

# Patrick Lancaster

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## EDUCATION

- University of Washington, Seattle, WA** 2014 - Present  
Ph.D. Computer Science and Engineering
- University of Washington, Seattle, WA** 2011 - 2014  
B.S.E.E. Electrical Engineering (Embedded Systems)  
B.S. Applied Computational and Mathematical Sciences

## RESEARCH

- Graduate Research Assistant, University of Washington 2014 - Present  
Advisors: Siddhartha S. Srinivasa & Joshua R. Smith  
Thesis: Sensing and Actuation for Dexterous Manipulation
- Undergraduate Research Assistant, University of Washington 2012 - 2013  
Advisor: Eve A. Riskin  
Project: AAC Mobile Application for Children with Autism

## PRE-PRINTS

- P. Lancaster**, C. Mavrogiannis, S.S. Srinivasa, J.R. Smith. Electrostatic Brakes Enable Individual Joint Control of Underactuated, Highly Articulated Robots. To be submitted to *International Journal of Robotics Research*, 2022.
- P. Lancaster**, P. Gyawali, C. Mavrogiannis, S.S. Srinivasa, J.R. Smith. Optical Proximity Sensing for Pose Estimation During In-Hand Manipulation. Submitted to *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2022.

## PUBLICATIONS

- B. Yang, G. Habibi, **P. Lancaster**, B. Boots, J.R. Smith. Motivating Physical Activity via Competitive Human-Robot Interaction. In *Conference on Robot Learning*, 2022.
- B. Yang, **P. Lancaster**, S.S. Srinivasa, J.R. Smith. Benchmarking Robot Manipulation with the Rubik's Cube. In *IEEE Robotics and Automation Letters*, 2020.
- S.S. Srinivasa, **P. Lancaster**, J. Michalove, M. Schmittle, C. Summers, M. Rockett, J.R. Smith, S. Choudhury, C. Mavrogiannis, F. Sadeghi. MuSHR: A Low Cost, Open Source Robotic Racecar for Education and Research. Pre-published on *arXiv*, 2019.
- P. Lancaster**, J.R. Smith, S.S. Srinivasa. Improved Proximity, Contact, and Force Sensing via Optimization of Elastomer-Air Interface Geometry. In *IEEE International Conference on Robotics and Automation*, 2019.
- K. Huang\*, **P. Lancaster\***, J.R. Smith, H.J. Chizeck. Visionless Tele-Exploration of 3d Moving Objects. In *IEEE International Conference on Robotics and Biomimetics*, 2018.

- P. Lancaster**, B. Yang, J.R. Smith. Improved Object Pose Estimation Via Deep Pre-touch Sensing. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2017.
- B. Yang, **P. Lancaster**, J.R. Smith. Pre-touch Sensing for Sequential Manipulation. In *IEEE International Conference on Robotics and Automation*, 2017
- C. M. Watts, **P. Lancaster**, A. Pedross-Engel, J. R. Smith, M. S. Reynolds. 2D and 3D Millimeter-Wave Synthetic Aperture Radar Imaging on a PR2 Platform. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2016.
- D. Guo, **P. Lancaster**, L.T. Jiang, F. Sun, J.R. Smith. Transmissive Optical Pretouch Sensing for Robotic Grasping. In *IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2015.

## POSTERS

- B. Yang, **P. Lancaster**, J.R. Smith. Prospects for Combining Task and Motion Planning for Bi-Manual Solution of the Rubik's Cube. In *Robotics: Science and Systems* 2016.

## TEACHING

- |  |                  |
|--|------------------|
| <b>Instructor</b> , Introduction to AI for Mobile Robots (EEP 545)           | Autumn 2018      |
| <b>Graduate Teaching Assistant</b> , Robotics (CSE 490R)                     | Winter 2018      |
| <b>Student Mentor</b> , Center for Sensorimotor Neural Engineering           | Summer 2015/2016 |
| <b>Graduate Teaching Assistant</b> , Microcomputer Systems (EE 472)          | Summer 2014      |
| <b>Undergraduate Teaching Assistant</b> , Embedded Systems Capstone (EE 478) | Spring 2014      |
| <b>Undergraduate Teaching Assistant</b> , Microcomputer Systems (EE 472)     | Winter 2014      |

## OTHER WORK EXPERIENCE

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| <b>Applied Scientist Intern</b> , Amazon Robotics AI       | January 2019 - March 2019  |
| <b>Undergraduate Intern</b> , Sandia National Laboratories | June 2013 - September 2013 |

## HONORS / AWARDS

- Graduated Magna Cum Laude  
 University of Washington President's Medal Nominee