

ALEXANDER DONG

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EDUCATION

New York University

Sep 2019 – May 2021

M.S. Data Science, GPA: 3.92

New York, NY

- **Relevant Coursework:** Machine Learning, Big Data, Computer Vision, Deep Learning, Search and Discovery, Natural Language Understanding

Washington University in St. Louis

Aug 2011 – May 2015

B.A. Mathematics, GPA 3.92

St Louis, MO

- **Honors Program in Statistics**
- **Honors Thesis:** A Comparison of Lasso and Dantzig Selector in Linear Regression Models

PROFESSIONAL EXPERIENCE

NYU Center for Data Science

Aug 2020 – Ongoing

Graduate Teaching Assistant

New York, NY

- Graduate Teaching Assistant for Optimization and Computational Linear Algebra, a graduate level course for data science masters students (~90 students).
- Course covers fundamental mathematics for machine learning applications such as PCA, regularized linear regression, spectral clustering, and gradient descent.

MIT Lincoln Laboratory

Aug 2015 – March 2019

Assistant Technical Staff

Lexington, MA

- Researched topics in aircraft survivability, such as: passive radars, communication within radar networks, flight path optimization, and capability of threat aircraft. Regularly presented results to U.S. Air Force research sponsors.
- Designed and developed a library in Python to parse text-based intelligence reports, leading to an automated workflow for reconstructing and analyzing radar connectivity networks.
- Synthesized inputs from multiple aircraft and missile simulation tools in C++ and Simulink in order to optimize an aircraft's flight path given various war scenarios, which enabled our group to rapidly analyze emerging threats.
- Contributed to and maintained a library of physics-based models in C++ and MATLAB that simulate radar detections of aircrafts.
- Acted as a statistical consultant on a multitude of topics including radar statistics, signal processing, and linear regression modeling.

PROJECT WORK

Style Transfer for Professional Photo Edits *Independent Project*

Summer 2020 - Ongoing

- Collected a dataset of professional photographic edits that were delivered to customers.
- Trained a neural network (HDRnet) that attempted to learn the photographic graphic edits. The neural network achieved a low loss, but the edits are still not up to professional standards.
- Currently exploring methods to increase the performance of the neural network (Using a GAN, pretraining and fine-tuning, and collecting more data).

Data for Justice *Master's Capstone Project*

Fall 2020

- Worked with NYU Marron Institute and Fort Bend County, Texas District Attorney's Office to identify and quantify prosecutorial bias in the criminal justice system.
- Conducted an exploratory analysis which identified recordkeeping issues, leading to changed data collection processes.
- Found that large amounts of bias exist at limited decision-making points, which lead to investigations on why those sources of bias exist.

Learning to Rank Hotels *Class Project*

Fall 2020

- Worked with RocketMiles, a hotel booking website, to benchmark deep learning methods for search engine/information retrieval ranking on an extremely sparse dataset.
- Implemented MultVAE and word2vec methods in pytorch, and achieved similar performance (on NDCG) to the LambdaMART production model with MultVAE.

TECHNICAL SKILLS

Skills Machine Learning, Deep Learning, Computer Vision, Recommender Systems, Statistics, Physics

Languages Python (pytorch, pandas, sklearn), MATLAB, C++, R, Bash, Spark, SQL, git, L^AT_EX

Hobbies B-boying (9 years), biking, cooking, hiking