

ALEX THORNTON

Syracuse, NY • alex@caa.columbia.edu • [linkedin.com/in/alex-thornton](https://www.linkedin.com/in/alex-thornton) • (585) 362-9601

EDUCATION

Columbia University

Master of Science in Electrical Engineering

New York, NY

May 2022

Specialization: Data-Driven Analysis & Computation

Notable Coursework: High-Dimensional Data Analysis, Deep Learning, Reinforcement Learning, Big Data Analytics

Binghamton University

Bachelor of Science in Electrical Engineering

Binghamton, NY

May 2019

Honors: Summa Cum Laude | Tau Beta Pi | Eta Kappa Nu | Phi Eta Sigma

TECHNICAL SKILLS

Software

Python, Linux, Docker, Hadoop, Spark, SQL, DSP, Tensorflow, PyTorch, MATLAB, Big Data, C/C++, Google Cloud, AWS, Convex Optimization, Speech Recognition

Hardware

Cadence Virtuoso, SPICE, Analog/ Digital IC Design, Compressed Sensing, 5G

PROFESSIONAL EXPERIENCE

Lockheed Martin

Syracuse, NY

Senior Machine Learning Engineer

Oct 2022 - Present

- Lead and supported various IRAD projects for the spectrum convergence signal processing & AI research team
- Architected design as product owner for both synthetic aperture radar (SAR) and space time adaptive processing (STAP) Python packages, leveraging optimized open-source libraries (Numpy, SciPy, Pandas, FFTW, etc)
- Coordinated with university partners to productize recent advances in compressed sensing and optimization

Machine Learning Engineer

Sep 2021 – Oct 2022

- Designed an IRAD PyTorch LSTM model to solve a high priority problem in submarine electronic warfare
- Improved data labelling process with multi-hot-encoding, reducing model complexity from $O(2^n)$ to $O(n)$
- Taught internal company-wide course on reinforcement learning, with lectures and Jupyter notebook exercises

Engineering Leadership Development Program / Software Engineer

Feb 2021 - Sep 2021

- Developed technical and soft skills through rigorous 10-month team lifecycle project and conferences
- Utilized GitLab runners for continuous integration (CI/CD) of shell scripts for lab automation
- Upgraded software interface for firmware and hardware upgrade on classified program

Systems Engineer Associate

Jun 2019 - Feb 2021

- Delivered technical demonstration as lead systems engineer for prospective \$6 million contract
- Created GUIs and MATLAB tools for helicopter flight simulators and data analysis tools

SRC, Inc.

North Syracuse, NY

Radar Engineering Intern

May 2018 - Aug 2018

- Modelled, analyzed, and verified system design and system performance for advanced radar systems
- Implemented signal processing and data analysis algorithms in MATLAB and Python

PROJECTS

SpotifyClassifier

- Top paper & student voted 2nd best research project at Columbia University Big Data Analytics Expo – Fall 2021
- Devised machine learning model to interface with Spotify API to classify track genres from song name only
- Performed novel insight into subgenre relationships through analysis from track recommendation collisions

MR Image Compression

- Designed wavelet transform based MRI scan compression technique to prevent generational image loss
- Developed CNN auto-encoder architecture to minimize latent space while preserving image features

ADDITIONAL HONORS

- STEM Volunteer of the Year, Lockheed Martin Syracuse – 2023
- Eagle Scout, Boy Scouts of America – 2013