Martin HOLUB

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Personal Statement

Bioengineering student, enjoying applying quantitative and analytical skills to enable higher level of control and understanding in biotechnology and healthcare. With unique set of skills and experience in scientific programing and tool development, I am interested in internship or research position in automation and deep learning domain.

Education

Swiss Federal Institute of Technology (ETH),
MSc., specialization Bioengineering

 Zürich, Switzerland
 Sept 2016 – ongoing

- Semester project at Biofabrication and Tissue Engineering Lab ("A novel extrusion system for bioprinting, a comparative study") - Grade 5.75
- ETH Week Award for "The Most Fascinating Science"; Thermodynamics and Energy Conversion in Micro- and Nanoscale Technologies – "Best Poster Award"
- Selected courses: **Engineering:** Biomicrofluidic Engineering, Thermodynamics in Micro- and Nanosystems, Bioelectronics & Biosensors, Computer Vision & Image Analysis, Wearable Systems, Biofluiddynamics, Quantitative Flow Visualization, Advanced CFD Methods. **Biology**: Practical Methods in Tissue Engineering, Synthetic Biology, Energy Conversion in Biosystems. **Data Science:** Machine Learning, Quantitative Big Imaging, Signal and Information Processing, Statistical Analysis of High Throughput Genomic and Transcriptomic Data, Stochastic Methods and Processes, Data Science in Techno-Socio-Economic Systems.

Brno University of Technology (BUT),
B.Sc. in Mechanical Engineering

 Brno, Czech Republic
 Sept 2013 – August 2016

- GPA 1.03 from 203 credits, Honeywell award for outstanding thesis, GE Foundation Scholar-Leaders Award
- Bachelor thesis "Cavitation in Microfluidics": Numerical modelling for 2-phase flow in microfluidic device
- Selected courses: Automation, Machine Learning, Numerical Methods, Microsensors and MEMS, Fluid Dynamics, Thermodynamics & Heat Transfer, Finite Element Method & ANSYS, Dynamics, Engineering Design, Introduction to Material Science.

Selected Work Experience

Nebion AG
Intern in Bioinformatics

 Zürich, Switzerland
 March 2018 –

- Building robust and scalable pipelines for automated and reproducible analysis of microarray and next-generation sequencing data, handling and processing big biological data
- Development of software for applications in plant and biomedical sciences, mainly in Python and R. Extensive use of command line tools, bash scripting and version control (git)

Institute of Pharmacology and Toxicology, University of Zürich
Research Assistant

📍 Zürich, Switzerland
📅 Nov 2016 – Feb 2018

- Image processing and data analysis in the Experimental Imaging & Neuroenergetics group
- Developing algorithms in Python and Matlab (spectral unmixing, motion correction, cell segmentation, fluorescence-lifetime imaging, motion tracking, …) to support ongoing research in the cell-to-cell communication pathways involved in energy metabolism and information processing in cerebral cortex

Laboratory of Sensors and Nanosystems, Central European Institute of Technology
Research Assistant

📍 Brno, Czech Republic
📅 Jun 2016 – Aug 2016

- Microfluidics: soft lithography, chip interfacing and testing, fluorescence microscopy
- Mechatronics: Building a syringe pump. Parts design and 3D printing, mechanics-electronics-software integration, component sourcing

Other

- **Hacking** at Open Food Hackdays 2017 (awarded project "Meat Story") and Hack Zurich 2017
- **Volunteering**
  - Social Service (Kirchgemeinde Erlöser – Zürich, 2017-2018) – clothing donations coordinator
  - Education (Museum of Romani Culture – Brno, 2015-2016) – teaching after-school lectures
  - Sustainable Development (Concordia Ile-de-France – Paris, 2013)
  - Culture (Allez les Filles – Bordeaux, 2014, Budějovický Majáles – Budweis, 2010-2013)
- **Coaching** Ultimate Frisbee club (~ 20 players) for 1 season
- **Project Coordination** at IAESTE – Internships abroad and career fair for ca. 3500 students
- BEST **Courses on Technology** – Renewable Energy and E-Mobility (University of Erlangen-Nuremberg, May 2015), Recycling and Advanced Materials (Ghent University, July 2014)

PC and Lab Skills

- *Software:* Tensorflow, Theano, Fluent, ANSYS, Comsol, Matlab, Octave, AutoCAD Mechanical, Inventor, Latex, Jekyll
- *Programming:* Python, R, Bash, Perl, Linux, Git (*fluent*), C & C++, HTML and CSS (*basics*)

- *Wet Lab:* Cell Culture, Histology, Viability Assays, PCR, 2photon microscopy *(all basics)*, Bioprinting, Hydrogels Preparation and Crosslinking

Languages

- English ●●●●●●●
- French ●●●●○○○

- German ●●●●○○○○
- Czech & Slovak ●●●●●●●

Hobbies

Languages   Travelling   Sports   Public Speaking   Cooking   Reading

Zürich, May 1, 2018

Publications

Journals

Barrett, M., Ferrari, K., Stobart, J., **Holub, M.**, & Weber, B. (2017). CHIPS: An Extensible Toolbox for Cellular and Hemodynamic Two-Photon Image Analysis. Neuroinformatics, Neuroinformatics, 04 October 2017.

Conference Posters & Submissions

Fisch, P., **Holub, M.**, Zenobi-Wong, M. (2017). Comparison of Printing Accuracy of Screw- vs. Press-Driven Extrusion of Bioinks. International conference on biofabrication, Beijing: 2017

Jedelský, J.; Malý, M.; **Holub, M**.; Jícha, M. (2015). Some Aspects of Disintegration of Annular Liquid Sheet in Pressure- Swirl Atomization. In Conference on Modelling Fluid Flow. Budapest: 2015. s. 1-8. ISBN: 978-963-313-190- 9.

References

Available upon request.