

Kazuya Otani

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EDUCATION

Carnegie Mellon University, School of Computer Science

August 2016 – May 2018

M.S. Robotic Systems Development. GPA: 4.1/4.0

UC San Diego, Jacobs School of Engineering

September 2012 – June 2016

B.S. Mechanical Engineering. GPA: 3.6/4.0

WORK EXPERIENCE

Mechanical Engineering Intern, Shield AI

July 2015 – July 2016

Mechanical design/hardware integration of autonomous indoor exploration quadrotor.

- Initiated the design, fabrication, sensor integration, testing and verification of primary development platform
- Simulation-based optimization of quadrotor frame for robustness
- Implemented nonlinear adaptive attitude/position controller in Gazebo
- Design of experiments to characterize Lidar mirror rig, powertrain, other various components

Mechanical Engineering Intern, Warehouse Innovations

March 2015 – July 2015

- Design for manufacturing/manual assembly of injection molded plastic Internet of Things product, from concepting through design process to tooling
- Designed fix for zebra connector displacement on in-market product (The Kitchen Safe): used in 15,000+ units

Mechanical Engineering Intern, Microsoft

June 2014 – September 2014

- Design and fabrication of test fixtures for stress tests
- Teardowns for mechanical testing and competitive analysis

RESEARCH EXPERIENCE

Robotics Research Intern, Inria

May 2017 – November 2017

Research on QP-based humanoid full-body control as part of an European Union H2020 project

- Developing algorithms for human-humanoid collaborative manipulation, motion retargeting
- Extended software frameworks for humanoid control with new QP formulations, performance optimizations, motion capture system interface, visualization tools
- Presented work at 2017 IEEE RAS International Conference on Humanoid Robots

Research Assistant, Bioinspired Robotics and Design Lab

February 2015 – January 2016

Research and design of soft robot manipulators/sensors

- Developed pneumatically actuated soft robot leg: presented at Soft Robotics workshop at ICRA 2015
- Designed hardware and visualization software for stretchable tactile-sensing skin for manipulators

PUBLICATIONS

Conference Articles (peer reviewed)

- **Otani, Kazuya**, and Karim Bouyarmane. "Adaptive Whole-Body Manipulation in Human-to-Humanoid Multi-Contact Motion Retargeting." *Humanoid Robots (Humanoids), 2017 IEEE-RAS 16th International Conference on Humanoid Robots*. IEEE, 2017.

Workshop Presentations and Short Papers

- **Otani, K.**, Bouyarmane, K., Ivaldi, S. "Humanoid Control for Collaborative Tasks with Whole-body Human Dynamics Reconstruction", Workshop: IEEE-RAS 16th International Conference on Humanoid Robots, November 2017 workshop: "Human-Humanoid collaboration: the next industrial revolution?"
- Drotman D., Friesen J. M., **Otani K.**, Tolley M. T. (2015) "Multiple Degree of Freedom Pneumatic Actuation for an Untethered Soft Robotic Quadruped", Soft Robotics: Actuation, Integration, and Applications Workshop, Int. Conf. on Robotics and Automation (ICRA), Seattle WA, May 2015.

TEACHING

Graduate Teaching Assistant, Carnegie Mellon University

January 2017 – May 2017

Assisted Akihiko Yamaguchi and Chris Atkeson at the Robotics Institute in running the 16-264 Humanoids course

SKILLS

Software

- Languages: C++, Python, Matlab, Julia
- Frameworks: ROS, Eigen, Numpy, Keras

Hardware

- Design: Solidworks, Inventor, Autocad, Onshape, Fusion 360, Eagle
- Fabrication: 3D printers, bandsaw, 3-axis mill, CNC mill, lathe, drill press, soldering