

Andreas Ziegler

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Personal details

Date of birth 25.03.1988
Nationality Swiss

Education

09.2014–04.2018 **Zurich, ETH**, MSc ETH in EEIT.

Courses taken:

- Computer Vision
- Machine Learning, Data Mining, Signal and Information Processing
- Recursive Estimation, Dynamic Programming & Optimal Control
- Distributed Control
- Robot Dynamics
- How to write fast numerical code

Master Thesis: A Representation for Exploration that is Robust to State Estimate Drift

- Topics: Robotics, Exploration, Localization, Mapping
- Examiner: Prof. Dr. Roland Siegwart and Prof. Dr. Davide Scaramuzza

Semester Project 2: Map Fusion for Collaborative UAV SLAM

- Topics: Computer Vision, Robotics, Optimization
- Examiner: Prof. Dr. Roland Siegwart and Prof. Dr. Margarita Chli

Semester Project 1: Robust object tracking in 3D by fusing ultra-wideband and vision

- Topics: Computer Vision, Sensor Fusion, Robotics
- Examiner: Prof. Dr. Luc Van Gool and Prof. Dr. Otmar Hilliges

09.2009–09.2013 **Rapperswil, Switzerland**, *University of Applied Science Eastern Switzerland (HSR)*, BSc FHO in Electrical Engineering.

Courses taken:

- Digital Signal processing
- Digital Image processing
- Embedded Systems / Embedded Software Engineering
- Mobile Communication

Semester thesis: Zuverlässige Sturzdetection mit 9DOF-Schuhen

- Topic: Digital Signal processing
- Examiner: Prof. Dr. Guido Schuster

Bachelor thesis: Mobile datalogger for recording decentral captured dynamic motor vehicle data

- Topic: Embedded Software Engineering
- Examiner: Prof. Reto Bonderer

09.2011–08.2012 **Shanghai, China**, *Shanghai Jiao Tong University*, Exchange student, *School of Electric Information and Electrical Engineering*.

Courses taken: Chinese language course, Electrical engineering and Computer Science courses

08.2004–08.2008 **Uster, Switzerland**, *Bildungszentrum Uster*, Technische Berufsmatura.

Independent Coursework

- Coursera Deep Learning, a 5-course specialization by deeplearning.ai on Coursera. Specialization Certificate earned on March 16, 2018
- Coursera Neural Networks and Deep Learning by deeplearning.ai on Coursera. Certificate earned on September 14, 2017
- Coursera Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization by deeplearning.ai on Coursera. Certificate earned on October 5, 2017
- Coursera Structuring Machine Learning Projects by deeplearning.ai on Coursera. Certificate earned on November 2, 2017
- Coursera Convolutional Neural Networks by deeplearning.ai on Coursera. Certificate earned on December 9, 2017
- Coursera Sequence Models by deeplearning.ai on Coursera. Certificate earned on March 16, 2018
- edX Autonomous Mobile Robots by ETHx on edX. Certificate earned on April 17, 2014

Work experience

- 09.2018–present **Zwingen, Switzerland, MT Robot AG, Robotics Engineer, 100%.**
Accomplished tasks:
 - Development of a computer vision based safety field intrusion detection system
 - Improvement of a multi robot collision avoidance system
 - Development and maintenance of software for automated guided vehicle (AGVs), including topics such as multi sensor fusion, mapping, path planning, (multi robot) obstacle avoidance, etc.
 - Deputy Scrum MasterTechnologies used: C++, Python, ROS1/2, DDS, OpenCV, CMake, git, Atlassian tools
- 06.2018–09.2018 **Zurich, Switzerland, University of Zurich, Robotics and Perception Group, Research Assistant, 100%.**
Accomplished tasks:
 - Research on mapping for exploration.Technologies used: Python, git, L^AT_EX
- 04.2018–06.2018 **Zurich, Switzerland, Disney Research Zurich, Research Associate Intern, 100%.**
Accomplished tasks:
 - Worked on localization and sensor fusion for a UAVTechnologies used: C++, Python, ROS, Ceres, CMake, git
- 03.2017–08.2017 **Lausanne, Switzerland, Pix4D SA, Computer Vision & Robotics Research Intern, 100%.**
Accomplished tasks:
 - Worked on indoor navigation for UAVs
 - Implementation of a filtering method for a robust target detection
 - Participation on an indoor mapping project with an industrial partner
 - Investigation of barcode localization and detection algorithms for automatic inventory
 - Participation on a development of a target detection library for radiometric corrections
 - Worked on various computer vision applications (Barcode localization/detection, 3D reconstruction, Camera calibration)Technologies used: C++, ROS, OpenCV, Eigen, Conan, CMake, Jenkins, git

- 08.2015–06.2018 **Zürich, Switzerland**, *Accelerom AG, Software Engineer & System Administrator*, 20%-30%.
 Accomplished tasks:
 - Extended and modified a Web-Tool
 - Administration of the Linux Server Architecture
 Technologies used: Java, Groovy, JavaScript, jQuery, CSS, Grails, Hibernate, MySQL, git, Redmine, Tomcat, Apache, SAMBA
- 02.2014–08.2015 **Zürich, Switzerland**, *Laboratory for Orthopaedic Biomechanics at the University and ETH Zurich, Research Assistant*, 100%.
 Accomplished tasks:
 - Developed and implemented a new stretcher system
 - Extended and adapted a microscope control software
 Technologies used: C++, Qt, wxWidgets, CMake, git
- 11.2013–02.2014 **Zürich, Switzerland**, *Computer Assisted Research and Development, University Hospital Balgrist, Research Assistant (Civil service)*, 100%.
 Accomplished tasks:
 - Implementation of segmentation algorithms
 - Implementation of new features in existing software
 Technologies used: Matlab, C#, VTK, CVS
- 08.2013–11.2013 **Zürich, Switzerland**, *Laboratory for Orthopaedic Biomechanics at the University and ETH Zurich, Research Assistant (Civil service)*, 100%.
 Accomplished tasks:
 - Extended and adapted a microscope control software
 - Developed and implemented a stretcher control software
 Technologies used: C++, Qt, wxWidgets, CMake, git
- 08.2008–03.2009 **Wallisellen, Switzerland**, *ERPsourcing AG, Computer Science (Internship)*, 100%.
 Accomplished tasks:
 - Install and maintain new hardware
 - Install, repair and maintain Notebooks, Windows Workstations and Server
 - First and second level support for Microsoft Windows XP, Microsoft Vista and Microsoft Office
 - Install and maintain printer and print server
 - Customer support
- 08.2004–08.2008 **Rüti ZH, Switzerland**, *Hch. Kündig & Cie. AG, Electronics engineer (Apprenticeship)*, 100%.
 Accomplished tasks:
 - Creating Schema and Layout for PCB's
 - Programming Software in C for Micro Controller with RS and CAN Systems
 - Repair of PCB's
 - Creating documentations for the production
 Technologies used: Assembler, C, Micro controller, OrCAD, Altium Designer, Eagle

Publications

- 2021 Horvath, Aron et al. (Jan. 2021). "Focus on time: dynamic imaging reveals stretch-dependent cell relaxation and nuclear deformation". In: *Biophysical Journal*. DOI: 10.1016/j.bpj.2021.01.020.
- 2019 Cieslewski, Titus, Andreas Ziegler, and Davide Scaramuzza (2019). *Exploration Without Global Consistency Using Local Volume Consolidation*. arXiv: 1909.01423 [cs.RG].

Languages

German	Mother tongue
English	Excellent, Level C1
French	Good, Level B1,
Chinese	Basics, Level A2
Korean	Basics, Level A2

Technical skills

Languages	C++, Python, Julia, C, Java, C#, JavaScript, MATLAB, Assembler
Software packages	boost, ROS1/2, DDS, OpenCV, pcl, Eigen, scikit-learn, wxWidgets, Qt, MATLAB
Infrastructure	Microsoft Windows, Mac OS X, Linux, Apache, Tomcat, SAMBA
Office	Microsoft Office Package, LibreOffice Package, L ^A T _E X, Markdown

Hobbies

Mountaineering	Sportclimbing, Mountain tours, Skiing, Snowboarding, Skitouring
Other sports	Yoga, Kung Fu
Music	Drums, Piano, Vocals

Extra-Curricular activities

- Board member *jevp (Junge evangelische Volkspartei Schweiz and Zurich)
- J&S Coach at JO SAC-Pfannenstiel