

DYLAN DROTMAN

Website: <http://www.dylandrotman.weebly.com>

4190 Combe Way • San Diego, CA 92137 • (951) 719- 6667 • ddrotman@ucsd.edu

EDUCATION

B.S. Mechanical Engineering

University of California, San Diego (UCSD)
E.I.T. Certified

Cumulative GPA: 3.45

Provost Honors: Winter, Spring 2010, Spring 2011,
Winter 2012, Winter 2013

RELATED COURSEWORK

- C/C++ Programming
- Systems and Signals
- Independent Study/Undergrads
- Product Design and Entrepreneurship
- Computer-Aided Design and Analysis
- Design and Mechanics in Computer Technology

SKILLS/ QUALIFICATIONS

Computer Skills

- Solidworks, Pro-E, FEMAP, Autodesk AutoCAD and Inventor
- MATLAB, SimuLink, C, C++, Objective C, iOS Development, Python, LabVIEW
- Microsoft Excel, Microsoft Word, Microsoft Powerpoint, Adobe Photoshop

Tools and Equipment

- Familiarity with oscilloscope, function generator, digital multi-meter, LaserCAMM, 3D printing
- Shop tools: CNC, lathe, drill press, band saw, soldering iron, sheet metal shear

RELEVANT EXPERIENCE

Microalignment Device, Senior Design Project

(March – June 2013)

- o Developed a 4X scale working prototype for a microalignment device that was used to move ± 2 mm in the x, y, and theta direction.
- o The smaller scale model will eventually move ± 0.5 mm in each direction with position feedback.

Robot Design Contest, UCSD

(January - March 2013)

- o Worked with a team to design and construct an autonomous robot built to specific operating parameters
- o Utilized industry standard tools, Solidworks, and the Lasercamm for design and fabrication of the robotic system
- o Used position feedback and color recognition algorithms to determine the location of each sphere used in the contest.

Hexapod, Personal Project

(January - September 2011)

- o Developing a six-legged walking robot using an Arduino prototyping platform
- o Creating an iPhone application to control the robot's gait and webcam gimbal

Mini Dynamometer, UCSD Coordinated Robotics Lab, Research, Mechanical Lead

(January – June 2012)

- o Create a low-cost dynamometer for use in characterizing DC motors for mobile robots.
- o The Mini Dyno was used as an instructional tool for future robotics research projects in the UCSD Coordinated Robotics Lab and is being used as a testing device for the Dynamics and Controls undergraduate class MAE 143C.
- o The Mini Dyno was presented to National Instruments and at the UCSD Research Expo.
- o The webpage corresponding to this project has recently gone public and has over 100,000 views.

KinectBOT, 3D Object Recognition Team, IDEA Club, UCSD

(September 2010 - June 2011)

- o IDEA club, based off of the company IDEO, is used to develop ideas and turn that design into a fully functioning prototype
- o The KinectBOT used autonomous control of an RC car to recognize and identify simple 3D objects using the Xbox Kinect
- o Used the Xbox Kinect to map and navigate the robot by using depth to identify the physical outline of the walls and obstacles in a room
- o Worked in teams to break down and focus on each component of the robot

Superhydrophobic Coating, Genefluidics

(June - September 2011)

- o Designed a sensor chip cover to help develop a new method for applying superhydrophobic coating to each chips used to perform assays
- o Used Solidworks and 3D printing to design and manufacture the sensor chip cover

Photovore Robot, Personal Project

(December 2011 - January 2012)

- o Designed a differential drive robot that uses a photovore algorithm and photoresistor sensors for object and light avoidance.

WORK EXPERIENCE

Presidio Components, Mechanical Engineering Intern, San Diego, CA

(June - September 2012)

- Utilized the SEM and EDS machine to analyze and decipher properties of ceramic capacitors

Genefluidics, Mechanical Design Team, Irwindale, CA

(June - September 2011)

- Responsible for designing and creating 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
- Valedictorian in high school
- 1st Place and school record – designed the fastest sail car, 2008
- 1st Place and school record for distance – physics competition for mouse-trap powered vehicle, 2007 and 2008
- Honors for hovercraft vehicle fabrication, 2007