

MARK GOLDWATER

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EDUCATION

OLIN COLLEGE OF ENGINEERING

MAY 2021

BACHELOR OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING

Recipient of four-year half-tuition merit scholarship valued at \$100,800

GPA: 3.98/4.00

Relevant Coursework (through Spring 2019): Computer Architecture, Analog and Digital Communications, Microelectronic Circuits, Data Structures and Algorithms, Quantitative Engineering Analysis (Multivariable Calculus, Linear Algebra, Signals and Systems, Mechanics), Software Design, Discrete Mathematics, Bayesian Statistics.

SKILLS

- Python, Java, C++, MATLAB, C, Verilog, JavaScript, Ruby on Rails, Git.
- Basic CAD, 3D printer, basic machine shop tools.

EXPERIENCE

MIT LINCOLN LABORATORY SUMMER RESEARCH PROGRAM INTERN

MAY – AUG 2019

- Developed a physical system to calibrate an infrared camera over multiple settings for use in a communication system testbed.
- Converted from pixel values of the camera's focal plane array to the power of an incident infrared beam.
- Utilized C/C++ and multi-threading libraries to write control code for the hardware used in the system, Python for creating hardware emulators for testing, and MATLAB for image processing.
- Developed signal processing algorithm in MATLAB to detect non-functioning camera pixels.

INTRO. TO ANALOG AND DIGITAL COMMUNICATION TEACHING ASSISTANT

AUG – DEC 2019

- Helped students to understand concepts in communication theory such as modulation and other applied concepts from Signals and Systems
- Hosted weekly hours to answer student questions regarding problem sets and projects.
- Graded problem sets for professor, providing feedback to students on their work.

ANALOG CIRCUITS TEACHING ASSISTANT

AUG – DEC 2018

- Assisted students with the theory of filter design and circuit analysis.
- Attended class twice a week to grade students' lab reports and problem sets as well as provide help with the ongoing lab.
- Served as a resource outside of class for students who needed on-on-one help with the material.

TRACK INFORMATION, INC. SOFTWARE ENGINEER INTERN

JUN – AUG 2018

- Designed and prototyped RESTful API for a mobile app to track a user's health statistics using React Native in JavaScript as well as Ruby on Rails.
- Engineered the app's back-end dataflow in order to easily interface with third party APIs.
- App was used as a display of the product to investors.

PROJECTS

BRAILLE SHEET MUSIC PRINTER OCTOBER - DECEMBER 2018

Designed and built device that can convert digitized music into braille sheet music and print it. Personally, I focused on the design of the electrical system and the integration of the software, hardware, and electrical subsystems.

VISIBLE LIGHT COMMUNICATION DOWNLINK MAY 2019

Utilized two USRP1 devices to transmit and receive bits emitted from an LED and initially received by a photodiode. Implemented Binary Phase Shift Keying (BPSK) and Quadrature Phase Shift Keying (QPSK) modulation schemes.

AMERICAN SIGN LANGUAGE/ENGLISH TRANSLATION SYSTEM JULY 2019 – PRESENT

Team received 1st place and funding from a competition at MIT Lincoln Laboratory to take a user-oriented approach to the creation of an ASL language model to facilitate translation from ASL to English and vice versa.

DIGITAL HARDWARE MORSE CODE DECODER DECEMBER 2019

Designed and simulated a digital hardware system which took Morse code input from a button and outputted the ASCII code for inputted letters on LEDs. The system was also successfully run on an FPGA. Our hardware decoded dots and dashes and used a finite state machine to determine which letters to output.