned canaliculi in gelma hydrogels and their functional analysis"
234. Lara Tenisch, Semester Project, M.S. Biomedical Engineering ETH, 2020, ETH Zürich, "Multi-density analysis of tissue mineralization in polymer nanocomposite scaffolds"
235. Sophie Zengerle, Semester Project, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Controlled delivery of physiological mechanical stimuli into 3D osteocyte cultures"
236. Nicole Deubelbeiss, Semester Project, M.S. Mechanical Engineering ETH, 2021, ETH Zürich, "Designing metamaterial CAD models for nano-3D-printed auxetic scaffolds"
237. Doris Zauchner, Semester Project, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Developing an on-chip system for mechanical loading of living bone cell networks"
238. Jenny Gehlen, Bachelor Thesis, B.S., 2021, Karolinska Institute, Sweden, "Functional analysis of volumetrically 3D-bioprinted bone-like tissues"
239. Leana Bissig, Research Internship, M.S. Health Sciences and Technology ETH, 2017, ETH Zürich, "Functional characterization of human mesenchymal stem cells cultured in void-forming hydrogels under static and dynamic conditions"
240. Johannes Kurz, Bachelor Thesis, B.S. Computer Sciences ETH, 2021, ETH Zürich, "Large scale identification of bone cells from histology slices"

241. Patricia Schmid, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2021, ETH Zürich, "Performance of a deep-learning bone segmentation algorithm using images with different histological stainings"
242. Muriel Holzreuter, Semester Project, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Metabolic labelling of hMSC-secreted proteins during laser-guided cell outgrowth"
243. Catherine Weidlich, Semester Project, M.S. Mechanical Engineering ETH, 2021, ETH Zürich, "Digital biopsy representative region extraction in human radii"
244. Dominic Eggemann, Semester Project, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Characterisation of image quality in HR-pQCT scans using a deep-learning-based classification method"
245. Fabienne Minacci, Research Internship, M.S. Health Sciences and Technology ETH, 2021, ETH Zürich, "Histological characterization of YAP/TAZ expression during the remodeling phase of fracture healing in wildtype and prematurely aged mice"
246. Akanksha Sachan, B.Tech., 2021, Third Year, IIT Bombay, India, "Multiphysics simulations of diabetic bone and procedure for inclusion of new pathways"
247. Sara Lindenmann, Semester Project, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Sensitivity analysis of a 2D-3D registration tool using in vivo micro-CT mouse data"
248. Silvia Berger, Semester Project, M.S. Biomedical Engineering ETH, 2021, ETH Zürich, "Functional imaging of 3D hMSC-endothelial co-cultures"
249. Esteban Oggianu, Semester Project, B.S. Interdisciplinary Sciences ETH, 2021, ETH Zürich, "Investigating the phase separation in photo-curable polymeric hydrogels"
250. Akanksha Sachan, Bachelor Thesis, B.Tech., 2022, IIT Bombay, India, "Agent-based simulations of the effects of treatment on diabetic vs non-diabetic bone"
251. Dominique Windisch, Practical Internship, M.S. Health Sciences and Technology ETH, 2022, ETH Zürich, "Automated mechanoregulation pipeline for human studies: image registration module"
252. Rakhym Annabayev, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2022, ETH Zürich, "Optimization of the coupling between osteoclasts and osteoblasts in an agent-based model of bone remodelling"
253. Ross Straughan, Semester Project, M.S. Biomedical Engineering ETH, 2022, ETH Zürich, "3D printed piezoelectric nanocomposite bone scaffolds"
254. Marco Drago, Semester Project, M.S. Biomedical Engineering ETH, 2022, ETH Zürich, "Injury prediction using different human body models"
255. Hoda Ghaziasgar, Practical Internship, M.S. Health Sciences and Technology ETH, 2022, ETH Zürich, "Verification of an image-processing pipeline for reconstructed micro-CT scans of microvasculature"
256. Natalija Jovanovic, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2022, ETH Zürich, "Agent-based simulations of bisphosphonate treatment for postmenopausal osteoporosis"
257. Gordian Banzer, Research Internship, M.S. Health Sciences and Technology ETH, 2022, ETH Zürich, "Investigation of bone regeneration during fracture healing in humans using time-lapsed advanced medical imaging"
258. Christopher Goenczoel, Semester Project, M.S. Electrical Engineering ETH, 2022, ETH Zürich, "Hyperparameter optimisation of a deep learning segmentation model for bone histological images"
259. Cara Ammann, Semester Project, M.S. Biomedical Engineering ETH, 2022, ETH Zürich, "Assessing the performance of a markerless motion tracker system for applications in running sports"
260. Dominique Windisch, Research Internship, M.S. Health Sciences and Technology ETH, 2022, ETH Zürich, "In vivo repeatability of time-lapsed bone remodelling analysis of the distal radius and tibia"
261. Marianna Marzetta, Bachelor Thesis, B.S. Computational Science and Engineering ETH, 2022, ETH Zürich, "An automated registration approach for multi-stack time-lapsed imaging using high-resolution peripheral quantitative computed tomography"
262. Jakob Dietz, Semester Project, M.S. Biomedical Engineering ETH, 2022, ETH Zürich, "Optimizing 3D melt-extrusion printed BaTiO₃ bone nanocomposites for higher throughput"
263. Jérôme Schlatter, Semester Project, M.S. Mechanical Engineering ETH, 2022, ETH Zürich, "Visualizing the osteocyte lacunocanalicular network in prematurely aging mice"
264. Mirthe Kamphuis, Semester Project, M.S. Biomedical Engineering, 2022, Eindhoven University of Technology, "Human bone mechanoregulation based on high-resolution quantitative computed tomography"
265. Paviththiren Sivasothilingam, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2022, ETH Zürich, "Biological sensitivity analysis of a correlative multimodal imaging approach"
266. Rafael Leon Perez, Research Internship, M.S. Health Sciences and Technology ETH, 2022, ETH Zürich, "Creating bone organoids using dynamic compression bioreactors"
267. Phillip Karpf, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2022, ETH Zürich, "Designing mechanical strain distribution in 3D printed piezoelectric bone nanocomposites"
268. Aaron Geiger, Research Project, M.S. Biotechnology ETH, 2022, ETH Zürich, "Studying the molecular development and maturation of bone cells in 3D printed organoids"
269. Isabel Hui, Semester Project, M.S. Biomedical Engineering ETH, 2023, ETH Zürich, "Optimization of the synthesis procedure for michael-addition polymer precursors towards an in-situ gelling matrix"
270. Joël Hefti, Semester Project, M.S. Biomedical Engineering ETH, 2023, ETH Zürich, "Investigating mechano-regulation of bone resorption under mechanical loading in a mouse model of bone adaptation"

271. Vivian Stöckli, Semester Project, M.S. Biomedical Engineering ETH, 2023, ETH Zürich, "Uncertainty quantification of micro-multiphysics agent-based model for osteoporosis treatment"
272. Valentin Baumann, Research Internship, M.S. Health Sciences and Technology ETH, 2023, ETH Zürich, "Mechanoregulation of bone formation during non-unions in pre-maturely ageing mice using time-lapsed micro-computed tomography"
273. Lea Roffler, Semester Project, M.S. Biomedical Engineering ETH, 2023, ETH Zürich, "Validating a markerless motion tracker system for applications in running sports"
274. Ketan Gupta, Semester Project, M.S. Biomedical Engineering ETH, 2023, ETH Zürich, "Synthetic validation of a non-linear 2d-3d registration algorithm using in vivo micro-CT mouse data"
275. Cassandre Souëf, Bachelor Thesis, B.S. Life Sciences Engineering EPFL, 2023, ETH Zürich, "Agent-based simulations of sequential and combinatorial treatment for osteoporosis"
276. Jaime Pietrantuono Nepomuceno, Semester Project, M.S. Mechanical Engineering ETH, 2023, ETH Zürich, "Subtractive 3D μ -printing of semi-synthetic lacunar-canalicular networks in photodegradable hydrogels"
277. Fabio Fischer, Bachelor Thesis, B.S. Mechanical Engineering ETH, 2023, ETH Zürich, "Controlled spatial distribution of osteoblasts and osteoclast precursors-monocytes with inkjet bioprinting"
278. Sara Keller, Research Internship, M.S. Health Sciences and Technology ETH, 2023, ETH Zürich, "Mechanoresponsive bone organoids for modeling skeletal diseases"
279. Diana Mock Cáceres, Research Internship, M.S. Health Sciences and Technology ETH, 2023, ETH Zürich, "Investigating cytotoxicity effects on cell-encapsulated bioinks: a comparative analysis of various experimental conditions"
280. Michelle Freyer, Semester Project, M.S. Interdisciplinary Sciences ETH, 2023, ETH Zürich, "Developing permissive hydrogels for high-precision multiphoton cell encapsulation"
281. Florence Marti, Research Internship, M.S. Health Sciences and Technology ETH, 2023, ETH Zürich, "Optimization and characterization of collagen formation in a 3D in vitro model for osteogenesis"
282. Nadine Jacobs, Research Internship, M.S. Health Sciences and Technology ETH, 2023, ETH Zürich, "Personalized bone organoids for drug efficacy testing in children with osteogenesis imperfecta"
283. Mascha Pfyl, Research Internship, M.S. Health Sciences and Technology ETH, 2023, ETH Zürich, "Optimizing gelatine-free highly mineralized bone organoids for mechanical stability and osteogenesis"
284. Muja Emilie Ye, Semester Project, M.S. Biomedical Engineering ETH, 2024, ETH Zürich, "Investigating the physicochemical properties of photo-clickable polyvinyl alcohol hydrogels"
285. Nirujan Pasupathy, Research Internship, M.S. Health Sciences and Technology ETH, 2024, ETH Zürich, "Automated validation of a micro-multi-physics agent-based model simulating the trabecular bone response to sclerostin-antibody treatment"

E. Invited Talks and Distinguished Lectures

1. R. Müller. CT scan reconstructions and morphometry of trabecular bone. Invited Speaker, Symposium on the mechano-biology of tissue adaptation, University of Nijmegen, Nijmegen (The Netherlands), March 8, 1996.
2. R. Müller. 3D micro-computed tomography and quantitative morphometry of human bones and biomaterials. Invited Speaker, Scanning Microscopy 1996 Meeting, Bethesda (USA), May 12, 1996.
3. R. Müller. Micro-tomographic imaging for the non-destructive evaluation of trabecular bone architecture. Invited Speaker, 10th Conference of the European Society of Biomechanics, Symposium on Bone Architecture and the Competence of Bone, Leuven (Belgium), August 28-31, 1996.
4. R. Müller. Structural and mechanical analysis of non-invasive bone biopsies using high-resolution 3D-QCT: An in vivo approach. Invited Speaker, Human Performance Laboratory, The University of Calgary, Calgary (Canada), September 27, 1996.
5. R. Müller. 3D micro-tomographic imaging for the non-destructive evaluation of human bones and biomaterials. Invited Speaker, Shriner Burns Institute Seminar Series, Mass General Hospital, Harvard Medical School, Boston (USA), April 16, 1997.
6. R. Müller. Biomechanical competence of microstructural bone in the progress of adaptive bone remodeling. Invited Speaker, 12th International Workshop on Bone Densitometry, Second symposium on Bone Architecture and the Competence of Bone, Crieff (United Kingdom), May 18, 1997.
7. R. Müller. Local bone failure and its relation to variations in tissue properties. Invited Speaker, Third Symposium on Bone Architecture and the Competence of Bone, Ittigen (Switzerland), July 5, 1998.
8. R. Müller. Image-guided assessment of microstructural bone failure. Invited Speaker, Center for Engineering in Medicine, Fellows Forum, Mass General Hospital, Harvard Medical School, Boston (USA), June 24, 1998.
9. R. Müller. Bone architecture and the competence of bone. Invited Speaker, National Lecture, Nagasaki University (Japan), July 31, 1998.
10. R. Müller. Micro-tomographic imaging - a novel approach for the nondestructive study of osteoporosis. Invited Speaker, Biomedical Engineering Society (BMES), Annual Fall Meeting, Cleveland (USA), October 12, 1998.

11. R. Müller. Bone architecture and the competence of bone. Invited Speaker, Biomechanics Seminar Series, Boston University, Boston (USA), February 11, 1999.
12. R. Müller. Desk-top micro-computed tomography for the nondestructive structural evaluation of bones and biomaterials. Invited Speaker, ClinTrials BioResearch (CTBR), Biotech and Bone Symposium, The Westin Hotel, Boston (USA), March 30, 1999.
13. R. Müller. Desk-top micro-tomographic imaging - a new powerful tool in the non-destructive characterization of bone and connective tissue. Award Lecture, Inaugural John Haddad Young Investigator Meeting, Advances in Mineral Metabolism (AIMM) and American Society for Bone and Mineral Research (ASBMR), Snowmass (USA), April 8, 1999.
14. R. Müller. Bone architecture and the competence of bone as assessed by micro-computed tomography. Keynote Speaker, Annual Meeting of the Japanese Society of Bone Morphometry, Fukuoka (Japan), June 25, 1999.
15. R. Müller. Micro-tomographic imaging in the process of bone modeling and simulation. SPIE Annual Meeting. Invited Speaker, Technical Conference on "Developments in X-Ray Tomography II", Denver (USA), July 22, 1999.
16. R. Müller. Desk-top micro-tomographic imaging and applications to bone research. Award Lecture, ISB Promising Young Scientist Award, 8th Congress of the International Society of Biomechanics, Calgary (Canada), August 10, 1999.
17. R. Müller. Image-guided assessment of local bone failure. Invited Speaker, 8th Congress of the International Society of Biomechanics, Calgary (Canada), August 12, 1999.
18. R. Müller. Mechano-structure relationships in human and animal bone as revealed by desk-top micro-computed tomography. Invited Speaker, Session on Bone Morphometry in Orthopedics and Dentistry, VIIIth Congress of the International Society of Bone Morphometry, Scottsdale (USA), October 10, 1999.
19. R. Müller. Mechano-structure relationships in human and animal bone as revealed by desk-top micro-computed tomography. Invited Speaker, Orthopedic Seminar Series, Rhode Island Hospital and Brown University, Providence (USA), December 1, 1999.
20. R. Müller. Mechano-biology of microstructural bone as assessed by micro-computed tomography. Invited Speaker, Biomedical Engineering Seminar, The Mayo Clinic, Rochester (USA), February 25, 2000.
21. R. Müller. Mechano-structure relationships in human and animal bone as revealed by desk-top micro-computed tomography. Invited Speaker, AeroMech Seminar, Department of Aerospace and Mechanical Engineering, Boston University, Boston (USA), March 24, 2000.
22. R. Müller. Bone structure and its importance in predicting fracture risk. Invited Speaker, Grand Grounds, Harvard Combined Orthopaedic Program, Mass General Hospital, Harvard Medical School, Boston (USA), May 24, 2000.
23. R. Müller. Micro-CT "Movies" of dynamically loaded bone specimens. Invited Speaker, Special Focus Session "The Latest Technologies", 14th International Workshop on Bone Densitometry, Warnemünde (Germany), September 6, 2000.
24. R. Müller. Mechano-structure relationships in human and animal bone as revealed by micro-CT and micro-MRI. Invited Speaker, Special Focus Day "The Search For Better Surrogate Markers For Bone Strength", 14th International Workshop on Bone Densitometry, Warnemünde (Germany), September 7, 2000.
25. R. Müller. Micro-compression: a novel technique for image-guided assessment of bone failure, repair, and adaptation. Invited Speaker, Biomedical Engineering Colloquium, Department of Electrical Engineering, ETH Zürich, Zürich (Switzerland), November 10, 2000.
26. R. Müller. Imaging methods, Invited Speaker, Symposium "Diagnosis of Mechanical Bone Quality" in honor of the inauguration of Prof. Rik Huiskes at the Biomedical Engineering Department, Eindhoven University of Technology, Eindhoven (The Netherlands), November 24, 2000.
27. R. Müller. Micro-compression: a novel technique for image-guided assessment of bone failure, repair, and adaptation. Invited Speaker, Biomechanics Seminar, Department of Mechanical Engineering, Swiss Federal Institute of Technology (EPFL), Lausanne (Switzerland), March 30, 2001.
28. R. Müller. Desktop micro-tomographic imaging - a new powerful tool for the characterization of microstructural bone in genetics and gene therapy. Invited Speaker, Seminar Series, Division of Clinical Pathophysiology, University Hospital of Geneva, Geneva (Switzerland), April 9, 2001.
29. R. Müller. Architektur und mechanische Kompetenz des mikrostrukturellen Knochens. Invited Speaker, Anatomisches Seminar, Ludwig-Maximilians-Universität München, Munich (Germany), May 2, 2001.
30. R. Müller. Micro-mechanical evaluation of bone microstructures under load. Invited Speaker, SPIE Annual Meeting, Technical Conference on "Developments in X-Ray Tomography III", San Diego (USA), August 3, 2001.
31. R. Müller. Visualization of microstructural fracture mechanisms in vertebral bone. Plenary Speaker, 19th Annual Meeting of the Japanese Society of Bone and Mineral Research, Symposium on "Osteoporotic Vertebral Fractures", Nagoya (Japan), August 10, 2001 (cancelled).
32. R. Müller. Breathing bones - new findings on the plasticity of microstructural bone. Invited Speaker, Journées d'Automne 2001, Société Française de Métallurgie et de Matériaux - SF2M, Paris (France), October 31, 2001.

33. R. Müller. Assessment of bone structure function-relationships in the genomic era. Invited Speaker, Anatomisches Seminar, University of Berne, Berne (Switzerland), November 14, 2001.
34. R. Müller. Assessment of bone structure function relationships in the genomic era. Invited Speaker, Weekly Seminary Series, Department of Rheumatology, University Hospital, Zürich (Switzerland), February 8, 2002.
35. R. Müller. Mikro-CT und Mikro-Kompression: Von der Knochenmasse zur -struktur, von der Maus zum Menschen. Invited Speaker, Workshop Morphology and Imaging, Deutsche Gesellschaft für Biomechanik und Ludwig-Maximilians-Universität München, Munich (Germany), June 8, 2002.
36. R. Müller. Quantitative image processing of 3D biological structures. Invited Speaker, 2002 IEEE International Symposium on "Biomedical Imaging: Macro to Nano", Washington D.C. (USA), July 7-10, 2002.
37. R. Müller. A computationally efficient algorithm for in-vivo bone failure prediction on the trabecular level: A combined experimental and computational approach. Invited Speaker, IVth World Congress of Biomechanics, Calgary (Canada), August 9, 2002.
38. R. Müller. Skeletal imaging: of mice and men. Plenary Speaker, 12th Annual Meeting European Orthopedic Research Society, Lausanne (Switzerland), October 13, 2002.
39. R. Müller. The trabecular network - aging processes. Invited Speaker, AO Exchange Meeting on "Osteoporosis and Fracture Treatment", Zürich (Switzerland), September 27, 2002.
40. R. Müller. Bone microarchitecture assessment - current and future trends. Invited Speaker, Bone Summit 2002, The Waldorf Astoria, New York (USA), October 19, 2002.
41. R. Müller. Assessment of bone structure function relationships in the genomic era. Invited Speaker, Seminar, Biomechanics Section, Technical University Hamburg-Harburg (Germany), October 24, 2002.
42. R. Müller. Skeletal imaging: of mice and men. Invited Speaker, Langer Lab, Harvard - M.I.T. Division of Health Sciences and Technology, Massachusetts Institute of Technology, Cambridge (USA), December 3, 2002.
43. R. Müller. Micro-tomographic imaging - a powerful tool for high-throughput phenomics of bone. Invited Speaker, Seminar, Bioinformatics Kolloquium, Technical University Graz, Graz (Austria), January 10, 2003.
44. R. Müller. Hierarchical CT imaging: from macro to nano - from organ to cell. Workshop Plenary Lecture, 49th Annual Meeting Orthopedic Research Society, New Orleans (USA), February 2, 2003.
45. R. Müller. Breathing bones - new findings on the plasticity of microstructural bone. Invited Speaker, Minisymposium on "Hierarchically structured biological materials", Annual Conference of the "Gesellschaft für Angewandte Mathematik und Mechanik", GAMM, Abano Terme (Italy), March 25, 2003.
46. R. Müller. Genetic control of bone architecture and the competence of bone. Invited Speaker, Biomedical Engineering Doctoral Research Seminars, Swiss Federal Institute of Technology (EPFL), Lausanne (Switzerland), March 27, 2003.
47. R. Müller. Local bone morphometry - a new method to assess bone failure. Invited Speaker, First European Scanco User Meeting, Zürich (Switzerland), April 1, 2003.
48. R. Müller. Knochenstruktur und Funktion im Zeitalter der Genomik. Invited Speaker, Institute for Medical Engineering, Technical University Berlin, Berlin (Germany), April 25, 2003.
49. R. Müller. Hierarchical bioimaging. Invited Speaker, Bioengineering Graduate Program, Katholieke Universiteit Leuven, Leuven (Belgium), May 13, 2003.
50. R. Müller. Hierarchische CT-Bildgebung des Knochens. Invited Speaker, Instructional Course on "Biology and the Mechanical Competence of Bone", 3. Jahrestagung der Deutschen Gesellschaft für Biomechanik, Munich (Germany), May 31, 2003.
51. R. Müller. Multimedia in the life sciences - a new challenge for information technology. Invited Speaker, Department of Information Technology, The University of Zürich, Zürich (Switzerland), June 17, 2003.
52. R. Müller. 3D micro-tomographic imaging of bone and biomaterials. Invited Speaker, European Cells and Materials IV, Davos (Switzerland), July 1, 2003.
53. R. Müller. Multiple imaging modalities in vivo and in vitro. Plenary Speaker, NIH/NIAMS Invited Meeting on "Bone Quality", Bethesda (USA), August 18, 2003.
54. R. Müller. Hierarchical bioimaging - of men and mice. Invited Speaker, National Institutes of Health, Bethesda (USA), August 19, 2003.
55. R. Müller. Mikrostrukturelle Bildgebung in den Life Sciences: Von Mäusen und Menschen, Invited Speaker, Gemeinsame Jahrestagung der österreichischen, Deutschen und Schweizerischen Gesellschaft für Biomedizinische Technik, Salzburg (Austria), September 25, 2003.
56. R. Müller. Hierarchische Mikrotomographie. Invited Speaker, Combined Annual Meeting of the Swiss Society of Microtechnology and the Swiss Society of Biomedical Engineering, Buchs (Switzerland), October 9, 2003.
57. R. Müller. Architektur und mechanische Kompetenz des alternden Knochens. Invited Speaker, Fortbildungsveranstaltung Ortho, Inselspital, Berne (Switzerland), October 23, 2003.
58. R. Müller. Functional phenomics of murine bones. Invited Speaker, Fall Meeting of the Swiss Society of Pharmacology and Toxicology, Basle (Switzerland), October 27, 2003.
59. R. Müller. Funktionelle Phenomik und Imaging des Knochens - eine Herausforderung an die Informationstechnologie. Invited Speaker, Medizinische Informatik, Kolloquium für Mediziner und Veterinärmediziner, The University of Zürich, Zürich (Switzerland), November 20, 2003.

60. R. Müller. Hierarchische Bildgebung von Knochenstruktur und Funktion. Invited Speaker, EMPA Academy, St. Gallen (Switzerland), December 4, 2003.
61. R. Müller. Skeletal imaging: of mice and men. Invited Speaker, The Forsyth Institute, Boston (USA), December 9, 2003.
62. R. Müller. Dynamic imaging of bone function. Invited Speaker, Institute of Terrestrial Ecology, ETH Zürich, Zürich (Switzerland), December 17, 2003.
63. R. Müller. Microarchitecture and bone quality. Invited Speaker, NIH Staff Training in Extramural Programs (STEP), Science in the Public Health, "Feeling Good Right Down to Your Bones", Bethesda (USA), January 13, 2004.
64. R. Müller. Hierarchical bioimaging in the assessment of bone quality and the competence of bone. Plenary Speaker, 6th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Madrid (Spain), February 27, 2004.
65. R. Müller. Functional imaging of microstructural bone failure. International Speaker, The Third Clare Valley Bone Meeting, International Society for Fracture Repair, Clare (Australia), March 23, 2004.
66. R. Müller. Functional microimaging at the interface of bone mechanics and biology. Invited Speaker, 2004 Bone Summit, Cleveland Clinic Foundation, Cleveland (USA), May 13, 2004.
67. R. Müller. What can we expect from microCT imaging now and in the future? Keynote Speaker, 16th International Bone Densitometry Workshop, Annecy (France), June 22, 2004.
68. R. Müller. Time-lapsed microstructural imaging of bone function. Invited Speaker, IUTAM Symposium on "Mechanics of Biological Tissue", Graz (Austria), June 28, 2004.
69. R. Müller. Bone imaging - a hierarchical approach to assess bone function. Keynote Speaker, 14th Meeting of the European Society of Biomechanics, 's-Hertogenbosch (The Netherlands), July 7, 2004.
70. R. Müller. Structure function assessment in biomaterials and tissue engineering. Invited Speaker, Department of Materials, ETH Zürich, Zürich (Switzerland), August 26, 2004.
71. R. Müller. Architektur und mechanische Kompetenz des mikrostrukturellen Knochens. Plenary Lecture, Universitäts-Kinderspital beider Basel, Basel (Switzerland), September 9, 2004.
72. R. Müller. Functional microimaging at the interface of bone mechanics and biology. Invited Speaker, Doctoral Program in Biotechnology and Bioengineering, Swiss Federal Institute of Technology (EPFL), Lausanne (Switzerland), November 4, 2004.
73. R. Müller. Structure function assessment in natural and engineered biomaterials. Invited Speaker, Institute of Science and Technology in Medicine, Keele University, Stoke-on-Trent (UK), November 15, 2004.
74. R. Müller. Bone imaging - a hierarchical approach to assess bone function. Invited Speaker, 1st GAMM Seminar on Continuum Biomechanics, Freudenstadt-Lauterbad (Germany), November 25, 2004.
75. R. Müller. Hierarchical microimaging of bone structure and function. Invited Speaker, MEM Research Center (ISTB), University of Berne, Berne (Switzerland), November 30, 2004.
76. R. Müller. Hierarchical bioimaging for structure function assessment in bone. Invited Speaker, Anatomisches Seminar "Aktuelle Probleme der morphologischen Forschung", University of Zürich, Zürich (Switzerland), December 8, 2004.
77. R. Müller. Hierarchical structure function assessment in bone and oral biology. Invited Speaker, Symposium on "Oral Biology", Center for Dental and Oral Medicine and Cranio-Maxillofacial Surgery, University of Zürich, Zürich (Switzerland), March 29, 2005.
78. R. Müller. Structure function assessment in orthopedics and tissue engineering. Invited Speaker, School of Life Sciences, Swiss Federal Institute of Technology (EPFL), Lausanne (Switzerland), April 6, 2005.
79. R. Müller. How does trabecular bone fail at the microstructural level? Plenary Lecture, NIH/NIAMS-ASBMR Scientific Meeting on "Bone Quality: What Is It and Can We Measure It?", Bethesda (USA), May 2, 2005.
80. R. Müller. Anatomical and functional CT imaging of bone. Plenary Lecture, 2nd Joint Meeting of the European Calcified Tissue Society (ECTS) and the International Bone and Mineral Society (IBMS), Geneva (Switzerland), June 26, 2005.
81. R. Müller. Bone mechanics - from macro to nano. Keynote Speaker, 2005 Annual Meeting of the Swiss Society for Biomedical Engineering (SSBE), Zürich (Switzerland), September 1, 2005.
82. R. Müller. Hierarchical bioimaging in the assessment of bone quality and the competence of bone. Invited Speaker, Department of Clinical Laboratory Medicine, Saitama Medical School, Tokyo (Japan), September 9, 2005.
83. R. Müller. Dynamic imaging of bone function - a hierarchical approach. Invited Speaker, 2nd Japan-Switzerland Workshop on Biomechanics, Kyoto (Japan), September 15, 2005.
84. R. Müller. The vasculature in bone quality and skeletal response to mechanical load. Plenary Lecture, 27th Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), Plenary Lecture Symposium 1: Bone and Its Vasculature, Nashville (USA), September 25, 2005.
85. R. Müller. Bioimaging with synchrotron radiation: new challenges. Plenary Lecture, 6th Swiss Light Source Users Meeting, Villigen (Switzerland), October 17, 2005.
86. R. Müller. Advanced imaging techniques for studying bone structure and function. Invited Speaker, The Botnar Research Centre, Institute of Musculoskeletal Sciences, University of Oxford, Oxford (UK), October 25, 2005.

87. R. Müller. Anatomical and functional micro-tomography in bone and dental applications. Invited Speaker, Department of Clinical Research, University of Berne, Berne (Switzerland), November 23, 2005.
88. R. Müller. Mikro- und Nano-Biotomographie mit Synchrotron Licht. Invited Speaker, Naturforschende Gesellschaft in Zürich, Zürich (Switzerland), November 28, 2005.
89. R. Müller. Orthopaedic biomechanics - structure function assessment from macro to nano. Invited Speaker, Symposium on "Orthopaedic Biomechanics", Department of Orthopaedic Surgery, University of Zürich, Zürich (Switzerland), January 18, 2006.
90. R. Müller. Structure function assessment in orthopaedics and skeletal biology - from macro to nano. Invited Speaker, Department of Mechanical and Process Engineering, ETH Zürich, Zürich (Switzerland), February 10, 2006.
91. R. Müller. Genetische Komponenten der Knochenstruktur. Invited Speaker, Leopoldina-Symposium "Der Knochen als Archiv", Munich (Germany), March 10, 2006.
92. R. Müller. Quantification of bone microcracks using time-lapsed nanotomography. Plenary Speaker, 7th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Antibes (France), March 23, 2006.
93. R. Müller. Hierarchical bioimaging in gene therapy and regenerative medicine. Invited Speaker, 4th International Meeting on Gene Therapy of Arthritis and Related Disorders, Utrecht (The Netherlands), May 12, 2006.
94. R. Müller. Mirando al futuro - biopsia ósea no invasiva. Invited Speaker, XXXII Annual Congress of Rheumatology, Spanish Society for Rheumatology, Valencia (Spain), May 23, 2006.
95. R. Müller. Imaging and biomechanical analysis of bone repair. Plenary Lecture, Genostem Workshop "Preclinical models of bone repair: clinical relevance and applicability in mesenchymal stem cell-mediated therapy", Paris (France), May 29, 2006.
96. R. Müller. Multiscale assessment of cortical and trabecular bone failure - a combined experimental and computational approach. Invited Speaker, III European Conference on Computational Solid and Structural Mechanics, ECCM-2006, Mini-Symposium "Multiscale Mechanics of Biological Materials and Other Natural Composites", Lisbon (Portugal), June 5, 2006.
97. R. Müller. Relation microarchitecture - résistance mécanique: modélisation structurelle du tissu osseux. Plenary Lecture, Séminaire é Osseuse, Abbaye des Vaux de Cernay (France), June 16, 2006.
98. R. Müller. Computer simulations in orthopedics - from macro to nano. Invited Speaker, Fallstudien, Rechnergestützte Wissenschaften, ETH Zürich, Zürich (Switzerland), June 22, 2006.
99. R. Müller. Neue bildgebende Verfahren zur Diagnostik von Knochenkrankheiten oder: Hat die Densitometrie ausgedient? Invited Speaker, Bruderholz Seminare in Innerer Medizin 2006, Basle University Hospital, Kantonsspital Bruderholz, Basle (Switzerland), July 14, 2006.
100. R. Müller. Hierarchical imaging of bone quality: the renaissance of the biopsy. Plenary Lecturer, Xth Congress of the International Society of Bone Morphometry (ISBM), Philadelphia (USA), September 20, 2006.
101. R. Müller. Hierarchical bioimaging for advanced quantification in tissue engineering and regenerative medicine. Keynote Speaker, 20th European Conference on Biomaterials (ESB 2006), Nantes (France), September 28, 2006.
102. R. Müller. Developments and future perspectives of bone microstructure analysis. Keynote Speaker, 17th International Bone Densitometry Workshop, Kyoto (Japan), November 6, 2006.
103. R. Müller. Advances in bone architectural imaging techniques. Invited Speaker, Satellite meeting "Efficacy of bisphosphonates in postmenopausal osteoporosis - concepts and insights", 7th European Congress on Clinical and Economic Aspects of Osteoporosis and Osteoarthritis (ECCEO7), Porto (Portugal), March 30, 2007.
104. R. Müller. Hierarchical micro-imaging in biomaterials research and tissue regeneration. Invited Speaker, 17th Interdisciplinary Research Conference on Biomaterials, GRIBOI 2007, Oxford (UK), April 3, 2007.
105. R. Müller. Hierarchical analysis of the skeletal response to mechanical stimulation. Invited Speaker, 2nd Lilly European Forum for Advances in Osteoporotic Fractures Management, Vienna (Austria), April 21, 2007.
106. R. Müller. Bone mineral density and microarchitecture in the assessment of bone strength. Invited Speaker, 34th European Symposium on Calcified Tissues, ECTS Training Course "Bone quality: from bench to bedside", Copenhagen (Denmark), May 5, 2007.
107. R. Müller. Hierarchical imaging of cells and matrix. Invited Speaker, 2007 Global Arthritis Research Network (GARN) Meeting, Zürich (Switzerland), May 12, 2007.
108. R. Müller. Computational biomechanics in orthopaedics and skeletal biology. Invited Speaker, 27th Annual Meeting of the Japanese Society of Bone Morphometry, Huis Ten Bosch (Japan), June 2, 2007.
109. R. Müller. Micro- and nano-tomography of bone using synchrotron light. Invited Speaker, Utrecht Seminar, 27th Annual Meeting of the Japanese Society of Bone Morphometry, Huis Ten Bosch (Japan), June 2, 2007.
110. R. Müller. MicroCT monitoring of tissue engineered constructs. Invited Speaker, Workshop on Bioreactor Design for Skeletal Tissue Engineering, Keele (UK), June 21, 2007.
111. R. Müller. Bone imaging - from bench to bedside. Plenary Lecture, 17th Scientific Meeting of the International Bone and Mineral Society (IBMS), Montreal (Canada), June 27, 2007.

112. R. Müller. Advances in the imaging of bone. Invited Speaker, Advances in the Molecular Pharmacology and Therapeutics of Bone Disease, Oxford (UK), July 11, 2007.
113. R. Müller. Imaging techniques in animal models for in vivo functionality assessment. Invited Speaker, EMEA/INFARMED/EXPERTISSUES Joint Workshop on Cell Based Medicinal Products, Lisbon (Portugal), October 19, 2007.
114. R. Müller. Functional bioimaging of skeletal tissues. Invited Speaker, Boston V Meeting, Boston (USA), November 6, 2007.
115. R. Müller. Cracks beneath the surface - how advances in imaging techniques can help in the management of osteoporosis. Invited Speaker, Satellite symposium "Practical Steps into the Future", 12th Conference on Osteoporosis, National Osteoporosis Society, Edinburgh (UK), November 27, 2007.
116. R. Müller. Structure function assessment in bone - from macro to nano. Invited Speaker, Mechanics and Computation Seminar Series, Stanford University, Stanford (USA), March 6, 2008.
117. R. Müller. Advances in the clinical imaging of bone. Invited Speaker, IBMS Davos Workshop "Bone Biology and Therapeutics", International Bone and Mineral Society, Davos (Switzerland), March 11, 2008.
118. R. Müller. Bone strength evaluation: imaging techniques of the future. Invited Speaker, Satellite symposium "Postmenopausal Osteoporosis: Evidence-Based Medicine in Action", Eular 2008, Paris (France), June 11, 2008.
119. R. Müller. Functional bone imaging using synchrotron light. Invited Speaker, 18th International Bone Densitometry Workshop, Pugnochiuso (Italy), June 18, 2008.
120. R. Müller. Imaging techniques to improve and control tissue engineering strategies. Invited Speaker, TERMIS-EU 2008 Annual Meeting, Symposium "Advances on Multidisciplinary Research for the Tissue Engineering of Bone and Cartilage", Porto (Portugal), June 23, 2008.
121. R. Müller. Biomechanical imaging - a novel approach to assess bone structure and function. Keynote Speaker, Bioengineering 08, London (UK), September 18, 2008.
122. R. Müller. Tissue and cell level modelling to predict changes over time: planning the pharmacological treatment in osteoporosis. Invited Speaker, ICT BIO 2008 "Computer Modelling and Simulation for Improving Human Health", Brussels (Belgium), October 24, 2008.
123. R. Müller. News in evaluating bone structure. Invited Speaker, Colloques Cliniques, Service des Maladies Osseuses, University Hospital of Geneva, Geneva (Switzerland), December 12, 2008.
124. R. Müller. Micro-CT imaging of materials and in preclinical models. Invited Speaker, Expertissues Winterschool on "Preclinical Models and Imaging in Musculoskeletal Tissue Engineering", Radstadt (Austria), January 27, 2009.
125. R. Müller. Functional imaging for skeletal tissue regeneration. Invited Speaker, Symposium "Regenerative Medicine", University Hospital Zürich, Zürich (Switzerland), May 28, 2009.
126. R. Müller. Biomechanical testing and simulation techniques in skeletal research - the importance of hierarchy. Invited Tutorial Speaker, XXII Congress of the International Society of Biomechanics, Cape Town (South Africa), July 5, 2009.
127. R. Müller. Hierarchical microimaging of bone structure and function. Invited Speaker, Technology Forum, European Forum Alpbach, Alpbach (Austria), August 28, 2009.
128. R. Müller. Biomechanical imaging of bone function. Invited Speaker, The Third Switzerland-Japan Workshop on Biomechanics 2009 (SJB 2009), Engelberg (Switzerland), September 4, 2009.
129. R. Müller. Advances in the imaging and quantification of bioscaffolds and tissue regeneration. Invited Speaker, 22th European Conference on Biomaterials (ESB 2009), Lausanne (Switzerland), September 8, 2009.
130. R. Müller. Trabecular bone failure at the structural and microstructural level. Invited Speaker, 31st Annual Meeting of the American Society of Bone and Mineral Research (ASBMR), Working Group "Non-Invasive Assessment of Bone Microarchitecture and Function", Denver (USA), September 12, 2009.
131. R. Müller. Partnerships between Academia and Industry. Invited Speaker, CARTA 2010, 6th Cardiovascular Roundtable, University Hospital Zürich, Zürich (Switzerland), October 23, 2009.
132. R. Müller. Innovative technologies for an ageing population - virtual physiology to combat osteoporosis. Invited Speaker, World Economic Forum (WEF), Annual Meeting 2010, IdeasLab, Davos (Switzerland), January 28, 2010.
133. R. Müller. Hierarchical imaging and quantification of bioscaffolds and tissue regeneration. Invited Speaker, McGowan Institute 2010 Scientific Retreat, The University of Pittsburgh, Nemaquin Woodlands Resort, Farmington (USA), March 8, 2010.
134. R. Müller. Pharmacological treatment planning and the preclinical assessment of new bone drugs. Invited Speaker, IOF World Congress on Osteoporosis and 10th European Congress on Clinical and Economic Aspects of Osteoporosis and Osteoarthritis, Florence (Italy), May 5, 2010.
135. R. Müller. Cell and tissue based simulation of osteoporosis and pharmacological treatment. Invited Speaker, IV European Congress on Computational Mechanics (ECCM IV), Mini-Symposium "Mechanobiology of Bone Remodelling and Adaptation", Paris (France), May 18, 2010.
136. R. Müller. Biomechanical imaging - a hierarchical approach to assess bone structure and function. Opening Plenary Speaker, 4th National Conference of the Hellenic Society of Biomechanics (ELEMBIO), Ioannina (Greece), June 4, 2010.

137. R. Müller. Biomechanical imaging of cortical bone structure and function. Keynote Speaker, 18th Annual Meeting European Orthopedic Research Society, Davos (Switzerland), July 2, 2010.
138. R. Müller. Toward a validated algorithm for the prediction of bone tissue adaptation. Invited Speaker, 6th World Congress of Biomechanics, Singapore (Singapore), August 5, 2010.
139. R. Müller. Advanced functional imaging in applications of tissue engineering and regenerative medicine. Invited Speaker, National University of Singapore Seminar Series, Singapore (Singapore), September 3, 2010.
140. R. Müller. Osteocytes - the hunt for the mechanostat. Invited Speaker, ANZBMS 20th Annual Scientific Meeting, Australian and New Zealand Bone and Mineral Society, Adelaide (Australia), September 6, 2010.
141. R. Müller. Bone imaging - the future. Plenary Speaker, ANZBMS 20th Annual Scientific Meeting, Australian and New Zealand Bone and Mineral Society, Adelaide (Australia), September 7, 2010.
142. R. Müller. Hierarchical microimaging of bone structure and function. Invited Speaker, 4th CIMST Interdisciplinary Summer School on Bio-medical Imaging, ETH Zürich, Zürich (Switzerland), September 16, 2010.
143. R. Müller. Bone biomechanics - from fracture prediction to tissue regeneration. Invited Speaker, MNSP Industry Day 2010, ETH Zürich, Zürich (Switzerland), September 17, 2010.
144. R. Müller. Gesund schütteln. Invited Speaker, Treffpunkt Science City - Gesund älter werden, Zürich (Switzerland), November 14, 2016.
145. R. Müller. Bone imaging - of mice and men. Invited Speaker, Institute of Science and Technology in Medicine, Keele University, Stoke-on-Trent (UK), March 15, 2011.
146. R. Müller. Non invasive evaluation of bone strength. Invited Speaker, 11th European Congress on Osteoporosis and Osteoarthritis (ECCEO11-IOF), Valencia (Spain), March 24, 2011.
147. R. Müller. In silico biology of load-induced bone adaptation. Invited Speaker, John Haddad Young Investigator Meeting, Advances in Mineral Metabolism (AIMM) and American Society for Bone and Mineral Research (ASBMR), Snowmass (USA), April 6, 2011.
148. R. Müller. Cracks beneath the surface - biomechanical bone imaging from macro to nano. Plenary Speaker, Horizon Lecture, M+Visión Fellowship 2011 Training Program, Madrid-MIT M+Visión Consortium, Madrid (Spain), July 20, 2011.
149. R. Müller. In silico prediction of local bone formation and resorption in an in vivo model of bone adaptation. Invited Speaker, 2011 IUTAM Symposium on Computer Models in Biomechanics, Stanford (USA), August 30, 2011.
150. R. Müller. Advances in quantitative imaging of skeletal tissue regeneration. Invited Speaker, Summer School on Biomaterials and Regenerative Medicine: From Molecular and Cell Biology to Tissues and Organs Repair, Riva del Garda (Italy), September 23, 2011.
151. R. Müller. Patient specific modelling for osteoporosis fracture prediction. Invited Speaker, EPSRC Network Meeting on "Patient Specific Modelling - Translation from Basic Research to Clinical Practice", Edinburgh (UK), September 28, 2011.
152. R. Müller. Quantitative micro-imaging of musculoskeletal structure and function. Invited Speaker, Zurich Center for Integrative Human Physiology (ZIHP), Mini-symposium on "Visualizing Men and Mammals", Zürich (Switzerland), November 21, 2011.
153. R. Müller. Future of bone imaging: in vivo evaluation of bone remodeling. Keynote Speaker, International Bone Academy Meeting on "Progress in RANK Ligand Biology: Bone and Beyond", Brussels (Belgium), February 3, 2012.
154. R. Müller. Non-invasive evaluation of bone strength. Invited Speaker, 1st CEOR's International Symposium on Osteoporosis and Bone Health, Jeddah (Saudia Arabia), February 8, 2012.
155. R. Müller. Why bones fail: structure and function. Invited Speaker, 1st CEOR's International Symposium on Osteoporosis and Bone Health, Jeddah (Saudia Arabia), February 9, 2012.
156. R. Müller. Time-lapsed in vivo imaging of transient bone biology. Invited Speaker, Osteologie 2012, Basel (Switzerland), March 29, 2012.
157. R. Müller. Computational prediction of load induced bone remodeling in response to aging, disease and treatment in vivo. Invited Speaker, 10th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Berlin (Germany), April 12, 2012.
158. R. Müller. Biomechanics and mechanobiology in biomaterials research and tissue regeneration. Invited Speaker, 22nd Interdisciplinary Research Conference on Biomaterials, GRIBOI 2012, Uppsala (Sweden), May 11, 2012.
159. R. Müller. Hierarchical imaging of bone structure and function. Keynote Speaker, Special Symposium on Hard Tissue Imaging, Institute of Clinical Research, University of Southern Denmark, Odense (Denmark), June 6, 2012.
160. R. Müller. Advances in quantitative imaging of skeletal tissue regeneration. Invited Speaker, Summer School on Biomaterials and Regenerative Medicine: Bioinspired and Biomimetic Materials and Scaffolds, Riva del Garda (Italy), July 13, 2012.
161. R. Müller. Imaging living tissue using X-ray micro-computed tomography. Invited Speaker, Summer School on Condensed Matter Research - Imaging Life and Matter, Zugerberg (Switzerland), August 15, 2012.

162. R. Müller. In vivo micro-CT for time-lapsed imaging of transient bone biology. Invited Speaker, 19th International Bone Densitometry Workshop, Breckenridge (USA), August 20, 2012.
163. R. Müller. In vivo monitoring of vascular development and regeneration. Keynote Speaker, 3rd TERMIS World Congress, Vienna (Austria), September 6, 2012.
164. R. Müller. In vivo physiome maps for the simulation of bone remodeling. Keynote Speaker, 6th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012), Vienna (Austria), September 11, 2012.
165. R. Müller. Predicting disease progression and effect of pharma treatment. Invited Speaker, VPH2012 - Integrative Approaches to Computational Biomedicine, London (UK), September 19, 2012.
166. R. Müller. Micro-CT imaging of materials and tissues in preclinical models. Invited Speaker, TERMIS/Expertissues Winterschool on "Vitro/Vivo Preclinical Models and Imaging in Musculoskeletal Tissue Regeneration", Radstadt (Austria), January 29, 2013.
167. R. Müller. Vibrationstherapie oder wie die Knochen hören lernten. Invited Speaker, Technische Gesellschaft Zürich (TGZ), Zürich (Switzerland), March 4, 2013.
168. R. Müller. Local bone formation and resorption in vivo is controlled mechanically in cyclically loaded and in ovariectomized mice. Invited Speaker, 11th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Salt Lake City (USA), April 5, 2013.
169. R. Müller. Panellist, Ninth Annual Swiss Re Young Leaders Reunion: Entrepreneurship and Innovation, Rüslikon (Switzerland), April 9, 2013.
170. R. Müller. Ingenieure für Spitäler - warum wir mehr Ingenieure in der Medizin brauchen. Keynote Speaker, 5. Europäische Konferenz für Krankenhaustechnik, Berne (Switzerland), April 12, 2013.
171. R. Müller. Der Wolff im Mauspelz oder wie die Knochen hören lernten. Invited Speaker, 8. Jahrestagung der Deutschen Gesellschaft für Biomechanik (DGfB), Neu-Ulm (Germany), May 16, 2013.
172. R. Müller. Imaging tissues, from complex methods to standard tools. Invited Speaker, Summer School on Biomaterials and Regenerative Medicine: From the Biological Design to the Validation of Tissue Engineering Procedures and Scaffolds, Riva del Garda (Italy), July 12, 2013.
173. R. Müller. In silico mechanobiology of bone. Plenary Speaker, V International Congress on Computational Bioengineering (ICCB 2013), Leuven (Belgium), September 12, 2013.
174. R. Müller. Virtuelle Knochenbiopsien zur Vorhersage osteoporotischer Frakturen. Invited Speaker, Medical Waid Rounds, Stadtsptial Waid, Zürich (Switzerland), September 24, 2013.
175. R. Müller. Time-lapsed imaging of transient bone biology. Invited Speaker, Weekly Seminary Series, Department of Rheumatology, University Hospital, Zürich (Switzerland), October 22, 2013.
176. R. Müller. Hierarchical imaging of musculoskeletal tissues. Keynote Speaker, Scanco User Meeting 2013, Appenzell (Switzerland), October 24, 2013.
177. R. Müller. Mechanobiology in bone tissue engineering and skeletal regeneration. Invited Speaker, Second Stepping Stone Symposium in Medical Technologies, Sino Swiss Science and Technology Cooperation (SSSTC) Initiative, Hangzhou (China), November 3, and Shanghai (China), November 6, 2013.
178. R. Müller. Virtual biopsy imaging in rodents: what have we learned about osteoporosis drug effects? Invited Speaker, International Bone Academy Meeting, Barcelona (Spain), March 8, 2014.
179. R. Müller. Flesh, bone, and synthetics: transforming medicine through engineering. Plenary Speaker, MIT Alumni Association/Swissnex Boston Event, Cambridge (USA), March 19, 2014.
180. R. Müller. Neue Arbeitswelten für die Wissenschaft. Invited Speaker, ETH Symposium 2014 "Neue Arbeitswelten für Innovationen und Effizienz", Weil am Rhein (Germany), April 2, 2014.
181. R. Müller. Imaging tissue engineering. Plenary Speaker, TERMIS-EU 2014 Annual Meeting, Genoa (Italy), June 11, 2014.
182. R. Müller. Mechanical systems biology of bone. Invited Speaker, Advances in the Molecular Pharmacology and Therapeutics of Bone Disease, Oxford (UK), June 30, 2014.
183. R. Müller. Microfluidic imaging of in vivo gene expression in mechanobiology. Invited Speaker, 7th World Congress of Biomechanics, Boston (USA), July 8, 2014.
184. R. Müller. In silico mechanobiology in a multiscale model of bone adaptation. Invited Speaker, 7th World Congress of Biomechanics, Boston (USA), July 10, 2014.
185. R. Müller. Functional imaging of musculoskeletal tissues. Keynote Speaker, 2014 Annual Meeting of the Swiss Society for Biomedical Engineering (SSBE), Zürich (Switzerland), August 27, 2014.
186. R. Müller. Systems mechanobiology of bone. Invited Speaker, 4th Japan-Switzerland Workshop on Biomechanics (JSB2014), Shima (Japan), September 2, 2014.
187. R. Müller. Form-function-relationship in bone at the tissue and cellular level. Plenary Speaker, 109. Tagung Anatomische Gesellschaft, Salzburg (Austria), September 25, 2014.
188. R. Müller. High-throughput cell imaging in bone systems biology. Invited Speaker, 20th International Bone Densitometry Workshop (IBDW 2014), Hong Kong, October 14, 2014.
189. R. Müller. In vivo bone imaging - from dynamic morphometry to systems biology. Invited Speaker, 7th International Conference on Osteoporosis and Bone (ICOBR), Xiamen (China), October 16, 2014.
190. R. Müller. High-throughput bone imaging in mechanical systems biology. Plenary Speaker, 5th Symposium of Academic Exchange and Collaborative Research, ETH Zürich/Hokkaido University, Zürich (Switzerland), November 27, 2014.

191. R. Müller. 4D-Knochenmikrostrukturanalyse. Invited Speaker, Osteologie 2015, Berlin (Germany), March 12, 2015.
192. R. Müller. Rolle von hr3DpQCT in der modernen Knochendiagnostik. Invited Speaker, Osteologie 2015, Berlin (Germany), March 13, 2015.
193. R. Müller. Hierarchical imaging of bone failure. Invited Speaker, XIIIth Congress of the International Society of Bone Morphometry (ISBM), Tokyo (Japan), April 28, 2015.
194. R. Müller. Skeletal systems mechanobiology. Perspective Talk, 21st Congress of the European Society of Biomechanics (ESB), Prague (Czech Republic), July 8, 2015.
195. R. Müller. The role of in vivo hr3DpQCT in modern bone diagnostics. Invited Speaker, Department of Orthopaedics and Traumatology, The Chinese University of Hong Kong, Hong Kong, November 13, 2015.
196. R. Müller. In silico mechanobiology of bone remodeling. Invited Speaker, MouseAGE Workshop on Modelling and Simulation in the Aging Mouse, Lisbon (Portugal), November 23, 2015.
197. R. Müller. Functional in vivo imaging of bone - from biomechanics to systems mechanobiology. Invited Speaker, Lecture Series, SFB Transregio 79, Giessen (Germany), November 25, 2015.
198. R. Müller. Towards customizable implants. Invited Speaker, Go Life in Future Orthopaedics 2015 Conference. Gothenburg (Sweden), December 11, 2015.
199. R. Müller. Künstliche Knochen aus dem Drucker. Invited Speaker, Treffpunkt Science City - Der unperfekte Mensch, Zürich (Switzerland), March 6, 2016.
200. R. Müller. Effects of bone (re)modelling on bone strength and mechanotransduction. Invited Speaker, International Bone Academy Meeting, Barcelona (Spain), March 11, 2016.
201. R. Müller. From skeletal systems mechanobiology to predictive medicine. Invited Speaker, EAMBES Fellows Meeting - The Future of Biomedical Engineering in Europe: To the Horizon and Beyond, Brussels (Belgium), March 15, 2016.
202. R. Müller. LivE imaging and in silico modelling in the aging mouse. Keynote Speaker, Annual Meeting MouseAGE, Madrid (Spain), April 12, 2016.
203. R. Müller. LivE imaging for in vivo cellular profiling. Invited Speaker, 43rd Annual European Calcified Tissue Society Congress (ECTS 2016), Rome (Italy), May 15, 2016.
204. R. Müller. Reducing the use of animals by in vivo imaging of bone and blood vessels. Keynote Speaker, European Cells and Materials XVII, Davos (Switzerland), June 22, 2016.
205. R. Müller. 3D printing of biological tissues. Invited Speaker, Summer School on Biomaterials and Regenerative Medicine, Riva del Garda (Italy), July 7, 2016.
206. R. Müller. Longitudinal in vivo imaging of tissue regeneration. Invited Speaker, Summer School on Biomaterials and Regenerative Medicine, Riva del Garda (Italy), July 8, 2016.
207. R. Müller. Against the motion: microdamage is good for bone. Invited Speaker, ASBMR/ECTS Clinical Debate, ASBMR 2016 Annual Meeting, Atlanta (USA), September 16, 2016.
208. R. Müller. A Wolff in mice clothing or how bones have grown ears. Russel Severance Springer Lecture, Department of Mechanical Engineering, University of California, Berkeley (USA), September 30, 2016.
209. R. Müller. Systems mechanobiology of bone using LivE imaging. Invited Speaker, Core Center for Musculoskeletal Biology and Medicine, University of California, San Francisco (USA), November 10, 2016.
210. R. Müller. In silico simulation of bone remodeling and adaptation - of mice and men. Invited Speaker, Auckland Bioengineering Institute (ABI), University of Auckland, Auckland (New Zealand), December 2, 2016.
211. R. Müller. Bone systems mechanobiology using LivE imaging. Keynote Speaker, 10th Australasian Biomechanics Conference (ABC10), Melbourne (Australia), December 5, 2016.
212. R. Müller. Systems mechanobiology in bone tissue engineering and skeletal regeneration. Invited Speaker, 2016 ARMI External Speaker Series, Australian Regenerative Medicine Institute (ARMI), Melbourne (Australia), December 7, 2016.
213. R. Müller. How to make bones stronger: a bioengineering view. Invited Speaker, Bone Academy Mexico 2017, Cancún (Mexico), January 26, 2017.
214. R. Müller. Microdamage: the good, the bad and the ugly. Invited Speaker, Bone Academy Mexico 2017, Cancún (Mexico), January 27, 2017.
215. R. Müller. A Wolff in mice clothing or how bones have grown ears. Invited Speaker, Indiana Bone and Mineral Seminar, Indiana Center for Musculoskeletal Health, Indiana University Medical School, Indianapolis (USA), March 28, 2017.
216. R. Müller. Skeletal systems mechanobiology of bone adaptation. Invited Speaker, XO Seminar Series, NASA Ames Research Center, Moffet Field (USA), April 6, 2017.
217. R. Müller. Systems mechanobiology of bone remodeling and adaptation. Keynote Speaker, 5th International Conference on Computational and Mathematical Biomedical Engineering (CMBE), The University Club, University of Pittsburgh, Pittsburgh (USA), April 10, 2017.
218. R. Müller. Time-lapsed in vivo imaging of bone adaptation and repair. Invited Lecturer, Musculoskeletal Imaging, Masters in Biomedical Imaging (MSBI) Program, University of California, San Francisco (USA), April 25, 2017.

219. R. Müller. Improving your skills: combining imaging methods to maximise results. Invited Panellist "New Investigator Mentoring Session", 44th Annual European Calcified Tissue Society Congress (ECTS 2017), Salzburg (Austria), May 15, 2017.
220. R. Müller. Skeletal systems mechanobiology and personalized medicine. Plenary Speaker, SOCS Plenary Research Seminars, School of Clinical Sciences, Southmead Hospital, Bristol University, Bristol (UK), May 23, 2017.
221. R. Müller. Vibrationstherapie oder wie die Knochen hören lernten. Viktor Kaplan Lecturer, Austrian Academy of Sciences (öAW), Vienna (Austria), May 31, 2017.
222. R. Müller. Multiscale bone biomechanics - from time-lapsed imaging to systems mechanobiology. Invited Speaker, Musculoskeletal Medical Engineering Center Seminar Series, Department of Bioengineering, Imperial College London, London (UK), June 2, 2017.
223. R. Müller. Multiscale computational biomechanics and simulation in the skeletal system. Plenary Speaker, INSIGNEO Seminar Series, Sheffield University, Sheffield (UK), June 8, 2017.
224. R. Müller. Bone mechanomics and in silico modelling in the aging mouse. Plenary Speaker, Mellanby Centre Seminar Series, Sheffield University, Sheffield (UK), June 9, 2017.
225. R. Müller. How to make bones stronger: a bioengineering view. Invited Speaker, Bone Academy Brazil, 2017, Rio de Janeiro (Brazil), July 20, 2017.
226. R. Müller. Microdamage: the good, the bad and the ugly. Invited Speaker, Bone Academy Brazil, 2017, Rio de Janeiro (Brazil), July 21, 2017.
227. R. Müller. Bone biomechanical imaging. Invited Speaker, Zeiss Global Centre, University of Portsmouth, Portsmouth (UK), August 21, 2017.
228. R. Müller. Advanced imaging and multi-scale modeling in skeletal systems mechanobiology and personalized medicine. Keynote Speaker, ICCB 2017, VII International Congress on Computational Bioengineering, Compiègne (France), September 6, 2017.
229. R. Müller. Multiscale bone biomechanics - from systems mechanobiology to personalized medicine. Invited Speaker, 5th Japan-Switzerland Workshop on Biomechanics (JSB2017), Zermatt (Switzerland), September 15, 2017.
230. R. Müller. Bone LivE imaging - from systems mechanobiology to personalized medicine. Invited Speaker, Department for BioMedical Research Conference, University of Berne, Berne (Switzerland), December 4, 2017.
231. R. Müller. A Wolff in mice clothing or how bones have grown ears. Invited Speaker, Spine Research Program, Icahn School of Medicine at Mount Sinai, New York (USA), December 18, 2017.
232. R. Müller. Lost in medical translation? Invited Speaker, LSZ Impact - Translational Medicine in Zurich, Zürich (Switzerland), January 22, 2018.
233. R. Müller. Preclinical in vivo microCT imaging. Invited Speaker, Workshop on In vivo MicroCT Imaging: Longitudinal Assessment of Skeletal Microstructure, Strength, and (Re)modeling Dynamics, ORS 2018 Annual Meeting, Orthopedic Research Society (ORS), New Orleans (USA), March 13, 2018.
234. R. Müller. Cell-based in silico modeling of bone regeneration. Invited Speaker, CompBioMed All-Hands Meeting, Amsterdam (UK), March 27, 2017.
235. R. Müller. In vivo mechanomics of bone adaptation and regeneration in the aging mouse. Invited Speaker, Workshop on Bone Bioengineering, Regeneration and Implants, 45th Annual European Calcified Tissue Society Congress (ECTS 2018), Valencia (Spain), May 25, 2018.
236. R. Müller. Bone modelling and mechanobiology: new perspectives for fracture management. Invited Speaker, UBC Lunch-Time Symposium, 45th Annual European Calcified Tissue Society Congress (ECTS 2018), Valencia (Spain), May 27, 2018.
237. R. Müller. Imaging Wolff's law, 10th Year Anniversary Symposium on "Musculoskeletal Regeneration in Compromised Patients", Julius Wolff Institute, Berlin (Germany), June 15, 2018.
238. R. Müller. Time-lapsed in vivo imaging of tissue remodeling and regeneration. Invited Speaker, Summer School on Biomaterials and Regenerative Medicine, Trento (Italy), June 20, 2018.
239. R. Müller. Biomimetic 3D printing of bone. Plenary Speaker, 1st International Conference on Materials, Mimicking, Manufacturing from and for Bio Application (BioM&M 2018), Milan (Italy), June 28, 2018.
240. R. Müller. Time-lapsed in vivo imaging of bone adaptation and regeneration. Keynote speaker, 8th World Congress of Biomechanics, Session "In vivo bone remodeling and mechanics", Dublin, Ireland, July 9, 2018.
241. R. Müller. Multiscale bone mechanobiology in aging. Keynote speaker, 8th World Congress of Biomechanics, Session "Multiscale biomechanics of age-related bone fragility", Dublin, Ireland, July 9, 2018.
242. R. Müller. Building stronger bones. Invited speaker, Amgen Lunch-Time Symposium "Innovation in Bone Metabolism", Congresso Brasileiro de Densitometria Osteoporose e Osteometabolismo (8th BRADOO), São Paulo, Brazil, October 11, 2018.
243. R. Müller. Is there an aging effect in the response to mechanical stimulus? Invited speaker, Congresso Brasileiro de Densitometria Osteoporose e Osteometabolismo (8th BRADOO), São Paulo, Brazil, October 11, 2018.

244. R. Müller. Mechanical stimuli in the local in vivo environment in bone. Plenary speaker, Conferência Internacional, Congresso Brasileiro de Densitometria Osteoporose e Osteometabolismo (8th BRADOO), São Paulo, Brazil, October 11, 2018.
245. R. Müller. Is it possible to evaluate biomechanical strength in humans? Invited speaker, Congresso Brasileiro de Densitometria Osteoporose e Osteometabolismo (8th BRADOO), São Paulo, Brazil, October 12, 2018.
246. R. Müller. Vibrationstherapie - Einfluss auf Knochen und Implantat. Invited Speaker, Reha Schweiz Jahreskongress 2018, Zürich (Switzerland), October 25, 2018.
247. R. Müller. Bone tissue engineering - towards personalized human organoids. Invited Speaker, Clinical Biochemical Colloquium, Children's Hospital Zürich, Zürich (Switzerland), December 3, 2018.
248. R. Müller. In vivo mechanomics of bone adaptation and regeneration in aging. Invited Speaker, MeccPhD Lecture Series, Dipartimento di Meccanica, Politecnico di Milano, Milan (Italy), January 25, 2019.
249. R. Müller. Micro-3D printing of osteocyte organoid models. Invited Speaker, TERMIS-EU 2019 Annual Meeting, Rhodes (Greece), May 28, 2019.
250. R. Müller. 3D bioprinting of personalized human bone organoids. Invited Speaker, Clinical Colloquium Regenerative Medicine, University of Zürich, Schlieren (Switzerland), June 27, 2019.
251. R. Müller. Personalized human bone organoids - from stem cells to bioprinting. Invited Speaker, Departement "Materials meet Life", EMPA, St. Gallen (Switzerland), July 4, 2019.
252. R. Müller. Of mice and men, Wolffs and bones. Huiskes Medal Lecture, 25th Congress of the European Society of Biomechanics, Vienna (Austria), July 9, 2019.
253. R. Müller. From mechanics to mechanomics: a journey through bone. Muybridge Award Lecture ([Video](#)), XXVII Congress of the International Society of Biomechanics (ISB2019), Calgary (Canada), August 3, 2019.
254. R. Müller. Synchrotron imaging for bone research, Invited Speaker, 5th Joint Meeting of the Bone Research Society (BRS) and the British Orthopaedic Research Society (BORS), Cardiff (UK), September 6, 2019.
255. R. Müller. A Wolff in mouse clothing - how bones have grown ears. NUSS Professorship Lecture, National University of Singapore, Singapore, October 21, 2019.
256. R. Müller. Towards human bone organoids - from stem cells to bioprinting. Plenary Lecture, 7th Belgian Symposium on Tissue Engineering, Hasselt, Belgium, November 14, 2019.
257. R. Müller. Wie die Knochen hören lernten: Vibrationstherapie im Alter. Invited Speaker, 5. Solothurner Vortragszyklus, Solothurn (Switzerland), November 21, 2019.
258. R. Müller. A glimpse to fundamental omics research in the year 2030: technological innovations. Keynote Speaker, Annual Meeting Gemstone, St. Julian's (Malta), November 27, 2019.
259. R. Müller. 3D matrices and human bone organoids: on the path to personalization. Plenary Lecture, Joint CNRS/INSERM Symposium "From 3D Culture to Organoids", GDR "Réparer l'Humain", Paris (France), December 2, 2019.
260. R. Müller. Der Wolff in uns oder wie die Knochen hören lernten. Invited Speaker, 30 Jahre Biomechanik, Institute for Orthopaedic Research and Biomechanics, University Ulm, Ulm (Germany), July (cancelled due to Covid-19), 2020.
261. R. Müller. Biomechanics and imaging for bone - from mechanics to mechanomics. Invited Speaker, Virtual Workshop on "Mathematics of the MusculoSkeleton: Post-Genome Analysis for Bone Biology", Azrieli Faculty of Medicine, Bar-Ilan University, Ramat Gan (Israel), Online, December 14, 2020.
262. R. Müller. Of mice and men, Wolffs and bones. Invited Speaker, Avioli Musculoskeletal Seminar Series, Musculoskeletal Research Center, Washington University, St. Louis (USA), Online, February 5, 2021.
263. R. Müller. Targeting the mechanomics of bone adaptation and regeneration. Keynote Lecture, 5th Barcelona VPH Summer School, Virtual Physiological Human Institute (VPHi) and Universitat Pompeu Fabra, Barcelona (Spain), Online, June 9, 2021.
264. R. Müller. Advances in multiscale bone biomechanics and mechanobiology. Invited Mini Lecture Series, Summer Doctoral School in "Advances in Biomechanics", Italian Group for Analysis of Stress, Ferrara (Italy), Online, June 16, 2021.
265. R. Müller. Bone biomechanics: osteocytes. Invited Speaker, ECTS-GEMSTONE Digital Masterclass for PhD Students, Trainees and Young Investigators, Online, August 24, 2021.
266. R. Müller. Multiscale LivE imaging of bone remodeling and regeneration. Invited Speaker, Virtual Conference of the COMULIS Network 2021, Session on "Imaging Across Scales", Gothenburg (Sweden), Online, September 3, 2021.
267. R. Müller. Spatial mechanomics of in vivo bone adaptation and regeneration. Invited Speaker, 29th Annual Meeting European Orthopaedic Research Society (EORS), Symposium on "Musculoskeletal Mechanobiology", Rome (Italy), September 15-17, 2021.
268. R. Müller. Imaging the aging skeleton. Invited Speaker, ASBMR Symposium on "Biology of the Aging Skeleton - Implications for Fracture Prevention", San Diego (USA), Online, September 30, 2021.
269. R. Müller. Targeting the mechanomics of bone adaptation and regeneration. Keynote Lecture, 5th Barcelona VPH Summer School, Virtual Physiological Human Institute (VPHi) and Universitat Pompeu Fabra, Barcelona (Spain), Online, June 9, 2021.
270. R. Müller. Spatial mechanomics of bone adaptation and regeneration. Invited Speaker, Mechano-Genomics Seminar, ETH Zürich, Zürich (Switzerland), October 21, 2021.

271. R. Müller. Forschungsaspekte der Frakturheilung auf mikroskopischer Ebene. Invited Speaker, 3. Symposium der Chirurgischen Klinik, Spital Uster, Uster (Switzerland), November 4, 2021.
272. R. Müller. Multiscale mechanobiology in bone adaptation and regeneration. Invited speaker, FIDEDLIO Webinar Series, Online, November 25, 2021.
273. R. Müller. Bone microstructural imaging: from mechanics to mechanomics. Invited Speaker, Seminar Series, Department of Oncology and Metabolism, University of Sheffield, Sheffield (UK), Online, February 25, 2022.
274. R. Müller. Targeting spatial mechanomics of in vivo bone adaptation and regeneration. Invited Speaker, Third Achilles Conference, Biophysical and Biological Cues in Orthopaedics, Dublin (Ireland), April 6-7, 2022.
275. R. Müller. Bone microarchitecture: adapting to requirements. Invited Speaker, Collegium Helveticum, Workshop on "Aesthetics, Design and Function in Nature and Engineered Products", Zürich (Switzerland), May 2, 2022.
276. R. Müller. Imaging in fracture healing. Invited Speaker, 49th Annual European Calcified Tissue Society Congress (ECTS 2022), ECTS-ORS Workshop: Proceedings in Orthopedic Bone Research, Helsinki (Finland), May 25, 2022.
277. R. Müller. The anatomical significance of bone modeling and remodeling. Invited Speaker, 49th Annual European Calcified Tissue Society Congress (ECTS 2022), Chair, UCB Corporate Industry Symposium: The Basis of Bone-Building, Helsinki (Finland), May 27, 2022.
278. R. Müller. Spatial mechanomics of multiscale bone adaptation and regeneration. Invited Speaker, International Symposium on "Biomechanics: Challenges of the Next Decade", Graz (Austria), July 1, 2022.
279. R. Müller. Multiscale mechanobiology in bone regeneration. Invited Speaker, XVth Congress of the International Society of Bone Morphometry (ISBM), Odense (Denmark), July 12, 2022.
280. R. Müller. Multiscale quantification of spatial bone mechanobiology. Invited Speaker, Gordon Research Conference on Musculoskeletal Biology and Bioengineering - Accelerating Discovery in the Musculoskeletal System, Andover (USA), August 9, 2022.
281. R. Müller. Single-cell spatial biology in bone adaptation and regeneration. Invited Speaker, ASBMR 2022 Annual Meeting, American Society of Bone and Mineral Research (ASBMR), IFMRS Session on "New frontiers in musculoskeletal data", Austin (USA), September 9, 2022.
282. R. Müller. Multiscale bone biomechanics and imaging. Invited speaker, Early Career Investigators Webinar Series, International Society of Bone Morphometry (ISBM), Online, June 29, 2023.
283. R. Müller. Imaging mechanobiology at the tissue level in translational sciences. Invited Speaker, 50th International Musculoskeletal Biology Workshop, Orthopaedic Research Society (ORS), Zermatt (USA), July 22-26, 2023.
284. R. Müller. 3D bioprinting of personalized human bone organoids. Invited Speaker, SMCR Seminar, Faculty of Advanced Life Science, Hokkaido University, Sapporo (Japan), August 28, 2023.
285. R. Müller. From biomechanics to bone mechanobiology. Invited Speaker, 6th Japan-Switzerland Workshop on Biomechanics (JSB2023), Otaru, Hokkaido (Japan), August 30, 2023.
286. R. Müller. 3D bioprinting of personalized human bone organoids. Invited Speaker, Laboratory of Micro-Biomechanics, Division of Mechanical and Aerospace Engineering, Hokkaido University, Sapporo (Japan), September 4, 2023.
287. R. Müller. Micro-multiphysics agent-based modeling for the exploration of bone remodeling mechanisms and mechanoregulation in aging. Plenary Speaker, ICCB 2023, X International Congress on Computational Bioengineering, Vienna (Austria), September 21, 2023.
288. R. Müller. 3D bioprinting of human bone organoids for personalized medicine and rare diseases. Invited Speaker, International Seminar Series, Faculty of Biology and Medicine, University of Lausanne, Lausanne (Switzerland), September 26, 2023.
289. R. Müller. In silico prediction of response to osteoporosis treatment. Invited Speaker, ASBMR 2023 Annual Meeting, American Society of Bone and Mineral Research (ASBMR), Session on "New Insights into Osteoporosis Treatment", Vancouver (Canada), October 15, 2023.
290. R. Müller. RETHINKING Regeneration. Panelist, ETH Meets Berlin 2023, Berlin Science Week, Berlin (Germany), November 3, 2023.
291. R. Müller. In vivo bone imaging: from mechanics to mechanomics. Keynote Speaker, Scanco User Meeting 2023, Appenzell (Switzerland), November 16, 2023.
292. R. Müller. Imaging the healing. 14th BSRT Symposium, The Olympic games of regeneration. Berlin School for Regenerative Therapies, Berlin (Germany), December 6, 2023.
293. R. Müller. Multiscale quantification of spatial bone mechanomics. Invited Speaker, EMBO Workshop on Nuclear Mechanogenomics, Sardinia (Italy), April 16-19, 2024.
294. R. Müller. Against the motion: Classical bone histomorphometry provides better functional information than emerging imaging techniques. Invited Speaker, ECTS/ASBMR Basic Science Debate, 51st Annual European Calcified Tissue Society Congress (ECTS 2024), Marseille (France), May 26, 2024.
295. R. Müller. Spatial imaging and transcriptomics. Invited Speaker, Basic Update Ancillary Programme, 51st Annual European Calcified Tissue Society Congress (ECTS 2024), Marseille (France), May 28, 2024.

Original Articles:

1. [R. Müller](#), T. Hildebrand and P. Rügsegger. Non-invasive bone biopsy: A new method to analyse and display the three-dimensional structure of trabecular bone. *Phys. Med. Biol.*, 39:145-164, 1994.
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5. [R. Müller](#), M. Hahn, M. Vogel, G. Delling and P. Rügsegger. Morphometric analysis of noninvasively assessed bone biopsies: Comparison of high-resolution computed tomography and histologic sections. *Bone*, 18:215-220, 1996.
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12. P. H. F. Nicholson, [R. Müller](#), G. Lowet, X. G. Cheng, T. Hildebrand, P. Rügsegger, G. Van der Perre, J. Dequeker and S. Boonen. Do quantitative ultrasound measurements reflect structure independently of density in human vertebral cancellous bone? *Bone*, 23:425-431, 1998.
13. [R. Müller](#), S. C. Gerber and W. C. Hayes. Micro-compression: A novel technique for the nondestructive assessment of local bone failure. *Technol. Health Care*, 6:433-444, 1998.
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15. T. Hildebrand, A. Laib, [R. Müller](#), J. Dequeker and P. Rügsegger. Direct 3-D morphometric analysis of human cancellous bone: Microstructural data from spine, femur, iliac crest, and calcaneus. *J. Bone Miner. Res.*, 14:1167-1174, 1999.
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