

Kazuya Otani

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EDUCATION

Carnegie Mellon University, School of Computer Science
M.S. Robotic Systems Development. GPA: 4.1/4.0

August 2016 – May 2018

UC San Diego, Jacobs School of Engineering
B.S. Mechanical Engineering. GPA: 3.6/4.0

September 2012 – June 2016

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

Advisors: Karim Bouyarmane, Serena Ivaldi

- 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

Advisors: Mike Tolley

- 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)

- **K. Otani**, K. Bouyarmane, K. Ivaldi "Generating Assistive Humanoid Motions for Co-Manipulation Tasks with a Multi-Robot Quadratic Program Controller" IEEE-RAS International Conference on Robotics and Automation (ICRA). Brisbane, Australia. May 2018.
- **K. Otani**, K. Bouyarmane "Adaptive Whole-Body Manipulation in Human-to-Humanoid Multi-Contact Motion Retargeting", IEEE-RAS International Conference on Humanoid Robots. Birmingham, England. November 2017.

Workshop Presentations and Short Papers

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

TEACHING

Graduate Teaching Assistant, Carnegie Mellon University January 2018 – May 2018

Assisted John Dolan at the Robotics Institute in running 16-682: MRSD Project Course II

- Advised project teams on system design and project management
- Assisted with assignment design and report grading

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

- Advised students teams on projects covering manipulation, voice interfaces, motion planning, computer vision
- Designed 3D-printed throwing robot for in-class experiments

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