DYLAN **DROTMAN**

Website: http://www.dylandrotman.com

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EDUCATION

Ph.D. Mechanical Engineering
University of California, San Diego
In Progress

M.S. Mechanical Engineering
University of California, San Diego
Cumulative GPA: 3.6

B.S. Mechanical Engineering
University of California, San Diego
Cumulative GPA: 3.45
E.I.T. Certified

RELATED COURSEWORK

- Dynamics & Control of Advanced Mobile Robotic Vehicles
- Undergraduate and Graduate Research
- Product Design and Entrepreneurship
- Computer-Aided Design and Analysis
- Soft Robotics

SKILLS/ QUALIFICATIONS

Computer Skills

- CAD Software: Solidworks, Pro-E, FEMAP, Eagle, Autodesk AutoCAD and Inventor
- Programming: Arduino, C++, MATLAB, LabVIEW, Objective C, iOS Development, Python, HTML, Latex
- General Software: Microsoft Excel, Microsoft Word, Microsoft Powerpoint, Adobe Photoshop

Tools and Equipment

- Electrical: Oscilloscope, Function Generator, Digital Multi-Meter, Soldering,
- Mechanical: Laser Cutting, 3D Printing CNC, Lathe, Drill Press, Band Saw, Soldering Iron, Sheet Metal Shear

RELEVANT EXPERIENCE

Quadruped, Bioinspired Robotics and Design Lab, Research, UCSD *(January 2015-Present)*
- Developed a multi degree of freedom pneumatic actuator for a soft robotic quadruped

Soft Gripper, Bioinspired Robotics and Design Lab, Research, UCSD *(January 2015-Present)*
- Built a novel pneumatic soft gripper capable of complex manipulation tasks such as unscrewing a lightbulb

MIVINCI-Educational Robotic Arm Kit, Personal Project *(November 2013 –February 2014)*
- Developed an educational robotic arm kit aimed to teach kids about mechanical engineering, electrical engineering, and programming
- Kids learn how to build a robotic arm they can control from anywhere in the world from our webpage: http://www.dylandrotman.com/mivinci
- MIVINCI can also be controlled manually in person by utilizing the accelerometers in a Wii Nunchuck controller

Microalignment Device, Senior Design Project *(March 2013 – June 2013)*
- Developed a 4X scale working prototype for a microalignment device that was used to move ± 2 mm in the x, y, and theta direction.

Robot Design Contest, UCSD *(January 2013 - March 2013)*
- Worked with a team to design and construct an autonomous robot built to specific operating parameters
- Utilized industry standard tools, Solidworks, and the Lasercamm for design and fabrication of the robotic system
- Used position feedback and color recognition algorithms to determine the location of each sphere used in the contest

Mini Dynamometer, UCSD Coordinated Robotics Lab, Research, Mechanical Lead *(January 2012 – June 2012)*
- Create a low-cost dynamometer for use in characterizing DC motors for mobile robots.
- The Mini Dyno was used as an instructional tool for future robotics research projects in the UCSD Coordinated Robotics Lab
- The Mini Dyno was presented to National Instruments and at the UCSD Research Expo.

Photovore Robot, Personal Project *(December 2011 - January 2012)*
- Designed a differential drive robot that uses a photovore algorithm and photoresistor sensors for object and light avoidance.

Hexapod, Personal Project *(January 2011 - September 2011)*
- Developed a six-legged walking robot and progressed on an iPhone application to control the robot's gait and webcam gimbal

WORK EXPERIENCE

Research Associate, UCSD, La Jolla, CA *(February 2014-June 2014, September 2014- Present)*
- To design and control a small scale extruder that can perform better than current FDM and syringe based extruders for 3D printing by improving print speed and part quality.

Cognionics, Project Engineer, San Diego, CA *(April 2014 - November 2014)*
- Design and develop high density dry EEG systems and non-contacting ECG harnesses

Presidio Components, Mechanical Engineering Intern, San Diego, CA *(June 2012- September 2012)*
- Utilized the SEM and EDS machine to analyze and decipher properties of ceramic capacitors

Genefluidics, Mechanical Design Team, Irwindale, CA *(June 2011 - September 2011)*
- Responsible for designing and manufacturing components associated with the robot Proteus which is a testing system that utilizes microfluidic technologies to perform complex tests usually performed by skilled technicians

Dailey Engineering, Sub-assembly Assistant, Temecula, CA *(May - September 2008, 2009)*
- Responsible for sub-assembly and assembly of dry sump oil pumps used in auto racing

HONORS/ACTIVITIES

- Research Project in the UCSD Coordinated Robotics Lab- 13 Spheres Project 2009-2010, Mini Dyno 2012
- Provost Honors: Winter, Spring 2010, Spring 2011, Winter 2012, Winter 2013
- Valedictorian in high school
- Honors for hovercraft vehicle fabrication, 2007
- 1st Place and school record for distance – physics competition for mouse-trap powered vehicle, 2007 and 2008

CONFERENCE PRESENTATIONS

- International Conference on Robotics and Automation (ICRA) Seattle, WA — *May 2015*
- Contextual Robotics Forum, UCSD — *October 2015*
- IBM Executives Invitational, UCSD — *December 2015*
- RoboUniverse Conference & Expo, San Diego, CA — *December 2015*
- Research Expo, UCSD — *April 2016*
- Southern California Robotics Symposium (SCR), UCSD — *April 2016*

PAPER SUBMISSIONS

- "Soft Robotics, Actuation, Integration and Applications" http://robotics.oregonstate.edu/icra2015softrobotics — *May 2015*
- International Conference on Intelligent Robots and Systems (IROS), Daejeon, Korea, *Submitted* — *March 2016*
- Dynamic Systems and Control Conference (DSCC), Minneapolis, Minnesota, *Submitted* — *April 2016*