



OBJECTIVE

Participate the research lab. Contribute my academic knowledge to design, test and deploy the algorithms



EDUCATION

Bachelor of Science | Shanghai Jiao Tong University

09/2017 – 08/2021

GPA: 3.73

Awards: 1. Silver award: 2021 Capstone Design Expo in Joint Institute in Summer 2. Silver award: 2018 World University Student Physics Competition 3. Scholarship: 2017 UM-SJTU Joint Institute Wu Jiong&Sun Jie Scholarship

Related Coursework: Control Systems Analysis and Design, Probabilistic Methods in Engineering, Programming & Elementary Data Structures, Discrete Mathematics

Bachelor of Science | University of Michigan, Ann Arbor

09/2019 – 04/2021

GPA: 3.74

Honors: Magna Cum Laude in Bachelor of Science in Engineering

Related Coursework: Intro to Embedded System Design, Computer Vision, Digital Integrated Circuits, Computer Architecture, Logic Circuit Synthesis and Optimization

Master of Science | University of Michigan, Ann Arbor

09/2021 –

GPA: 4.00

Related Coursework: Linear System Theory, Deep Learning method for Computer Vision, Robotics Kinematics, Mobile Robotics, Computational Methods in Data Science & Machine Learning



EXPERIENCE

Internship | Jiyao Information Technology, Shanghai

10/2018 – 07/2019

Helped to establish and manage the cafeteria takeaway group in the dormitory; supervise on the distribution; communicate with the clients;

Investigator | Honor Council, UM -SJTU Joint Institute

10/2018 – 07/2019

Investigate and evaluate the potential violations of Honor Codes; communicate with the related people

Grader | EECS 478 for Fall 2021, EECS - Computer Science Engineering

09/2021 – 12/2021

Grade the assignments and exams; communicate with students, GSI and professors about issues in solutions and the students' performances;

Research Assistant | UM Ford Center for Autonomous Vehicles, University of Michigan, Ann Arbor

05/2021 –

Participate in the project to build a dataset where SLAM algorithms can be tested and benchmarked. Help in collecting data, testing the proposed calibration methods, establishing the dataset and carrying out experiments with the existing SLAM algorithms;



SKILLS

- Programming Languages: C++, Python, Java, Julia, Verilog/SystemVerilog
- Embedded System: Arduino, STM32
- Engineering Software: Matlab, Mathematica, Cadence, Docker
- Developing Platform: Linux, Git, ROS, Pytorch
- Language: English (TOEFL: 105+, GRE: quantitative: 169, qualitative: 155, Writing: 4.5)



ACTIVITIES

I have always kept the enthusiasm in robotics and autonomous system. In my high school, I obtained the chance to attend the Information Technology Summer Camp held by Peking University. Also, to solidate my fundamentals in mathematics and physics, I attended National Mathematical Olympics Competition and won first prizes twice.

In my undergraduate years, apart from the diligent work in my course, I also engaged in different extracurricular activities or contests to explore more in the related fields. I joined in the college's science and technology association organization to communicate with other top students and improve myself. I also participated Freshman Robots Competition and 2018 World University Student Physics Competition to learn to apply theoretical knowledge in practice and carry out groupworks. Besides, I seized the precious chance to attend the Industrial Exhibition held in Shanghai to learn about the latest progress and challenges in Industry

After being admitted as a master student in Rackham Graduate school, University of Michigan, I continued studying in related fields. I have joined Prof. Chinedum Okwudire research lab in studying Feedforward Tracking Control of Nonminimum Phase (NMP) Systems in 3D printing. In which I gained experience in doing research and applying the knowledge from class in practice. Currently, I am working as a research assistant in UM Ford Center for Autonomous Vehicles in helping the project Dataset for SLAM algorithms in Adverse Conditions.



PROJECTS

- **Dataset for SLAM algorithms in Adverse Conditions (EECS 464, Hands-on Robotics)**
Description: design a robot that can move to the specified locations automatically, while maintaining a laser along a constant direction
Role: help in designing the particle filter and sensing algorithms

- **Dataset for SLAM algorithms in Adverse Conditions (EECS 464, Hands-on Robotics)**
 Description: build up a robot to complete a figure-eight track, without using any fully rotating part
 Role: mechanics design; controlling programs design;
- **Dataset for SLAM algorithms in Adverse Conditions**
 Description: establish a sample dataset with images in various weather conditions, including rainy, foggy and etc; publish the dataset so that people could test their SLAM algorithms on it; also obtain some reference results using our own developed methods;
 Role: help in collecting the data; test the calibration methods and write documentations; test several existing SLAM algorithms and evaluate the performance;
- **Improvement on ORB-SLAM2 Pipeline using Deep Learning Method (EECS 568/ROB 530, Mobile Robotics)**
 Description: try to improve the old, useful SLAM algorithm called ORB-SLAM2 with several Deep Learning techniques
 Role: improvement on image processing in Loop Closing component; develop a new Loop Closing method to equip with our own front-end;
- **Feedforward Tracking Control of Nonminimum Phase Systems using Filtered Basis Function (Prof. Chinedum Okwudire's lab)**
 Description: reduce the errors in 3D printing under a high speed by designing a feedforward controller using the developed Filter Basis Function method; extend the method to nonlinear system
 Role: design and evaluate the techniques to apply the method to nonlinear systems
- **BuilderX Excavator Prototype with Autonomous Obstacle Avoidance (VE 450, Capstone Design Project)**
 Description: develop ideas based on an excavator prototype provided by BuilderX corp. about how to avoid the obstacle in the path automatically, using cameras
 Role: robotics arm control; sensor deployments and noise filtering; motion planning algorithm development;
- **P6 Style Out-of-Order Instruction Processor (EECS 470, Computer Architecture, Capstone Design Project)**
 Description: develop a P6-style Out-of-Order instruction processor that can work correctly and efficiently on the provided programs
 Role: benchmarking; design and test caches and other memory I/O parts;
- **Improved AlexNet on Human Facial Expression Classification Task (EECS 442, Intro to Computer Vision)**
 Description: develop a program using Alexnet to detect the human facial expression intelligently
 Role: design and build the networks
- **Mobile Car with autonomous Obstacle Avoidance and Phototaxi using STM32 (EECS 373, Intro to Embedded System)**
 Description: develop a model car that can trace the light source and go there without colliding with the obstacle on the path
 Role: develop the control programs on the board and test
- **Multi-functional Baby Stroller (VG 100, Intro to Engineering)**
 Description: develop a baby stroller with several extra useful features, such as automatic balancing on the slope, automatically closing the cloak and etc.
 Role: develop methods and algorithms in automatic balancing