



Regine Hartwig

"As an engineer, I want to develop new technologies to solve the problems of today."

Education

- 01/2019 – 05/2019 **Master of Science**, *Nanyang Technological University*, Singapore.
Exchange Program
- 04/2017 – 05/2019 **Master of Science**, *Technical University*, Munich.
Specialization in Automation and Robotics
- 10/2013 – 03/2017 **Bachelor of Science**, *Technical University*, Munich.
- 09/2003 – 06/2012 **Higher Education Entrance Qualification**, *Feodor-Lynen-Gymnasium*, Planegg.
- 09/1999 – 08/2003 **Transfer**, *Primary School*, Martinsried.

Experience

- 06/2022 – Now **PhD Student**, *Computer Vision Group Technical University*, Munich.
Computer Vision Group, Prof. Daniel Cremers
- 06/2019 – 05/2022 **Clinical Research Assistant**, *Research Hospital Technical University*, Munich.
BMBF Project Compass: Navigation and Visualization in Minimally-Invasive Surgery
- 05/2018 – 12/2018 **Master Thesis**, *Arnold and Richter Cine Technology GmbH*, Munich.
Investigation of Error Propagation in FPGA Implementation of Digital Video Signal Processing Pipeline
- 11/2016 – 03/2017 **Bachelor Thesis**, *Mercateo AG*, Munich.
Statistical Modeling and Analysis of Information Spreading, Supervision: Prof. Dr. Martin Kleinstеuber, Chair of Machine Learning and Geometric Optimization

Selected Publications

- [1] Regine Hartwig et al. "Constrained Visual-Inertial Localization With Application And Benchmark in Laparoscopic Surgery". In: *Int. Conf. on Robotics and Automation (ICRA)*. IEEE, 2022. URL: <https://reginehartwig.github.io/publications/constrained/>.
- [2] Regine Hartwig et al. *GECO: Geometrically consistent embedding with lightspeed inference*. 2025. URL: <https://reginehartwig.github.io/publications/geco/>.

Awards

2017 – 2019 German public-private scholarship

Qualifications

Advanced C++, PYTHON, PYTORCH, GIT, L^AT_EX, Computer Vision, Transformer Fine-tuning(LoRA), Differentiable Rendering(Pytorch3D)
Intermediate Linux, MATLAB
Basic Assembler, Virtual Machines, Docker, C, CMake

Teaching Assistance

SS24 **Chair of Computer Vision & Artificial Intelligence**, Computer Vision II: Multiple View Geometry (IN2228).
◦ Camera Calibration
◦ Bundle Adjustment, Structure from Motion
◦ 3D Reconstruction
WS22, WS23, WS24 **Chair of Computer Vision & Artificial Intelligence**, Computer Vision III: Detection, Segmentation and Tracking (IN2375).
◦ Detection Networks(YOLO, Faster R-CNN, etc.)
◦ Segmentation Networks(Mask R-CNN, U-Net, etc.)
◦ Tracking Networks(Tracktor, MOT Metrics, etc.)
◦ Recent Trends in Computer Vision (Transformer, Unsupervised Learning(SimCLR, MoCo), Semisupervised Learning, etc.)
WS20, WS21 **Chair of Automatic Control Engineering**, Introduction to Autonomous Systems (EI74371).
◦ ROS-based Robot Programming for Autonomous Systems
◦ Kalman Filter, Particle Filter, Extended Kalman Filter
WS20, WS21, WS22 **MITI Research Group**, *TUM Hospital*, Medical Instrumentation and Computer Aided Surgery.
◦ Navigation Systems in Surgery

Communication Skills and Organizations

2021 **Standardization Comittee**, *DICOM*, Standardization of Camera Calibration Parameters in DICOM Medical Imaging Standard.
2020 **CARS Conference**, *Research Group MITI*, Munich, Managing first hybrid CARS Conference with Zoom Meetings and Live Cameras in Lecture Hall.
2019 **Engagement**, *NTU Sailing Club*, Singapore, Division of labour and communication in a boat crew.
2014 **Head of Planning a Department Freshman Party**, *Students Council*, Munich, Acquisition of time management and group motivation skills.
2008 **Member**, *Youth national team in synchronized swimming*, Germany.

Languages

German	Mother Tongue
English	Fluent C1
Spanish	Advanced B1
Indonesian	Beginner, Basic Conversations
Latin	Latinum

Interests

- Sailing
- Badminton
- Indonesian Culture
- Surfing
- Design