

# Zimeng Jiang

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## EDUCATION

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### 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

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### 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

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### 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](#), [Viktor Larsson](#), [Martin Oswald](#), [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 performed well 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

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

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