YIDAN GAO

April 10, 1998 | Rämistrasse 101, 8092 Zurich
+41 76 5485282 | yidgao@student.ethz.ch
https://helecomika.github.io/yidangao/

EDUCATION

ETH Zurich, Zurich, Switzerland   09.2020 - Current
Master's Student 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