SARAH WALTERS

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EDUCATION

Franklin W. Olin College of Engineering • Needham, MA **May 2017**
Candidate for Bachelor of Science in Engineering with Robotics (GPA 3.91)
Recipient of four-year, 50% Olin Merit Scholarship
Relevant courses: Computer Architecture, Fundamentals of Robotics, Robotics Systems Integration, Discrete Mathematics, Data Science, Principles of Engineering, User Oriented Collaborative Design, Teaching and Learning

EXPERIENCE

Research & Development Intern: Onshape • Cambridge, MA **June - August 2015**
Wrote and maintained client-side code (Angular, Backbone, d3) for Onshape's full-cloud 3D CAD web application.
- With another intern, built a Protractor testing framework for a major component of the application.
- Worked with a UX designer to prototype a redesigned version control interface.
- Implemented five smaller features and fixed over 30 bugs throughout the client-side codebase.

Software Development Intern: Systems and Technology Research • Woburn, MA **May - August 2014**
- Collaborated with two other interns to design and implement a data visualization webapp for a DARPA contract using D3.js.
- Evaluated and improved upon an experimental categorization algorithm implemented with scikit-learn in Python.

Course Assistant: Olin College • Needham, MA **September 2014 - present**
- Software Design - introductory Python Fall 2015
- Olin.JS - introductory web application development (a student-taught course which I'll be teaching Spring 2016) Spring 2015
- Modeling and Simulation of the Physical World - mathematical modeling and computer simulation Fall 2014

PROJECTS AND RESEARCH

PianoBot **October - December 2014**
Built a system which reads sheet music or a MIDI sound file and uses 36 servo-actuated fingers to play a keyboard. I wrote the Python software which sends data over serial port to an Arduino and the Arduino software which sends commands to the array of servos. (8 weeks, with a team of five)

Research on Assessment and Situational Motivation **September 2013 - present**
Conducting research under Professor Yevgeniya Zastavker regarding the relationship between assessment and situational motivation in engineering education. Gathering survey data and performing grounded theory analysis in order to establish a qualitative framework.

Robotic Tugboat **December 2014**
Wrote LabView software to control a mechanized toy tugboat. The boat can follow walls, avoid obstacles, dock itself, complete user-defined missions, and chase and capture another boat. (3 weeks, with a team of five)

Arduino 3D Scanner **September 2014**
Built a 3D scanner using a servo-powered pan/tilt mechanism, an infrared sensor, and an Arduino, then visualized the scanned representations using MATLAB. (2 weeks, with a partner)

Poem Ipsum **March 2014**
Generated "lorem ipsum poetry" by sourcing words from Project Gutenberg books, splitting them into phonetic syllables using the phoneme corpus associated with the Natural Language Toolkit (NLTK), then fitting them to common rhythm and rhyme schemes using a first-order Markov model. Prototype at poemipsum.herokuapp.com. (1 week, individual)

TECHNICAL SKILLS

JavaScript (+ Angular, Backbone, Node, Jasmine, Protractor, d3), Python (+ sklearn, pandas, rospy), MATLAB, LabView, Arduino, Java, Verilog, Xilinx FPGA tools, Git, HTML/CSS, MongoDB, LaTeX

PERSONAL INTERESTS

Olin Conductorless Orchestra and Small Ensembles • Needham, MA **September 2013 - present**
Violinist for the school's Conductorless Orchestra; founding member of and violinist for the school's quartet.

Music Performance **2000 - present**
Piano: 15 years of experience, won two state competitions.
Violin: 12 years of experience, toured Costa Rica, attended seven state honor orchestra festivals, violinist for Mercury Orchestra.