Tao Chen

325 W Adams Blvd, Los Angeles, CA 90007

taochenosu.github.io | taochen@usc.edu | TaoChenOSU | 541-829-8140

EDUCATION

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

- Relevant Courseworks in Computer Science:
  Robotics, Autonomous Cyber-Physical Systems, Foundations of Artificial Intelligence,
  Machine Learning, Applied Natural Language Processing, Analysis of Algorithms,
  Web Technologies

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

- Relevant Courseworks in Computer Science:
  Operating Systems, Computer Architecture & Assembly Language, Digital Logic Design,
  Intro to Databases, Intro to Computer Network,
  Software Engineering, Programming Language Fundamentals,
  Intro to Theory of Computation, Intelligent Robots

KEY SKILLS

- Programming Languages: Python, C++, C, Bash Script, Java
- Robotics: ROS, Gazebo, CAD design, 3D Printing
- Frameworks & Libraries: boost, TensorFlow, OpenAI Gym, Garage
- Artificial Intelligence: Machine Learning, Decision Making, Reinforcement Learning
- Web Development: HTML, CSS, PHP, JS, Node.js, jQuery, AngularJS, XML
- Systems/Tools: LaTeX, Git
- Communication: English, Mandarin, Cantonese

WORK & RESEARCH EXPERIENCE

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

- Research on applying reinforcement learning techniques to quadrotor controls.
- Implemented imitation learning pipeline to prove that a neural network was capable of flying a quadrotor with good hovering performance.
- Implemented neural network controller in ROS and Gazebo simulator to test performance.
- Corrected the implementation of the physics engine in order to improve our customized simulator.
- Implemented software framework to use neural network controllers on real quadrotor platforms.
- Neural network controller showed remarkable performance on multiple real quadrotor platforms.
- Co-authored a paper submitted IROS 2019 (see "Publications").

Dynamic Robotics Laboratory **Corvallis, OR**
Volunteer *May 2016 - September 2016*

- Participated in the development of the bipedal robot Cassie.
- Customized a communication protocol to transfer telemetry data between the robot and the remote control.
- Customized a user interface for 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.

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"***, submitted to International Conference on Intelligent Robots and Systems, 2019. (∗ equal contribution)

CLASS PROJECTS

Stock Quote Website and Android App @ USC *September 2017*

- Goal: create a dynamic website that displays stock quotes of user-defined stocks, and an Android App that has similar behavior.
- Featured real-time stock price automatic update and user-defined watch list.
- Developed with responsive web design.
- Used Node.js on AWS Beanstalk as a portal for REST APIs.
- Used AngularJS as a JavaScript framework.

Autonomous RC @ OSU *September 2016 - May 2017*

- Goal: build an RC car platform capable of autonomous driving using cheap hardware.
- Led the software development in simulation using ROS.
- Investigated sensor fusion, motion planning, and obstacle avoidance.
- Demonstrated result in Rviz and Stage/Gazebo.
- Presented in front of the engineering college and industry partners of the school.
- Won the best project of the year award.

Kaggle Competition @ OSU *March 2017*

- Goal: train a machine learning model to tell if two Quora questions are semantically identical.
- Experimented with word filtering, multiple categorization methods, and NLP semantics analyses.
- Beat 70% of the competitors.

SLAM Project @ OSU *October 2016*

- Goal: design strategies for a synchro-drive mobile robot to explore unknown space using feature-based SLAM.
- Implemented the algorithm in ROS.
- Performed simulation in Stage and visualization of the generated map on Rviz.

AWARDS AND ACHIEVEMENTS

Winner, Capstone project, Oregon State University *2017*

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

Hobbies

Things I like @ Anywhere *Forever*

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