Jiajun Jiang

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Education

Zhejiang University 09/2019 – 07/2022

Master in Control Science and Engineering, GPA 84.2/100.

University of California, Davis 07/2018 – 09/2018

Research Intern, Supervised by Prof. S.J. Ben Yoo.

University of California, Berkeley 06/2017 – 08/2017

Visiting Student, Summer Session 2017.

Zhejiang University 09/2015 – 07/2019

Bachelor in Automation + English Language and Literature, GPA: 86.6/100.

Experience

Autonomous Driving Lab, Alibaba DAMO Academy, China 07/2022 – present

Algorithm Engineer Localization Group. Supervised by: Dr. Sheng Yang

Algorithms development for autonomous truck system in highway scenario.

- Development of a trailer yaw estimation algorithm for the autonomous tractor-semitrailer system based on a one-dimensional histogram filter. The filter utilizes LiDAR pointcloud as observation and kinematic model as prediction.
- Online calibration parameter check algorithm between multiple LiDAR by checking both pointcloud and pose quality.
- Design and implement a lightweight storage method for long-distance pointcloud map, inspired by Universal Transverse Mercator projection and image compression algorithms.

Autonomous Driving Lab, Alibaba DAMO Academy, China 04/2021 – 09/2021

Internship Localization Group. Supervised by: Dr. Mingyang Li

Calibration method development of autonomous logistics robot on courier stations.

- Develop a fast LiDAR-camera calibration check scheme using semantic segmentation of people.
- Design and implement a calibration process for LiDAR and camera systems at courier stations, utilizing a purpose-built calibration board.

Intelligent Autonomous System Lab, Zhejiang University, China 09/2019 – 06/2022

Master Student Supervised by: Prof. Yu Zhang

. Development of a thermal SLAM system under challenging illumination conditions.

- Purposed an SVD-based image processing method is proposed to improve image quality on low-contrast thermal images for SLAM by singular value reallocation.
- Develop a real-time optical flow network architecture on thermal images for data association.
- One of the contributors to the open-source multi-spectral dataset.

Intelligent Autonomous System Lab, Zhejiang University, China 09/2018 – 05/2019

Bachelor Thesis Supervised by: Prof. Yu Zhang.

Development of a calibration system for multi-spectral sensors.

- Design and implement a special checkerboard for the calibration between the thermal camera and visible light camera.
- Develop a calibration method between LiDAR and visible light camera using calibration board with circlar holes.

Hardware Section, Team ZJUDancer, Zhejiang University, China 03/2017 – 07/2019

Circuit Group Leader

Circuit system development for humanoid kid-size soccer robots

- Design the schematic diagram and PCB board for servo signal transmission and foot sensor modules.
- Assemble and maintain the circuit system in daily routine and during the competition.

Publications

1. **J. Jiang**, X. Chen, W. Dai, Z. Gao and Y. Zhang, *Thermal-Inertial SLAM for the Environments With Challenging Illumination*, in IEEE Robotics and Automation Letters, vol. 7, no. 4, pp. 8767-8774, Oct. 2022
2. X. Chen, W. Dai, **J. Jiang**, B. He and Y. Zhang, *Thermal-Depth Odometry in Challenging Illumination Conditions*, in IEEE Robotics and Automation Letters, vol. 8, no. 7, pp. 3988-3995, Jul. 2023

Patents

1. Y. Zhang, W. Dai, **J. Jiang**. Map Segmentation Method And Device, Motion Estimation Method, And Device Terminal. US Patent, US20210312637A1.
2. Y. Zhang, Z. Gao, **J. Jiang**. Long-wave Infrared Image Denoising Method. Chinese Patent, CN115034992A.

Skills

- C/C++, Python, MATLAB, ROS, OpenCV, PCL, GIT, Pytorch.

Honors and Awards

RoboCup World Humanoid KidSize League, 2nd Place 2019, Sydney, Australia
RoboCup German Open Humanoid KidSize League, 2nd Place 2019, Magdeburg, Germany
Scholarship for Outstanding Students (Top 10%) 2016,2017,2018, Hangzhou, China

Miscellaneous

- HOMEPAGE: `https://www.elkula.com`
- GITHUB: `https://github.com/Elkulas`
- BILIBILI: `https://space.bilibili.com/8332491`
- LANGUAGES: Mandarin - Native speaker, English - Fluent (TOFEL 101 in 2018)
- HOBBIES: Saxophone, Bikepacking, Mountain Biking, Chinese Walnuts