

Ethan Glassman

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Project portfolio at ethanglassman.com/portfolio

Education

Expected Graduation May 2016

Washington University MS/BS Joint Degree Program

Candidate, Master of Engineering in Robotics (Electrical Engineering Department)

Candidate, Bachelor of Science Mechanical Engineering, Minor in Mechatronics

Elon University Dual Degree Program

Bachelor of Science in Engineering Physics, Minors in Physics and Applied Mathematics

Experience

Google[X], Associate Hardware Engineer (Intern)

Summer 2015

- Assisted a small team in Google Life Sciences with finalizing component manufacture and assembly procedures on a new project to optimize for a 100-piece production run.
- Doubled productivity by building subassemblies, allowing team to meet critical deadlines and hand off project to a development team.
- Used Python and Javascript to write a 3-axis GCode interpreter and HSMWorks plugin to use a Zaber Technologies CNC system for automated adhesive dispensing.

Senior Design TA

Fall 2015

Helping seniors to design and build their senior capstone mechanical projects

- Gave background lectures on 3D printing, Arduino, and laser cutting to help students pick most realistic manufacturing techniques
- Worked with 3-4 person groups to focus their problem and the design scope of their solutions
- Helped students to make thoughtful selections of parts from school approved vendors

Jupiter Research Foundation, Lead Mechanical Engineering Intern

Summer 2014

- Led project to integrate and deploy a 1-micron resolution optical microscope on the Liquid Robotics Waveglider marine robot platform.
- Worked with all members of Jupiter Research to bring a 3.5-year duration conceptual project to a deployment ready prototype within 3 months.

Senior Design, 2 Axis Computer Controlled Solar Tracking System

Fall 2014

- Wrote Arduino firmware to align solar panels within 10 degrees of orthogonal to sun.
- Optimized electromechanical design to minimize power usage to maximize output from the panel.

Liquid Robotics, Advanced Technologies Intern

Summer 2013

- Designed parts using Solidworks, requisitioned components, manufactured parts in-house using a manual mill, and cast resin parts for a prototype of a new waveglider capability.
- Built setups to test function of prototype components and redesigned parts where needed.

Halcyon Molecular, Intern

Summer 2011

- Maintained order, cleanliness, and stock of the machine shop and electronics lab.

Personal Projects

CNC Retrofit

- Replaced 1980s era computer hardware with LinuxCNC on a homebuilt computer, rewiring axis drivers to an interface board and writing configuration code.
- Wrote a post processor for HSMWorks to interface with the CNC mill.

Robotic Coffeemaker

- Assembled a prototype automatic French press using repurposed consumer electronics.
- Designed and soldered relay board to control by Raspberry Pi computer.
- Wrote Python code to parse Jabber messages to brew fresh coffee from the Internet.

Robot Arm

- Used Solidworks to build and perform an FEA analysis on a 6 DOF robot arm model.
- Used MATLAB to simulate the mechanics of the robot arm and verify range of freedom.
- Redesigned CAD model to withstand unforeseen loads and better working envelope.

FRC Mentoring

Helping students design and build 120lb sports-playing robots in 6 weeks

- Mechanical mentor, Team 3215, Team Prion, Greensboro NC **2011-2012**
- Mechanical/CAD mentor Team 1329, Robo Rebels, St Louis MO **2013-Present**
- Shop setup mentor, Team 4490, Gryphons, Hillsborough CA **2013-Present**

Research

A Novel Instrument for Rapid Analysis of Electrochemical Redux Reaction

Spring 2013

- Engineering proof-of-concept evaluation of a multichannel multielectrode analyzer.
- Presented at Undergraduate Research Symposium. (Collaborated with RTI International and Duke University)

Extracurricular

Washington University

- President and Machining Instructor, American Society of Mechanical Engineers chapter
- Member, Institute of Electrical and Electronics Engineers chapter

Elon University

- Engineering Advisor, Society of Physics Students chapter
- Robotics Program Founding Member
- Physics Department Service Award

Skills

- **Prototyping** – Design, repeated fine assembly, precision measurement, and testing.
- **Machining** – CNC mill, manual mill and lathe, sheet metal tools, rapid prototype, molded parts.
- **CAD** – Solidworks, HSMWorks, SolidEdge, Autodesk Inventor.
- **Coding Languages** – Python, Arduino, Java, MATLAB, Mathematica, LaTeX, C++.
- **Computing** – Github, Linux, UNIX Terminal.
- **Electronics** – Mathematic circuit analysis techniques, oscilloscope analysis, soldering.
- **Organizational** – Schedule delivery of 3rd party manufactured parts.