Rong Zou

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EDUCATION

Eidgenössische Technische Hochschule Zürich (ETH Zürich)　　　　　　**Switzerland**
Master of Science in Robotics, Systems and Control　　　　　　*Sep. 2021 – Dec. 2024*
- Final grade: **5.94/6.0** (**Distinction**)

University of Southampton (UoS)　　　　　　**United Kingdom**
Visiting Student in Ship Science　　　　　　*Jan. 2019 – June 2019*
- Final grade: **81/100** (**First Class**)

Huazhong University of Science and Technology (HUST)　　　　　　**China**
Bachelor of Engineering in Naval Architecture and Ocean Engineering　　　　　　*Sep. 2015 – June 2019*
- Final grade: **3.94/4.00, 92.3/100** (**Ranking 1/112**)

PUBLICATIONS

Event-Aided Sharp Radiance Field Reconstruction for Fast-Flying Drones
Rong Zou, Marco Cannici, Davide Scaramuzza. In *Submission to IEEE Transactions on Robotics*. 2025.

Retrieval Robust to Object Motion Blur
Rong Zou, Marc Pollefeys, Denys Rozumnyi. In *European Conference on Computer Vision*. 2024.

Seeing Behind Dynamic Occlusions with Event Cameras
Rong Zou, Manasi Muglikar, Nico Messikommer, Davide Scaramuzza. In *arXiv*. 2023.

Path Tracking Control of Skid-steered Mobile Robot on Slope Based on Fuzzy System and MPC
X. Yue, J. Chen, Y. Li, **R. Zou**, Z. Sun, X. Cao, S. Zhang. In *Int. J. Control Autom. Syst.* 2022.

RESEARCH EXPERIENCE

Robotics and Perception Group, Institute of Neuroinformatics, UZH & ETH　　　　**Switzerland**
Computer Vision and Robotics Research Assistant　　　　*Feb. 2025 – Aug. 2025*
- Architected a NeRF-based pipeline for sharp scene reconstruction in fast-moving drone operations
- Validated on a 2 m/s aerial platform, boosting reconstruction fidelity over prior methods by 50%

Computer Vision Lab, Zürich Research Center, Huawei Technologies　　　　**Switzerland**
Computer Vision and Machine Learning Research Intern　　　　*Mar. 2024 – Sep. 2024*
- Conducted research on photorealistic image synthesis and deep learning-based image de-flickering
- Model validated through independent testing and successfully deployed on real-world products

Robotic Systems Lab, Institute of Robotics & Intelligent Systems, ETH Zürich　　　　**Switzerland**
Robotics Research Assistant　　　　*June 2022 – Dec. 2022*
- Engineered a pipeline to ingest and process sensor data for the Autonomous River Cleanup system
- Implemented real-time telemetry and remote control interfaces, and conducted real machine testing

Corporate Research - Asia Pacific, Bosch (China) Investment Ltd.　　　　**China**
Robotics Research Intern　　　　*May 2021 – Aug. 2021*
- Improved the grasp planning algorithm for a robotic arm and verified the effectiveness by simulation
- Assembled and calibrated a real robot gripper experimental platform and tested grasping stability

School of Mechanical Science & Engineering, HUST — **China**
Robotics Research Assistant — *Sep. 2019 – Sep. 2020*
- Developed improved particle swarm optimization algorithm for mobile robot global path planning
- Developed MPC-based algorithm for path tracking control of skid-steered wheeled mobile robots

PROJECTS

Monocular Depth Estimation with Virtual View Supervision — **ETH Zürich**
3D Vision Course Project — *Feb. 2023 – June 2023*
- Proposed leveraging Neural Implicit Surface Reconstruction methods to augment a limited-scale dataset via scene reconstruction and virtual view-depth pair generation for the training of supervised MDE networks
- Rendered images from Replica scenes as the base dataset, trained MonoSDFs for novel RGBD data generation
- Conducted extensive experiments, demonstrating significant improvements in DeepLabV3+ network MDE performance when using novel views as additional supervision signals

Multimodal Perception and Scene Understanding in Autonomous Vehicles — **ETH Zürich**
Deep Learning for Autonomous Driving Course Project — *Mar. 2022 – July 2022*
- Fused multimodal driving data, identified laser ID from a given point cloud using K-means clustering, projected the LiDAR point cloud onto camera images and eliminated motion distortion with GPS/IMU data
- Constructed a multi-task learning architecture based on the DeepLabV3+ model for semantic segmentation and monocular depth estimation, ableted network architecture and improved the base network performance
- Created a 3D object detector to detect vehicles from LiDAR data, and studied the impact of canonical transformations and data augmentation on the box refinement stage of the detector

Monocular Visual Odometry for Mobile Robots — **UZH & ETH Zürich**
Vision Algorithms for Mobile Robotics Course Project — *Nov. 2021 – Jan. 2022*
- Extracted and matched SURF features between keyframes and used the P3P algorithm for pose estimation
- Implemented sliding-window bundle adjustment to reduce reprojection errors and optimize estimated poses
- Performed loop detection based on a BoW model as well as global trajectory optimization for loop closure

HONOURS AND AWARDS

Model Student of Self-improvement — **Top 0.1%**
Huazhong University of Science and Technology — *2017*

National Scholarship — **Top 0.2%**
Ministry of Education of the People's Republic of China — *2016, 2017*

Excellent Graduation Thesis — **Top 1/112**
Huazhong University of Science and Technology — *2019*

Exceptional Undergraduate — **Top 1%**
Huazhong University of Science and Technology — *2017*

National Encouragement Scholarship — **Top 3%**
Ministry of Education of the People's Republic of China — *2018*

Merit Student — **Top 3%**
Huazhong University of Science and Technology — *2016, 2017, 2018*

SKILLS

Programming: Python, C++, Matlab, C, JavaScript, Bash
Frameworks & Libraries: Pytorch, OpenCV, Open3D, ROS, Blender
Development & Deployment: Git, Docker, Anaconda, LaTeX
Languages: Chinese (native), English (C1 - proficient), German (basic)