

Tao Chen

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🔊 TaoChenOSU

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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: L^AT_EX, 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

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