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Education

Johns Hopkins University   **Sept. 2016 - Dec. 2017** (anticipated)

M.S.E. in Computer Science

Courses (_Italics = In-Progress_**):**

- Computer Vision
- _Advanced Network Security_
- Big Data, Small Languages, Scalable Systems
- _Principles of Programming Languages_
- Network Security
- _Algorithms_

University of California, Irvine   **Sept. 2010 - June 2014**

B.S. in Mechanical Engineering, Minor in Biomedical Engineering   GPA: 3.74

Sample of Courses:

- Digital Control Systems
- MicroElectroMechanical Systems (MEMS)
- Sensory Motor Systems

Technical Skills

- Programming:

Java	MATLAB	HTML/JS/CSS
Python	Arduino/C++	

- Solidworks CAD Modeling
- Electronic Circuit Design
- Basic Printed Circuit Board Design

Sampling of Relevant Independent Coursework

Coursera: Gamification (score: 90.7%)   edX: Microsoft: Intro to Python for Data Science (100%)
Machine Learning (score: 100%)

Experience

Applied Medical Resources

Product Development Engineer – Specialty R&D   June 2014 - Aug. 2016 (**2 yrs**)

Main Product: Lap Trainer - a surgical simulation device designed to help surgeons train their laparoscopy skills and practice procedures before entering the OR.

- Conducted literature research into surgical education/training and adult learning theories
- Discussed surgical education with and received feedback on our prototypes from surgeons
- Developed, tested, then automated the testing of several prototype sensors (Java)
- Prototyped circuit designs and developed needed microcontroller (Arduino/C++) code
- Coordinated between teams on different aspects and components of the project
- Drafted engineering drawings for several components
- Developed and drafted Manufacturing Instructions for product assembly
- Developed a surgical training tool toward production status so manufacturing, assembly, and distribution to residency programs can begin

Micro Integrated Devices And Systems Lab (UCI)

Undergraduate Student Researcher   Feb. 2011 - June 2013 (**2.5 yrs**)

Notable Projects**:**

- RehabMat: Aided in the development of and built large-area, flat, computer-input-devices made with flexible conductive fabrics. Purpose: aid in the rehabilitation of stroke patients. Used in clinical trials at the UCI medical school. Prototype test on Mario game: http://youtu.be/npbwq1gwUYk
- Lab Display Unit: Developed a prototype HTML5 application and accompanying server to display UCI Smart Labs sensor data on a tablet. Used JQuery and PHP for the client-server communication. UCI Smart Labs: http://goo.gl/dDdHSn

Projects

Computer Vision Final Project - Surgical Gesture Recognition   Dec. 2016 (**1 mo.**)

    Individual project: <u>attempted</u> to develop and train a Convolutional Neural Network (with a very basic LeNet architecture) to detect the current surgical gesture being performed based on the current frame from a video of a surgical exercise. Used JHU's JIGSAWS dataset for training. Naive implementation of CNNs resulted in a high level of overfitting. Lots of room for improvement. (3/7, would not recommend)

Network Security Project - Reliable Transport Layer Protocol   Sept. 2016 - Dec. 2016 (**4 mo.**)

    Individual project: programmed a Python Twisted implementation of a class-developed reliable transport layer based on TCP. Contributed heavily to the development of the protocol itself during the course. Individual implementation included an RSA authentication component, network traffic mitigation considerations, and eventually a higher AES encryption layer. These implementations will now be used in the Advanced Network Security course, wherein we will be taking advantage of vulnerabilities in the protocol and in each others' individual implementations of the protocol to wreak havoc on our VMs.

Green Grass (Startup Weekend)   Jan. 2014 (**72 hrs**)

    Group project: created a working proof-of-concept for a smart irrigation system that would connect to an existing sprinkler system and water based on weather forecasts. Intended to help reduce waste in landscaping and mitigate California's drought (which now seems to have eased significantly thanks to this wet winter's "atmospheric river"). Team won 1st place.
    Individual contribution: programmed the web interface component.

Mechanical Systems Laboratory (MAE 106)   Apr. 2013 - June 2013 (**3 mo.**)

    Group project: design and build a pneumatically-propelled robot that races to reach a target location given strict design constraints and limited permitted components. Individual contribution: significant modifications to the mechanical structure, manufactured several parts of the structure, and developed almost all of the code, including strategy. Competition: http://youtu.be/ZPTt6sROVnE

Rise of Simba Music Box (MAE 151)   Jan. 2014 - Mar. 2014 (**3 mo.**)

    Group project: design and manufacture a box within specifications which catches a ball, plays a predefined set of musical notes, and releases the ball, interacting with other similar boxes. Individual contribution: most of the electronic fabrication, most of the Arduino microcontroller code, aided in the mechanical design and fabrication, and redesigned the 3D-printed tube.
    https://sites.google.com/site/mae151musicbox/

Leadership Experience

Applied Medical Resources

    Supervisor   Apr. 2015 - Aug. 2016 (**1.25 yrs**)

Tau Beta Pi Engineering Honors Society

    Industrial Relations Chair   May 2012 - Dec. 2013 (**1.5 yrs**)

    Worked with companies to arrange informational sessions on campus and tours of their facilities. Identified professional development needs of our members and planned events to address those needs in collaboration with national programs, faculty members, and on-campus entities.

Campuswide Honors Student Council

    Recruitment and Retention Chair (planned academic events)   Sept. 2012 - June 2013 (**9 mo.**)

    Social Chair (planned social events)   Sept. 2011 - June 2012 (**9 mo.**)

Boy Scouts of America (Troop 801) - Eagle Scout   March 2010