

# ZULUN ZHU

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## 🎓 EDUCATION

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**National University of Defense Technology**, Changsha, Hunan

August 2016-March 2019

MS, Software Engineering

Laboratory: State Key Laboratory of High Performance Computing

**Zhejiang University**, Hangzhou, Zhejiang

August 2012-June 2016

BS, Electronic Science and Technology

GPA:3.72/4.0

## 🧑‍🔬 RESEARCH EXPERIENCE

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### Project Principal

October 2017 – July 2018

*Project supported by State Key Laboratory of High Performance Computing. Study on the method of loop closure of 3D laser-based SLAM with visual information*

Design of loop closure of laser-based SLAM, code analysis, physical experiments and paper writing

- Had an intimate knowledge of overall architecture about ORB-SLAM2 and LOAM system and their code content, and the method design was carried out.
- Designed, wrote and debugged the code; completed the preliminary target of laser SLAM closed-loop detection; effectively reduced the cumulative error.
- Made many KITTI data sets compatible with the system; completed the experimental test of the designed system, and effectively corrected the accumulated error of the whole point cloud map.
- Assembled Husky intelligent robot; completed the construction of remote control system and the installation of sensing devices.
- Collected PCL point cloud data in campus environment; encapsulated the data and input it into system to complete physical experiment

### Project Member

March 2017 –October 2017

*Project supported by major research program of National Natural Science Foundation of China. Study on the swarm intelligent robot operating system*

Completion of group perception module work

- Developed image stitching plug-in components for large-scale scene UAV based on OpenCV
- Wrote the plug-in code to serialize images and made them stable in air-to-ground transmission
- Encapsulated the code of group perception module and accomplish communication with other project groups based on API

### Project Principal

March 2016 – June 2016

*Undergraduate graduation project. Study on license plate recognition system based on OpenCV*

Development, testing and paper writing of license plate recognition system

- Had an intimate knowledge of the code of OpenCV feature detection and the call of API related to each feature detection
- Wrote and tested code; added edge detection and feature recognition technology; improved the recognition fault tolerance rate of the system

### Project Member

April 2015 – April 2016

*Project supported by National Innovative Experimental Program for College Students. Study on flexible graphene/InP heterojunction solar cells*

Prepared graphene and thin film indium phosphide, designed of heterojunction battery and peripheral circuit

- Master the techniques of preparing graphene in graphene CVD growth tube furnace
- Master the methods of heterojunction composed of graphene and indium phosphide; designed the peripheral circuit.
- Mastered the method of using simulated light source to test IV characteristics of batteries.

## ⚙️ KEY SKILLS

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- Skilled in C language. Familiar with object-oriented C++ programming. Had rich programming and debugging experience
- Proficient in OpenCV visual processing library, application of OpenCV in image fusion and target detection under Linux
- Familiar with the basic processing method of laser point cloud. Skilled in using PCL point cloud library to filter, register, cut and splice point cloud.

## ♡ HONORS AND AWARDS

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*Third-Class National Scholarship, Third-Class Grant and "Triple-A student" of Zhejiang University (3 times)*  
2013 -2015

*National Encouragement Scholarship of Zhejiang University* 2013

*Zeng Xianzi Scholarship of Zhejiang University* 2013-2016

*Obtained the Postgraduate Exemption Qualification of Zhejiang University* 2015.09

*CASA2018, Loop Detection and Correction of 3D Laser-Based SLAM with Visual Information (1st author)*  
2018.03

*ASAP2018, Enhanced Visual Loop Closing for Laser-Based SLAM (1st author)* 2018.05

## 🎓 CAMPUS EXPERIENCE

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- Vice-president of street dance club, captain of the popping dance team, director of the university student union and national second-level basketball referee as an undergraduate
- Participated in many large evening performances. Won the ranking in all kinds of school and campus basketball games. Won the fourth place in the 100-meter final of the school sports meeting
- Selected to participate in academic exchange activities at the Chinese university of Hong Kong in the summer vacation of sophomore year. Served as the chief officer of military training for freshmen
- Went to a poor village in Kaili, Guizhou to teach as a volunteer in the summer vacation of junior year. Went to Gottingen university in Germany for exchange for half a year in the first semester of senior year
- Represented the college to participate in the debate contest during the master's degree, and won the second place in the whole school.
- Represented the school to participate in the whole city's table tennis tournament and won the championship in junior high school
- Loved traveling and photography and recorded a commemorative video of hip-hop dance in nine countries. Video link:  
<https://www.bilibili.com/video/av5022452?from=search&seid=2618248071194870654>

## 📖 OTHER

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- Language: English - Skilled (IELTS 6.0, GRE 150+167+3, CET-6)