DENNIS WAI

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EDUCATION

University of California, Berkeley *2013-Present*
PhD. in Mechanical Engineering
Advisor: Professor Masayoshi Tomizuka
Overall GPA: 3.910

University of California, Berkeley *Completed May 2013*
B.S. in Mechanical Engineering
Overall GPA: 3.817

RESEARCH EXPERIENCE

Mechanical Systems Laboratory Aug 2013 - Present
Graduate Student Researcher *Berkeley, CA*

- Stochastic estimation techniques for attitude estimation
- Model-based control coupled with stochastic estimation on a quadcopter testbed.

CiBER Lab May 2011 - May 2013
Undergraduate Researcher *Berkeley, CA*

- Designed and manufactured a novel tail backpack for a remote controlled car to demonstrate pitch-correcting abilities in midair.
- Created and designed various PCBs for controller purposes in Tailbot, a robot with inertial assisted control by an active tail inspired by lizards; Tailbot was also a featured robot on the front page of Nature magazine

Mechanical Systems Laboratory May 2010-May 2011
Undergraduate Researcher *Berkeley, CA*

- Created a small, wireless Arduino inertial measurement unit as part of a wireless body sensor network that will relay kinematic information to a local networked computer for analysis in a clinical setting.
- Developed in LabVIEW packet loss compensation methods to account for incomplete sensor readings as well as graphical methods to translate the kinematic data into easily understood animations of a virtual human.

WORK EXPERIENCE

Jet Propulsion Laboratory Jun 2014 - Aug 2014
Mechanical Engineer *Pasadena, CA*

· Kinematic analysis of a 3/4 degree of freedom robotic arm to determine workspace accessibility in the Mars Sample Transfer Chain, which involves transferring a cache from one rover to another so that the cache can be returned from Mars to Earth

Jet Propulsion Laboratory Jun 2013 - Aug 2013
Electrical Engineer *Pasadena, CA*

· Assisted in the prototyping of a novel comet sampling tool for a future comet surface sample return mission, which can help provide answers to the origin of water in our solar system
· Architected and manufactured the electrical and pneumatic control system for the autonomous sampling system. The system successfully retrieved samples with high reliability and will represent JPL's candidate solution for the mission.

Space Science Laboratory May 2012 - Aug 2012
Mechanical Engineer *Berkeley, CA*

· Drafted and designed the optical layout for an externally dispersed interferometer attachment for the Lick Observatorys in order to improve its spectral resolution by four folds
· Prepared weekly presentations to update fellow astronomers in hardware developments

Pioneers in Engineering May 2011 - May 2012
Mentorship Coordinator *Berkeley, CA*

· Spearheaded efforts to recruit Berkeley undergraduates to become robotics mentors for underprivileged high school students in our annual 300+ robotics competition.
· Managed a 10-person committee in robotics curriculum development for 90+ UC Berkeley undergraduates
· Hosted the inaugural and well-received Robots vs Dinosaur Science Festival, a 100+ event, complete with 8 novel science activities in cooperation with the Lawrence Hall of Science

TEACHING EXPERIENCE

UC Berkeley EECS Department May 2012 - Aug 2012
Teaching Assistant *Berkeley, CA*

· Taught *Electronic Techniques for Engineering* to 100+ UC Berkeley undergraduates over the summer
· Prepared discussion, exam reviews, and other curriculum material for students
· Led weekly discussions, instructional labs, and office hours and was rated as the best Teaching Assistant

Academic Service Center at UC Berkeley May 2011 - May 2012
Physics Tutor *Berkeley, CA*

· Assisted undergraduates in mastery of basic and advanced physics concepts through 1-on-1 tutoring

PUBLICATIONS

Conference Proceedings

1. Joonbum Bae; Haninger, K.; **Wai, D**.; Garcia, X.; Tomizuka, M., "A network-based monitoring system for rehabilitation," *Advanced Intelligent Mechatronics (AIM), 2012 IEEE/ASME International Conference* on , vol., no., pp.232,237, 11-14 July 2012 IEEE Link

RELEVANT SKILLS

Computer Languages	Python, MATLAB, C++, C, LabVIEW, OSX, Ubuntu
Tools	Solidworks, EAGLE, AutoCAD, Inkscape, Illustrator
Cantonese	Fluent

HONORS AND EXTRACURRICULARS

Pioneers in Engineering Scholarship Committee	Aug 2013 - Present
Pioneers in Engineering Advisor	May 2012 - Present
Pioneers in Engineering Mentorship Coordinator	May 2011 - May 2012
Tau Beta Pi Service Chair - Officer of the Semester	Aug 2012 - Dec 2012
Pi Tau Sigma Student Relations Officer	Jan 2011 - Dec 2011
Charles and Daisee Seffens Scholarship Recipient	Aug 2009 - Aug 2012
Cal Band Trombonist	Aug 2010 - Aug 2012