

Zirui Zhao

ryan_zzr@outlook.com | (+86) 159-2995-3178 | Personal Website: [Zirui Zhao](#) | Github: [Zirui Zhao](#) | Linkin: [Zirui Zhao](#)
No.28 Xianning West Road, Xi'an, China.

EDUCATION

Xi'an Jiaotong University (XJTU)

Major in Automation (Honor Engineering Program, Qian Xuesen Class, top 120 out of 4000 students in XJTU)

Major GPA: 3.96/4.3

Cumulative GPA: 3.89/4.3

Xi'an, China

Expected in June 2020

National University of Singapore (NUS)

Participated in "Tele-Robotic and Deep Learning" Program at 2018 Summer Workshop

Singapore

Jul 2018 - Aug 2018

SKILLS

- **Languages:** Python, C++
- **Libraries:** TensorFlow, PyTorch, Keras, Scikit-Learn, Numpy, Jupyter, OpenCV, ROS

Technologies: GitHub

RESEARCH EXPERIENCE

Active Risk-sensitivity Inverse Reinforcement Learning in Lane Change Behaviors

Pittsburgh, PA, U.S.A.

Summer Intern in [Safe AI Lab](#), Carnegie Mellon University

Jul 2019 - Present

- **Faculty Advisor:** Ding Zhao, Assistant Professor in Department of Mechanical Engineering & The Robotics Institute, Carnegie Mellon University
- **Project Description:** This project is aimed to enable autonomous vehicles knowing the risk situations in dynamic environments by using Inverse Reinforcement Learning.

Visual-based Semantic SLAM with Landmarks for large-scale outdoor environments

Xi'an, China

Research Intern in Institute of Artificial Intelligence and Robotics (IAIR), Xi'an Jiaotong University

Nov 2018 - Present

- **Faculty Advisor:** [Pengju Ren](#), Associate Professor in IAIR, Xi'an Jiaotong University
- **Project Description:** This project built a visual semantic SLAM system with GPS fusion and landmarks association.
- **Completed work:**
 - Accomplished visual semantic SLAM based on PSPNet101 and ORB SLAM, with GPS Fusion and topological semantic mapping.
 - Developed a new dataset for KITTI sequences, containing the GPS information and labels of landmarks

Multi-Robot Cooperative Navigation

Xi'an, China

Research Intern in IAIR, XJTU

Apr 2018 - Mar 2019

- **Faculty Advisor:** [Pengju Ren](#), Associate Professor in IAIR, XJTU
- **Project Description:** This project established a multi-robot navigation and exploration system, which consist of UAVs and UGVs.
- **Completed work:**
 - Accomplished road segmentation and map establishment in UAV.
 - Enforced cooperative navigation system of UAV and UGV based on lidar and camera.
- **Demo Video:** [Cooperative Navigation System of UAV and UGV](#)

Tele-Robotics & Deep Learning

Singapore

Student of 2018 Summer Workshop, School of Computing, NUS

Jul 2018 - Aug 2018

- **Faculty Advisor:** Soo Yuen Jien, Professor in School of Computing, NUS
- **Project Description:** We built an autonomous blind-guide robot by using Raspberry Pi and Arduino. We have also actualized the computer vision task py inception model and Azure service for obstacle classification.

SCHOLARSHIPS & HONORABLE TITLES

- Siyuan Merit Scholarship in 2017 & 2018 (Top 30% in Qian Class)
- Excellent Student in 2017 & 2018 (Top 20% in Qian Class)
- Second Prize of 1989 Mechanical Alumni Scholarship for Qian Class (4 Candidates out of 119 students in Qian Class)

CONTESTS & AWARDS

- **2018 National University Student Innovation Program:** Finished Autonomous Logistic UAV and Multi-agents system and got first prize (National Prize).
- **2017 China Undergraduate Mathematical Contest in Modelling:** First Place of Shaanxi Province
- **2018 DAC System Design Contest:** Assistant for image processing, model optimization and got rank of 4/21 in GPU platform
- **2018 Big Data and Artificial Intelligence Contest:** Implemented Deep Convolutional Network SE-ResNet 152 to achieve 98 % accuracy in the contest dataset and got rank of 39/300
- **2018 Global College Technical Summer Training Camp of JD AI research:** Finished the task of Target Black-box attack on deep neural network with second place