Jonathan Kobayashi jkobaya@hawaii.edu

EXPERIENCE

Research Support, Hawaii Natural Energy Institute, **Honolulu, HI – March 2014-Present**
Designed, tested, installed, and maintained research-grade data acquisition systems for photovoltaic (PV) installations. Developed camera-based shadow detection for PV systems. Wrote microcontroller and Labview code for data acquisition system. Wrote Matlab shadow detection software. Implemented conservation voltage reduction control algorithms.

Graduate Researcher, UC Berkeley, **Berkeley, CA – November 2012-May 2013**
Integrated a LIDAR laser sensor with a quadrotor platform for Simultaneous Localization and Mapping (SLAM). The state estimates built onboard the quadrotor were benchmarked with the Vicon motion capture system. Designed and 3D printed mirror mounts for laser height estimation. Used the Robot Operating System to implement algorithms.

Undergraduate Researcher, Illinois Institute of Technology, **Chicago, IL – June 2010-August 2010**
Designed, built, and tested an experimental bi-directional converter with vehicle-to-grid (V2G) capabilities for PHEVs, an experimental battery/ultra-capacitor converter for HEVs and PHEVs, and a universal non-inverting DC/DC converter for HEV and PHEV conversion. Implemented control code and ran simulations using Simulink and Matlab Target Support Package.

EDUCATION

UC Berkeley, Berkeley, CA - M.S Mechanical Engineering (Control Theory), May 2013

Illinois Institute of Technology, Chicago, IL - B.S. Electrical Engineering, May 2011

PUBLICATIONS

O. Onar, J. Kobayashi, A. Khaligh, “A Multi-Level Grid Interactive Bi-Directional AC/DC-DC/AC Converter and a Hybrid Battery/Ultra-Capacitor Energy Storage System with Integrated Magnet,” *Applied Power Electronics Conference and Exposition*.

SKILLS

Experienced with Matlab/Simulink, Microsoft Office (Word, Excel, Powerpoint, Outlook), Adobe Photoshop, Linux, and the Robot Operating System. Languages include C, C++, Python, Matlab, and Labview.

Experience with 8-bit AVR and 32-bit ARM microcontrollers, digital and analog circuits. Able to solder, prototype, and test circuits. PCB design with Altium Designer. Knowledge of classical feedback control systems, model predictive control (MPC), LQR, LQG, Kalman filter, state space, adaptive control, and sliding control. Basic knowledge of vehicle dynamics.