

YIDAN GAO

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EDUCATION

ETH Zurich, Zurich, Switzerland

09.2020 - Current

Master's Degree in Mechanical Engineering, Robotics, Systems and Control Track

Core courses: Computer Vision, 3D Vision, Probabilistic Artificial Intelligence

Tongji University, Shanghai, China

09.2016 - 07.2020

Bachelor's Degree in Engineering Mechanics

China National Scholarship

Israel Institute of Technology, Haifa, Israel

06.2019 - 08.2019

Enrolled as an Exchange Student in Computer Science

RESEARCH PROJECTS

Improving 3D Line Reconstruction Using SfM Point Cloud

05.2022 - 09.2022

Semester Project at Computer Vision and Geometry Group, ETH Zurich, Grade: 5.75 / 6.0

- Proposed greedy but robust line fitting and merging methods taking the sparse depth inferred from the Structure-from-Motion point cloud as input instead of the per-pixel depth map.
- Exploited point uncertainties and tracking information from the SfM input and significantly improved the completeness and accuracy of the final line reconstruction.

COLMAPSLAM - An offline Python SLAM Using COLMAP

02.2022 - 07.2022

Course Project of 3D Vision, Grade: 6.0 / 6.0

- Proposed a highly-extendible offline Python SLAM pipeline by introducing keyframe selection, covisibility graph, and loop closure to COLMAP for speed acceleration and scale drift alleviation, which reconstructs better than ORB-SLAM and has comparable or better trajectory accuracy.

Environment Mapping for Large-Scale Teleoperation

10.2021 - 12.2021

Project at Robotic Systems Lab, ETH Zurich

- Proposed a volumetric mapping pipeline that creates 3D 3rd-person-view colored map and mesh around heap, the excavator, by fusing real-time data from the onboard camera and lidar.

Visual Odometry Pipeline

12.2021 - 01.2022

Course Project for Vision Algorithm for Mobile Robotics

- Proposed a simple monocular visual odometry pipeline in Python.

ACTIVITIES

ETH Robotics Summer School

07.2021

- Worked on mapping, localization, and navigation parts and finished in 3rd place as a team in the search and rescue challenge using real robots.

SKILLS AND PROFICIENCY

Language Chinese (Native), English (C1), German (A1)

Operating Systems Windows, Linux

Programming Python, C/C++, ROS, MATLAB