

Yi Herng Ong

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Personal website/portfolio: <https://yiherngong.github.io/>

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

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.

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)