**Alex Thornton**

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**education**

**Columbia University** New York, NY

**Master of Science in Electrical Engineering** Expected May 2022

Specialization: Data-Driven Analysis & Computation

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

**Binghamton University** Binghamton, NY

**Bachelor of Science in Electrical Engineering** May 2019

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

**technical skills**

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| **Software** | C/C++, Python, Linux, Docker, Hadoop, Spark, AI/ML, Google Cloud Platform, DSP, Tensorflow, PyTorch, Big Data, Algorithms, MATLAB |
| **Hardware** | Cadence Virtuoso, SPICE, Analog/ Digital IC Design, 5G Systems, Massive MIMO |

**professional experience**

**Lockheed Martin** Syracuse, NY

**Machine Learning Engineer** Sep 2021 - Present

* Integrated random forest and deep learning PyTorch models for IRAD electronic warfare effort
* Complemented existing software pipelines with AI models for improved performance

**Engineering Leadership Development Program / Software Engineer** Feb 2021 - Sep 2021

* Developed technical and soft skills through rigorous 10-month team lifecycle project and conferences
* Introduced GitLab runner continuous integration/ development shell scripts for lab automation
* Transitioned synthetic aperture radar (SAR) software interface for firmware and hardware upgrade

**Systems Engineer Asc.** Jun 2019 - Feb 2021

* Delivered technical demonstration as lead systems engineer for prospective $6 million contract
* Created GUIs and MATLAB tools for 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**

* Voted 2nd best research project at Columbia University Big Data Analytics Expo – Fall 2021
* Designed machine learning model to interface with Spotify API to classify track genres from song name only
* Performed novel subgenre interconnectedness analysis to estimate Fisher information of subgenres

**Learning to Learn - Math Word Problem Kaggle Competition**

* Ranked 3rd place in deep learning course Kaggle competition at Columbia University – Summer 2021
* Trained GPT-2 and graph2tree architectures to solve math word problems

**Auto-Tune Application**

* Designed GUI to play back and visualize audio inputs pitch corrected to a specific piano key or nearest note
* Developed signal processing technique to efficiently filter and pitch shift audio signals without loss of sound quality

**additional honors**

* Eagle Scout - Boy Scouts of America, 2013