**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.