Curriculum Vitae – Zirui Zhao

PERSONAL INFORMATION

Zirui ZHAO
28 Xianning West Road, Beilin District
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Bachelor of Engineering (B.Eng.), Automation Engineering(EECS)
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EDUCATION

Xi'an Jiaotong University, Xi'an, P.R.China   *Aug 2016 - Jun 2020*
Bachelor of Engineering (B.Eng.), Automation Engineering(EECS)   CGPA: 3.84/4.3
Honor Engineering Program, Qian Xuesen Class
Faculty of Electronic & Information Engineering

National University of Singapore, Singapore   *Jul 2018 - Aug 2018*
Visiting Student, 2018 Summer Workshop
School of Computing.

WORKING

Carnegie Mellon University, Pittsburgh, U.S.A.   *Jul 2019 - Aug 2019*
Summer Intern, Safe AI Lab
The Robotics Institute & Dept. Mechanical Engineering.

Xi'an Jiaotong University, Xi'an, P.R.China   *Sep 2017 - Present*
Research Assistant, Cognitive Architecture Group
Institute of Artificial Intelligence and Robotics.

INTERESTS & SKILLS

Interests: Cognitive Robotics, Reinforcement Learning, Probabilistic Robotics, Robot Perception, Human-Robot Interaction, Control Theory.
Languages: Python, C++, MATLAB, LaTeX.
Application Tools: TensorFlow, PyTorch, Keras, Scikit-Learn, Numpy, Jupyter, OpenCV, ROS.
Software: Carla, GitLab, GitHub.

PUBLICATION

Z. Zhao, Y. Mao, Y. Ding, P. Ren and N. Zheng, "Visual-Based Semantic SLAM with Landmarks for Large-Scale Outdoor Environment," 2019 2nd China Symposium on Cognitive Computing and Hybrid Intelligence (CCHI), Xian, China, 2019, pp. 149-154.

R. Chen, W. Wang, **Z. Zhao**, D. Zhao, Active Learning for Risk-Sensitive Inverse Reinforcement Learning, arXiv, 2019.

RESEARCH

Active Risk-sensitive Inverse Reinforcement Learning   *Jul 2019 - Aug 2019*
Supervisor: Ding Zhao, Safe AI Lab   *Carneige Mellon University*
- Active demonstration querying for faster human risk envelope approximation via disturbance planning.
- Experimental verification in single-step and multi-step setting with simulated car-following task in Carla.

Visual Semantic SLAM for Outdoor Environments   *Nov 2018 - Jun 2019*
Supervisor: Pengju Ren, Cognitive Architecture Group   *Xi'an Jiaotong University*
- Accomplished visual semantic SLAM based on PSPNet101 and ORB SLAM.
- The SLAM has implemented with GPS Fusion and topological semantic mapping.

PROJECTS	**Multi-Robot Cooperative Navigation**	*Aug 2018 - Dec 2018*
	Xi'an Jiaotong University	Xi'an, P.R.China

- **Projext Description:** This project established a multi-robot navigation and exploration system, which consist of UAVs and UGVs.
- **Link :** Video Demo

	Tele-robotics & Deep Learning	*Jul 2018 - Aug 2018*
	National University of Singapore	Singapore

- **Projext 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.

	Adversarial Attack of Deep Neural Network	*Aug 2018*
	JD AI Research	Beijing, P.R.China

- **Projext Description:** Finished the task of Target Black-box attack on deep neural network by using Naive Evolutionary Algorithm.

AWARDS & TITLES

- **Siyuan Merit Scholarship** by Xi'an Jiaotong University, 2017 & 2018 & 2019
- **Excellent Student** by Xi'an Jiaotong University, 2017 & 2018 & 2019
- **Second Prize of 1989 Mechanical Alumni Scholarship** by Xi'an Jiaotong University, 2018

PRIZES

- **2018 National University Student Innovation Program:** Finished Autonomous Logistic UAV and Multi-agents system and got first prize (National Prize).
- **2018 DAC System Design Contest:** Assistant for image processing, model optimization and got rank of 4/21 in GPU platform
- **2017 China Undergraduate Mathematical Contest in Modelling:** First Place of Shaanxi Province
- **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