Tao Chen

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EDUCATION

University of Southern California — **Los Angeles, CA**
Master of Computer Science in Intelligence Robotics — *August 2017 - May 2019*

Oregon State University — **Corvallis, OR**
Bachelor of Computer Science in Computer System — *September 2014 - June 2017*

KEY SKILLS

- Programming Languages: Python, C++, C, Bash Script, Java
- Frameworks & Libraries: TensorFlow, boost, OpenAI, Garage
- Web Development: AWS, HTML, CSS, PHP, JavaScript, Node.js, jQuery, AngularJS, XML
- Robotics: ROS, Gazebo, Sensor fusion, State estimation, CAD design, 3D Printing
- Artificial Intelligence: Machine Learning, Reinforcement Learning, Natural Language Processing
- Systems/Tools: LaTeX, Git
- Communication: English, Mandarin, Cantonese

WORK & RESEARCH EXPERIENCE

Robotic Embedded Systems Laboratory (RESL) — **Los Angeles, CA**
Research Assistant — *May 2018 - Present*

- Conducted research on applying reinforcement learning techniques to quadrotor controls.
- Implemented imitation learning pipeline with TensorFlow.
- Implemented neural network controllers in ROS and Gazebo simulator to analyze performance.
- Implemented software framework to covert TensorFlow graph to run on STM32 micro-controllers.
- Improved realism of our customized flight simulator written in Python.
- Co-authored a paper accepted to IROS 2019 (see "Publications").

Dynamic Robotics Laboratory — **Corvallis, OR**
Intern — *May 2016 - September 2016*

- Participated in the development of the bipedal robot Cassie.
- Customized a communication protocol on top of MAVLINK to transfer telemetry data between the robot and the remote control.
- Customized a user interface written in Lua on the remote controller to display the robot's status, e.g. robot pose, temperature, battery, etc.

Media Service, Oregon State University — **Corvallis, OR**
Student Worker — *October 2015 - June 2017*

- Resolved urgent technical issues affecting presentation devices (e.g. computers, projectors, lecture capturing, and stage control) that occurred during lectures and special events.
- Maintained and built classroom presentation technologies for the entire campus.

PROJECTS

Stock Quote Website and Android App — *September 2017 - December 2017*

- Goal: create a dynamic website that displays real-time stock quotes in user-defined watch list, and an Android App that has similar behavior.
- Developed the website with responsive design using AngularJS, Bootstrap, and React.
- Used Node.js on AWS Beanstalk backend as a portal for REST APIs.
- Used Ajax techniques to create asynchronous web applications.

Autonomous RC *September 2016 - May 2017*

- Goal: build an RC car platform capable of autonomous driving using cheap hardware.
- Worked in a team of 3 and led the software development in simulation using ROS and Gazebo/Stage.
- Used ROS packages AMCL for localization and Teb_local_planner for planning within the ROS navigation stack.
- Selected to present in front of the engineering college and industry partners of the school.
- Won the best project of the year award.

Kaggle Competition *March 2017*

- Goal: train a machine learning model to tell if two Quora questions are semantically identical.
- Built the pipeline for data preparation and feature extraction in Python with NumPy.
- Trained a classification model using logistic regression in TensorFlow.
- Experimented with text processing techniques such as word filtering, part-of-speech tagging, language modeling using recurrent neural network, and word embedding, etc.
- Beat 70% of the competitors.

PUBLICATIONS

Artem Molchanov*, Tao Chen*, Wolfgang Hönig, James A. Preiss, Nora Ayanian and Gaurav S. Sukhatme, ***"Sim-to-(Multi)-Real: Transfer of Low-Level Robust Control Policies to Multiple Quadrotors"***, International Conference on Intelligent Robots and Systems, 2019.
(∗ equal contribution)

AWARDS AND ACHIEVEMENTS

Winner, Capstone project, Oregon State University *2017*

College of Engineering Scholarship, Oregon State University *2016 & 2017*

Spotlight presenter at the Southern California Robotics Symposium *2019*

Master's Best Research Award, USC *2019*

Hobbies

Things I like @ Anywhere *Forever*

- Programming, Building robots, Playing with LEGOs
- Listening to music, Playing guitar, Watching movies
- Swimming, Running, Skiing