Curriculum Vitae Christof Lüthi

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Date of birth: 04.02.1990
Nationality: Switzerland

Professional experience

Advanced manufacturing Lab (AML), ETH Zürich — Zürich, ZH
research assistant, software developer — *since Apr. 2021*

tasks: development iMFREE multi-physics framework for additive manufacturing
technology: C++ (SPH, DEM), Matlab, ParaView

Bystronic Laser AG — Herzogenbuchsee, BE
development engineer, external employment via Redlats GmbH — *Aug. 2017 – Aug. 2018*

tasks: development z-axis distance control cutting head, development of quality assessment procedures, technical support internal and in the field
technology: Matlab/Simulink, LabVIEW, Ansys, SolidWorks, MySQL, SAP, C++/Python/XML/SQL

Bystronic Laser AG — Herzogenbuchsee, BE
intern development engineer — *Nov. 2016 – May 2017*

tasks: Thermal experiments and troubleshooting laser cutting head, development of quality assessment procedures
technology: Matlab/Simulink, LabVIEW, SolidWorks, MySQL, C++/SQL

Institut für Werkzeugemaschinen und Fertigung (IWF), ETH Zurich — Zurich, ZH
assistant in part-time — *Feb. 2015 – Nov. 2016*

tasks: experimental studies, maintenance, student support
technology: Matlab, LabView

Guggisberg Dachtechnik AG — Wabern, BE
temporary employment — *Mar. 2012 – Aug. 2012*

tasks: roofing, flat roofing, isolating, renovating

Scherrer Metec AG — Zurich, ZH
intern metalworker — *Feb. 2012 – Mar. 2012*

tasks: sheet metal working and installation

Schleuniger AG — Thun, BE
intern polymechanic — *Jan. 2011 – Feb. 2011*

tasks: mechanical processing and operating CNC machines

Multiple civil service assignments — across Switzerland
Gutknecht Siedlung, Kantonsspital Nidwalden, Naturnetz — *Aug. 2009 – Aug. 2010*

tasks: caretaking, gardening, cook's mate, internal Logistics, nature protection

Education

ETH Zurich — Zurich, ZH
Master of Science in mechanical engineering (GPA: 5.07) — *Sept. 2018 – Jan. 2021*
focus: control theory & renewable energy technologies

ETH Zurich — Zurich, ZH
Bachelor of Science in mechanical engineering (GPA: 4.31) — *Sept. 2010 – Feb. 2016*
focus: management, technology and economics

Gymnasium Thun-Seefeld — Thun, BE
Baccalaureate level — *Aug. 2006 – Jun. 2009*
focus: art

Theses

Master thesis

IWF, ETH (grade: 5.75)

abstract: Smoothed Particle Hydrodynamics (SPH) simulation of the additive manufacturing process selective laser melting (SLM), using novel method for adaptive refinement. SPH is a numeric simulation method used to approximate complex physical processes. SLM is a rapidly growing technology with high demand for reliable simulation methods to predict suited process parameters.

technology: C/C++ (IDE: Eclipse, MS Visual Studio), ParaView, Matlab, git

publication: The results from the paper will be published in a scientific article in Applied Sciences of the Multidisciplinary Digital Publishing Institute with the title "Multi-resolution SPH simulation of a selective laser melting process". Authors: Mohamadreza Afrasiabi, Christof Lüthi

Semester thesis

IWF, ETH (grade: 5.50)

abstract: Development of a method for adaptive refinement for an existing Smoothed Particle Hydrodynamics (SPH, see above) simulation of the laser drilling process. The worked out method is well suited to be applied to different tasks (see master thesis).

technology: C/C++ (IDE: MS Visual Studio), Matlab, git

Bachelor thesis

IWF, ETH (grade: 5.75)

abstract: Construction of a test stand for experimental examination of the influence of cavity geometries on the heat generation in machine tools. Heating in machine tools leads to inaccuracies when producing machined parts, which can be reduced through compensation based on thermal models. Compared to static thermal and dynamic influences, the impact of cavities, such as the machine casing has been neglected in the past.

technology: National Instuments hardware, Matlab, LabVIEW

Software

coding languages: Matlab, C/C++, C#, Python, SQL, XML

database: SQL

CAD: Siemens NX, SolidWorks

misc. applied software: Matlab/Simulink, Ansys, LabVIEW, Wolfram Mathematica, Cantera, MS Office, LaTeX

tools: Git/GitHub

visual software: Adobe Photoshop, Adobe After Effects, Blender, Unity

operating systems: MS Windows, Linux, Mac OS

languages

German: first language

English: fluent writing and speaking

French: baccalaureate level

References

Shared on request.