Mark E. Vrablic

mvrablic@mit.edu | Phone: 913.956.9697 | www.markv.me

Education

Massachusetts Institute of Technology   *Cambridge, MA*
- Bachelor of Electrical Science and Engineering – *June, 2019* – GPA: 4.4/5
- Masters of Engineering in progress – *June, 2020*

Relevant Coursework:

Analog Electronics Laboratory • Circuits and Electronics • Microelectronic Devices and Circuits • Electromagnetics and Applications • Power Electronics • Principles and Practices of Assistive Technology • Computation Structures

Work Experience

Texas Instruments RF Validation Intern – *Summer 2019*   *Dallas, TX*
- Performed RF analysis of wireless microcontrollers clocked by a piezoelectric BAW resonator
- Responsible for finding and measuring RF signal variation under mechanical vibration and shock testing

MIT Laboratory Assistant – *Fall and Spring term 2018*   *Cambridge, MA*
- Laboratory assistant and team mentor for MIT class 6.811, Principles and Practices of Assistive Technology
- Laboratory assistant for MIT class 6.101, Analog Electronics Laboratory

BrainCo Electrical Engineering Intern – *Summer 2018*   *Somerville, MA*
- Designed and validated a variety of analog filters for EMG signal acquisition on a prosthetic arm
- Created a filter PCB to attach to the electrodes with Altium Designer, now used in the prosthetic arm

Bhav.AT Teacher – *August 2018*   *Delhi, India and Chennai, India*
- Taught electrical engineering and IOT to Indian college students through use in Assistive Technology
- Responsible for teaching classes and acquiring relevant electrical parts in India

MIT Undergraduate Researcher – *Part-time 2016 - 2018, Full-time Summer 2016 and 2017*   *Cambridge, MA*
- Built and programmed a system of materials science simulations using Unity game engine and Microsoft Kinect
- Presented project at the "World Maker Faire 2016" in New York City
- Mentored and supervised high school students working on simulations for the system

MIT Teaching Assistant – *January term 2016, January term 2017*   *Cambridge, MA*
- Taught a class of 50+ students, "Learn to Build Your Own Videogame with the Unity Game Engine and Microsoft Kinect" and "Collaborative Design with Arduino", now available on MIT OpenCourseware
- Responsible for curriculum design, class planning, lectures, as well as assisting in team project troubleshooting

Hardware Projects – Pictures, Videos, and more at www.markv.me

Automated Power Wheelchair Control Joystick – class project: Principles and Practices of Assistive Technology
- Designed, built, and documented a powered controller arm for people with multiple sclerosis on a team of four
- Designed electronics and programmed the device using feedback based on weekly visits with client
- Currently used by individuals with multiple sclerosis at the Boston Home in Dorchester, Massachusetts
- Presented project to MIT EECS visiting committee

Dorm Room Automation System – personal project
- Designed, built, and programmed a web-connected room automation system capable of unlocking the door, raising/lowering a projector screen, turning on/off the lights, and monitoring the room via live webcam

Field-Programmable Gate Array (FPGA) Robot Arm Projector – class project: Introductory Digital Systems Laboratory
- Member of a team to design, build, and document an FPGA controlled robot arm projector
- Wrote Verilog to keystone-correct VGA input, display images, and communicate with an attached computer

Electronics Repair – personal project
- Reverse engineering, tracking, and repairing component failures in various broken electronics
- Items fixed include TVs, laptops, variable power supplies, and computer parts

LED Strip Controller and Color Organ – personal project
- Designed a circuit and PCB to independently control 5 RGB LED strips, now installed in East Campus at MIT

Technical Skills	Hobbies
• Circuit design and prototyping	• Biking – Participated in the "MS 150", a 2-day 150 mile bike ride
• Altium Designer and CircuitMaker EDA	
• Verilog	• Carpentry – Dorm room improvements including: building lofts, adding flooring, wall-to-wall desk, etc.
• Python	
• LTspice	• Cryptocurrency mining using recycled MIT computers