

# JIAJUN JIANG

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## 🎓 EDUCATION

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**Zhejiang University** 09/2019 – 07/2022

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

Master Thesis: Visual Inertial System Based on Long-Wave Infrared Cameras

**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.

Chu Kochen Honors College

## 🏢 EXPERIENCE

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**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.
- 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.

- Purpose 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: Dr. Weichen Dai and Prof. Yu Zhang.

Development of a calibration system for multi-spectral sensors.

- 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 circular holes.

*Circuit Group Leader*

Circuit system development for humanoid kid-size soccer robots

- Design the schematic diagram and PCB board of foot sensor modules for humanoid robots.
- Develop the firmware for foot pressure data collection and servo data transmission.
- Assemble and maintain the circuit system in daily routine and during the competition.

## PUBLICATIONS

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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

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1. Y. Zhang, W. Dai, **J. Jiang**. Map Segmentation Method And Device, Motion Estimation Method, And Device Terminal. US Patent, US011741615B2.
2. Y. Zhang, Z. Gao, **J. Jiang**. Long-wave Infrared Image Denoising Method. Chinese Patent, CN115034992A.

## SKILLS

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- Programming Language: C/C++, Python, L<sup>A</sup>T<sub>E</sub>X, Shell.
- Software: ROS, Git, MATLAB, Altium Designer, Keil

## HONORS AND AWARDS

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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

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- HOMEPAGE: <https://www.elkula.com>
- GITHUB: <https://github.com/Elkulas>
- LANGUAGES: Mandarin - Native, English - Fluent (TOFEL 108 in August 2023)
- HOBBIES: Saxophone, Bikepacking, Mountain Biking, Chinese Walnuts

## REFEREES

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### Academia:

- Dr. Yu Zhang, Associate Professor, Zhejiang University: [zhangyu80@zju.edu.cn](mailto:zhangyu80@zju.edu.cn)
- Dr. Weichen Dai, Associate Professor, Hangzhou Dianzi University: [weichendai@hdu.edu.cn](mailto:weichendai@hdu.edu.cn)

### Industry:

- Dr. Mingyang Li, Software Engineering Manager, AR Perception Team, Google: [mingyangli009@gmail.com](mailto:mingyangli009@gmail.com)
- Dr. Xiao Hu, Algorithm Expert, Autonomous Driving Lab, Alibaba Group: [hux062303@gmail.com](mailto:hux062303@gmail.com)