

Alexander P. Thornton

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Technical Skills

MATLAB, C, Communication Systems, Simulink, System Modelling, Electronic Warfare, Pulse-Doppler Radar, Control System Design, Decoupling and Digital Control Systems, Digital Signal Processing, Digital Filter Design, LaTeX, Microsoft Office Suite

Education

Columbia University in the City of New York

Master of Science in Electrical Engineering

Expected May 2022

Binghamton University – Watson School of Engineering

Bachelor of Science in Electrical Engineering, Summa Cum Laude

Conferred May 2019

Honors: Tau Beta Pi | Eta Kappa Nu | Phi Eta Sigma | Dean's List: Fall 2015 – Spring 2019

Professional Experience

Lockheed Martin – Electronic Warfare Group, Owego, NY

June 2019 – Present

Avionics Systems Engineer Associate

SRC, Inc. – Radar and Sensors Group, North Syracuse, NY

May 2018 – Aug. 2018

Radar Engineering Intern

- Modelled, analyzed, and verified system design and system performance for advanced radar systems
- Implemented signal processing and data analysis algorithms (e.g. trackers, detectors, etc.) in MATLAB and Python for computer simulation models of products
- Validated software models on military grade hardware in SRC laboratories using state-of-the-art equipment such as real-time spectrum analyzers, and RF chambers

National Grid – Substation Engineering Group, Syracuse, NY

May 2017 – Aug. 2017

Substation Engineering Design Intern

- Researched electromagnetic field interference to control cables in high voltage stations, and co-authored technical document that is now used as a standard at National Grid
- Analyzed impedance and load values in several stations to optimize the design of DC backup battery systems
- Created automated Bill of Materials database, fully integrated with over 500 frequently purchased materials

Notable Technical Courses

Automatic Control Systems, Modern and Digital Control Systems, Software Defined Radio, Digital Signal Processing, Semiconductor Devices, Security Engineering, Communication Systems, Signals and Systems, Probabilistic Systems, Dynamical Systems, Linear Algebra, Electromagnetics, Electronics, Digital Logic Design, Senior Capstone Design

Project Experience

Senior Capstone Project - Warehouse Navigating Robot, Binghamton, NY

Sep. 2018 - Present

- Defined requirements with The Raymond Corporation (subsidiary of Toyota), the project industry partner and client
- As team systems engineer, created a robotic platform comprised of many intricate subsystems capable of autonomously navigating an industrial warehouse
- Implemented a system of colored lines for the platform to follow and utilized several technologies including light sensors, color sensors, PID control, Bluetooth communication, and ultrasonic sensors to create a robust and low cost system

MATLAB Version of Shazam Music Identification Algorithm, Binghamton, NY

Aug. 2017

- Designed a program composed of 13 MATLAB files to identify the name and artist of an input MP3 file by generating and comparing arrays of peak frequencies determined from Short Time Fourier Transform analysis
- Thoroughly tested design against external interference including low / high pass filters, multi path echo distortion, and randomly generated ambient noise

Additional Honors

Active United States DoD Security Clearance – SECRET, Syracuse, NY

June 2018

IEEE Region 1 Research Paper Competition 2018 – Honorable Mention, New York, NY

Mar. 2018

2017 Champion – Binghamton Mathematics Problem of the Week Challenge, Binghamton, NY

May 2017

- Solved the highest number of weekly mathematics problems challenged to undergraduate and graduate students

Eagle Scout – Boy Scouts of America, Ogden, NY

May 2013

Leadership

Vice President – Binghamton University IEEE, Binghamton, NY

Sep. 2016 – May 2018

- Managed Binghamton IEEE robotics projects, competing in Mars Rover Society and Micro Mouse Competitions
- Coordinated with Binghamton IEEE undergraduate and graduate students to plan a University-wide cyber security activity that was sponsored by BAE Systems

President – Binghamton University Math Club, Binghamton, NY

Sep. 2017 – May 2018

- Planned and organized club meetings, competitions, and events
- Increased frequency of club activities and quadrupled previous membership and attendance