

Justin Zheng

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Education

B.S. in Computer Engineering | Minor in Robotics | Georgia Institute of Technology, Atlanta, GA

Expected May 2019

- GPA: 3.95
- President's Undergraduate Research Award (PURA) recipient for Fall 2017

Work Experience

Software Engineer, Perception – Waymo | Mountain View, CA | Starting June 2019

- Formerly the Google self-driving car project

Software Engineering Intern, Perception – Waymo | Mountain View, CA | May 2018 – August 2018

- Deep learning in the context of sensor calibration validation, with TensorFlow, Python, and C++
- Developed software for entire learning pipeline, including dataset generation, network design, and model evaluation

Autopilot Software Engineering Intern, Perception – Tesla | Palo Alto, CA | January 2018 – May 2018

- Created library for visualization and quantitative assessment of localizer algorithm performance with Python and KML
- Assisted with software development for the inertial navigation system

Robotics Software Intern – NASA Jet Propulsion Laboratory | Pasadena, CA | May 2017 – August 2017

- Enhanced underwater 3D reconstructions by fusing stereo vision with sonar using C++, MATLAB, and ROS
- Implemented image enhancement algorithms to improve image properties for stereo reconstruction
- Constructed benchmarking library to evaluate 3D reconstructions and underwater visibility
- Programmed Arduino to manually control camera shutter speed and gains

Research

Undergraduate Researcher – Georgia Institute of Technology | Atlanta, GA | January 2017 – Present

- Developing software for AutoRally, an autonomous vehicle platform
- Utilized human-inspired control model with vehicle detection and cost-map prediction to drive platform autonomously
- Created tool to automatically label up to 3000 training images per minute for vehicle detection
- Implementing deep learning approach to 6DoF vehicle detection and pose estimation using PyTorch framework

Undergraduate Researcher – Georgia Institute of Technology | Atlanta, GA | January 2016 - Present

- Creating miniature underwater robot (MUR) as testbed for advanced underwater research
- Facilitated vehicle's communication capabilities with Arduino and MATLAB
- Used Caffe framework and deep learning to detect broken fishnets underwater
- Incorporated neural network accelerator to run deep neural network on low performance computer onboard the MUR

Undergraduate Research Apprenticeship Program – AEOP | Atlanta, GA | May 2016 – August 2016

- Autonomous vehicle research under the Army Educational Outreach Program at Georgia Tech with AutoRally platform
- Calibrated vehicle's steering and estimated uncertainty with MATLAB
- Developed vehicle's odometry model with C++ and ROS

Patents

- Q. Tao, J. Cha, X. Chen, S. Maxon, C. Qin, L. Seguin, H. Xie, J. Y. Zheng, F. Zhang, "Miniature Underwater Robot for Research and Education," Provisional patent (62/669,571) filed on May 10, 2018.

Organizations

RoboJackets – Georgia Institute of Technology | August 2015 – Present

- Competitive robotics team aimed to develop advanced robots while promoting the field of robotics
- Project manager of Intelligent Ground Vehicle Competition (IGVC) subteam of ~50 undergraduate students for Fall 2017
- Responsible for budget of over \$10,000 and overseeing mechanical, electrical, and software subsystems
- Programming autonomous ground vehicles to navigate obstacle courses using C++ and ROS
- 1st place in the 2016 International Autonomous Robot Racing Challenge at the University of Waterloo

Skills & Abilities

- Experienced with: MATLAB, C++, Python, ROS, OpenCV
- Familiar with: TensorFlow, PyTorch, Caffe, Java, mbed, Arduino, Autodesk EAGLE, Ubuntu (Linux)