

Valentin Hartmann

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Education

ETH Zürich

Mechanical Engineering MSc - GPA 5.73/6

Zürich (CH)

09/16 – 04/19

- Focus on Robotics, Systems and Control - Coursework includes: Mathematical Optimization, System Identification, Probabilistic Artificial Intelligence, Autonomous Mobile Robots, Game Theory and Control, Stochastic Systems, Advanced Topics in Control
- Semester Thesis: *Implementation of a High Performance Integration Scheme for Numerical Optimal Control Applications* - Developed and benchmarked an algorithm for numerical integration in C++. Contributed it to Boost Odeint - Grade: 5.75/6
- Master's Thesis: *A Constant-Complexity Approximation for the Recursive Bayesian Estimation of Closed Skew Normal Distributions* Extended the Kalman filter to include skew in its estimate. Derived theoretical proofs of the accuracy of the approximation. - Grade: 5.75/6

ETH Zürich

Mechanical Engineering BSc - GPA 4.93/6

Zürich (CH)

09/13 – 08/16

- Focus on Mechatronics - Coursework included: Machine Learning, System Modeling, Signals and Systems
- Bachelor's Thesis: *Inductance Based Stiffness Sensing Catheter* - Simulation, design, iteration, fabrication, and prototyping. Additionally developed libraries in C/C++ for communication with sensors that were used in my and other theses - Grade: 6/6

Kantonsschule Trogen

High School, Focus on Applied Mathematics and Physics

Trogen (CH)

08/09 – 06/13

Work and Research Experience

BCG Gamma

Visiting Data Scientist

Munich (DE)

04/19 – 08/19

Verity Studios

Trajectory Generation Intern - Software Development

Zürich (CH)

03/18 – 08/18

- Developed collision free transition algorithms for a large number of drones as a part of the choreography generation tools
- Choreographed drone swarms of various sizes for internal customer demos and public-facing events

Amazon Robotics

Robotics Intern – International Launch Performance

Berlin (DE)

09/17 – 02/18

- Generated a daily email report with insightful visualizations that is currently used to identify problematic areas of the robotic field and deployed it to all warehouses in Europe which lead to an up to 30% reduction of robot breakdowns
- Analyzed and visualized complex data sets pertaining to mobile robot performance and field errors for remediation of high-severity incidents
- Developed hardware and software solutions for human performance estimation and prediction for optimal skill usage of employees

ETH Zürich - Computational Science and Engineering Laboratory

Research Assistant (Part time)

Zürich (CH)

02/17 – 08/17

- Analyzed chaotic processes by examination of learned representations with recurrent neural networks
- Machine learning for data assimilation with Python and TensorFlow

ETH Zürich

Teaching Assistant (Part time)

Zürich (CH)

09/14 – 12/16

- Held TA positions in Kinematics and Statics, Mechanics of Materials, Dynamics, and Biomechanics I
- Prepared and held exercise sessions for up to 90 undergraduate mechanical engineering students per lesson
- Created the midterm exams in a team of two for the Kinematics and Statics course with over 800 enrolled students

Extracurricular Activities and Projects

Receipt Scanning for Refrigerator Management

Hackzurich 2016

Zürich (CH)

09/16

- Task of the team: Developed a mobile app to keep track of stored food in households from scratch over a period of 40 hours
- My task: Implemented the preprocessing of camera images for improved character recognition performance with Python, using Tesseract and Google Cloud Computing

Organization and Leading of Exam Preparation courses

ETH Zürich - AMIV

Zürich (CH)

09/15

- Organized exam preparation courses for over 300 first and second year students in mechanical engineering
- Collected feedback from students to find the best teaching assistants, compiled contracts and coordinated lessons
- Held exam preparation courses for over 100 students over several examination sessions

Event organization

ETH Zürich - AMIV

Zürich (CH)

09/13 - 08/16

- Organized several events such as paint ball and beachvolleyball tournaments for members of the students association

Simulation of the Boarding Process in an Airplane

Zürich (CH)

02/15 – ongoing

- Analyzed turn-around times at different airports for various airlines and airplane types
- Implemented, simulated, compared, and visualized various boarding strategies to develop faster alternatives

Sports: Endurance sports (rowing, long distance running), Weightlifting, Surfing, Diving (certified as rescue diver), Snowboarding

Additional Skills

Programming languages: Proficient in C++, C, Matlab, Python, working knowledge of Bash, Mathematica

IT: Proficient in Excel, PowerPoint, Word, SQL, Windows, Unix, OS X, Good knowledge of Tableau

Languages: German (native), English (fluent - CEFR Level C2), French (basic)