Yi Herng Ong

695, NW Survista Ave, Corvallis, OR 97330 | 541-908-9589 | leroyong0812@gmail.com |
Personal website/portfolio: https://yiherngong.github.io/

Publications

- **Y.H. Ong,** N. Swenson, A. Hassar, S. Balali, J. Patravali, S. Hughes, H. Duan, R. Balasubramanian, X. Fern, C. Grimm. " Learning Near-Contact Grasping Strategies with DeepRL," *Robotics: Science and Systems (**RSS**), 2020.* (In review)
- **Y.H. Ong**, J. Morrow, Y. Qiu, K. Gupta, C. Grimm, R. Balasubramanian. "Near contact grasping strategies: When simply closing your fingers is not enough," *International Conference on Intelligent Robots and Systems (**IROS**), 2019.*
- E. Dessalene, **Y.H. Ong**, J. Morrow, R. Balasubramanian, C. Grimm. "Using Geometric Features to Represent Near-Contact Behavior in Robotic Grasping," *International Conference on Robotics and Automation (**ICRA**), 2019.*
- J. Morrow, A. Kothari, **Y.H. Ong**, N. Harlan, R. Balasubramanian, C. Grimm. "Using human studies to analyze capabilities in underactuated and compliant hands in manipulation tasks," *International Conference on Intelligent Robots and Systems* **(*IROS***), 2018.

Relevant Experience

Graduate Student Researcher, Robotic manipulation research group, Oregon State University, March 2018 - Present

- Advisor(s): Prof. Cindy Grimm, Prof. Ravi Balasubramanian, Prof. Xiaoli Fern
- Research direction / Thesis: **Robotic manipulation under uncertainties**. Apply **reinforcement learning** to learn intelligent grasping strategies from humans to improve robotic grasping in constrained environments. **Submitted the work as first author to the top tier robotic conference -- Robotics: Science and Systems (RSS) 2020.**
- Conducted human studies to investigate robotic grasping strategies under uncertainties and designed PID controllers using computer vision to improve robot grasping under uncertainties. **Published the work as first author to the International Conference on Intelligent Robots and System (IROS) 2019.**
- Developed novel robotic grasp metrics and applied machine learning to evaluate grasp quality. **Published the work as second author to the International Conference on Robotics and Automation (ICRA) 2019.**
- Designed a new robotic manipulation benchmark and developed software to run the benchmark autonomously.
- Helped to build a physical testbed and developed software to automate robotic grasp trials on the testbed.

Undergraduate Research Assistant, Robotics and Human Control System Laboratory, Oregon State University, January 2018 - March 2018

- Assisted PhD student to conduct human studies to investigate the capabilities of multiple robot hands. **Published the work as third author to the International Conference on Intelligent Robots and Systems (IROS) 2018.**
- Built a 3-finger robot gripper (Yale Openhand Model O) and wrote a control interface to actuate the robot hand.

Graduate Teaching Assistant, Oregon State University, September 2018 - June 2019

- Courses: ME 317 Intermediate Dynamics, ROB 521 Research Robotics, ME 451 Introduction to instrumentation and measurement system, ME 499 Computer programming for mechanical system.
- Main responsibilities are organizing weekly recitations, holding office hours, grading assignments and exams.

Senior Capstone Design Team Member, Oregon State University, January 2017 - May 2017

- Project Title: Robot Finger Pad Design
- Designed a soft finger pad 3D printing material to enhance grasping ability of robot hand (Barrett Hand)
- Wrote software to move the robot to execute grasp tests for design validation.

Education

Oregon State University, Corvallis, OR
Master of Science, **Robotics**, **GPA 3.71**, Present (In Progress), **Expected Graduation: March 2020**
Oregon State University, Corvallis, OR
Bachelor of Science, **Mechanical Engineering**, **GPA 3.76**, Magna Cum Laude, March 2018

Skills

- **Software**: Robot Operating System (ROS), MuJoCo, OpenRAVE, SolidWorks, AutoCAD
- **Programming Languages**: Python, C++, C, MATLAB, HTML, CSS
- **Other Toolkits:** OpenAI Gym, Pytorch, Tensorflow, OpenCV
- **Operating Systems**: Linux, Windows, macOS
- **Robot:** Experienced at planning motion using Barrett WAM arm (7 DOF), Kinova Jaco arm (7 DOF), Universal Robot UR5 arm (6 DOF)