Alexander Wang

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RESEARCH INTERESTS	► Applied Numerical Linear Algebra ► Scientific Computing ► Optimization ► Scientific Machine Learning ► Reinforcement Learning

EDUCATION

Cornell University   **Aug 2019—Dec 2022**
College of Arts and Sciences   *Ithaca, NY*
B.A. Mathematics and Computer Science
► *GPA: 3.863*

PROFESSIONAL EXPERIENCE

Amazon.com   **May—Aug 2022**
Amazon Music SWE Intern   *San Francisco, CA*
► Designed and implemented a dashboard to visualize the publishing status of new content at Amazon Music in real time using a React.js frontend and Java backend.
► Utilized AWS Redshift, SQS, S3, and CloudFormation to produce the tool.

Amazon.com   **May—Aug 2021**
AWS Connect SWE Intern   *Seattle, WA*
► Designed a component of the CRUD API for multiple resources within the Amazon Connect service at Amazon Web Services.
► Implemented the delete APIs for those resources according to customer demands while adhering to data privacy regulations (GDPR).

HONORS AND AWARDS

► Dean's List, Cornell University x 4
► ProjectX 2021 1st Place Winner ($25,000 prize)

RESEARCH EXPERIENCE

Cornell University   **Aug 2022—Present**
Advised by Professor Anil Damle   *Ithaca, NY*
► Investigated the sensitivity of deep neural network training regimens to noise and the variance of resulting networks based on whether they were randomly initialized or fine-tuned from the same base network.
► Compared VGG-16 models trained on the CIFAR-10 dataset and measured their similarity to determine whether or not they stemmed from the same base model.
► Examined tendencies for neural networks to converge towards one particular minima and whether perturbed versions converged back to the same minima after fine tuning.

► Explored ways to measure similarity of neural networks. This was motivated by the desire to make claims about neural network compression techniques genuinely compressing neural networks rather than effectively retraining them.

ProjectX 2021   **Aug 2021—Jan 2022**

Ithaca, NY

► Lead six undergraduate students to represent Cornell University at a machine learning research competition hosted by the University of Toronto.
► Developed a misinformation detection model for social media using ClaimBuster to identify claims and BERT for language modeling.
► Our paper, *"COVID-19 was a FIFA conspiracy #curropt": An Investigation into the Viral Spread of COVID-19 Misinformation* (link), won the competition in the Epidemiology category ($25,000 prize)
► We presented our paper at the University of Toronto 2022 AI conference.

TEACHING EXPERIENCE	**Introduction to Machine Learning (CS 4780)**	**Aug 2021—Dec 2022**

Teaching Assistant   *Ithaca, NY*

► Instructors: Prof. Anil Damle, Prof. Wen Sun   (Fall 2022)
► Instructor: Prof. Chris De Sa   (Spring 2022)
► Instructors: Prof. Anil Damle, Prof. Kilian Weinburger   (Fall 2021)

LEADERSHIP AND OUTREACH	**Cornell Data Science**	**Oct 2020—Dec 2022**

Insights Subteam Lead, Project Lead (x2)   *Ithaca, NY*

► Lead a subteam of 16 undergraduates pursuing data science related projects.
► Onboarded 40+ new members across all subteams.
► Developed curriculum and taught topics in optimization and statistical machine learning.
► Lead Project X 2021   (Fall 2021)
  ► Competed in and won an undergraduate machine learning research competition.
► Lead MathSearch   (Fall 2022)
  ► Developed a prototype math-integrated search engine for students and researchers using novel equation detection and pairwise image similarity detection.