

Zimeng Jiang

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EDUCATION

ETH Zürich

Sept. 2019 - 2022 (expected)

MSc in Electrical Engineering and Information Technology, GPA: 5.6/6.0

Zürich, Switzerland

- Research Interest: Computer Vision, 3D Geometry, SLAM, Autonomous Driving
- Courses: Machine Learning, 3D Vision, Embedded Systems, Autonomous Mobile Robots

Beijing Institute of Technology

Sept. 2015 – June 2019

B.Eng. in Automatic Control, GPA: 4.0/4.0, with distinction

Beijing, China

EMPLOYMENT

Research Assistant, full-time

Since June 2021

Computer Vision and Geometry Group, ETH Zürich

Zürich, Switzerland

- Conducted research on robust visual SLAM using data of different modalities.

Research Intern, part-time

Dec. 2018 – May 2019

Institute of Automation, Chinese Academy of Sciences

Beijing, China

- Conducted research on facial micro-expression recognition.

Mitacs Globalink Research Intern, full-time

July 2018 – Oct. 2018

Ontario Tech University

Oshawa, Canada

- Designed an image-based visual servoing controller for pose regulation of autonomous robotic systems.

PROJECTS

Deep Learning for Autonomous Driving | *Python, PyTorch*

Mar. 2021 – June 2021

- Built a multi-task learning framework for semantic segmentation and depth estimation. Achieved the highest rank among 52 participated groups.

Learning a Better BAD-SLAM [[Code](#)][[Presentation](#)][[Thesis](#)] | *CUDA, C++, Python, PyTorch*

Oct. 2020 – Apr. 2021

- Semester thesis on robustifying bundle adjusted direct SLAM (BAD-SLAM) via deep learning and feature-metric optimization, supervised by [Paul-Edouard Sarlin](#) and [Marc Pollefeys](#).
- Enlarged the convergence basin of direct image alignment by 50% by densely aligning invariant and compact features computed from a deep neural network trained with supervision on camera pose.
- Achieved 21% higher AUC score compared with the baseline method and ranked 1st on the [ETH3D benchmark](#) by integrating feature alignment into the front-end pose tracking and the back-end scene geometry optimization. Improved significantly the accuracy and robustness on common failure modes: illumination changes, inaccurate sensor calibration, fast motion, structureless and textureless scenes.
- Achieved real-time performance using C++ and CUDA.

Spars-to-dense Feature-metric Localization [[Code](#)][[Report](#)] | *Python, PyTorch*

Mar. 2020 – July 2020

- Enhanced the long-term localization accuracy on multiple cross-condition datasets by aligning robust and pixel-level accurate features as a post-processing step of a hierarchical localization scheme.

3D Human Pose Estimation [[Code](#)][[Report](#)] | *Python, PyTorch*

Mar. 2020 – July 2020

- Designed a two-stage model to predict 3D human pose from a single RGB image. Achieved the highest PA-MPJPE score among 15 participated groups.

SKILLS

Technical: C/C++, Python (PyTorch), CUDA, Matlab, Linux, Git, LaTeX

Languages: English (fluent), Chinese (native), German (beginner)