

Akhil Nadigatla

412-482-8967 | akhilnadigatla@cmu.edu | [linkedin.com/in/akhil-nadigatla](https://www.linkedin.com/in/akhil-nadigatla) | github.com/akhilnadigatla | akhilnadigatla.com

EDUCATION

Carnegie Mellon University

Pittsburgh, PA

B.S. in Computer Science (University Honors, SCS College Honors)

August 2018 - May 2022

- QPA: 3.53.
- Concentration in Machine Learning, Minor in Philosophy.

RESEARCH

Towards Efficient Neural Zeroth-Order Optimization Algorithms

August 2021 – Present

CMU Machine Learning Department

Pittsburgh, PA

- Advised by Prof. Pradeep Ravikumar of the Statistical Machine Learning Group for the Honors Senior Thesis program.
- Investigating more efficient neural black-box optimization techniques in high-dimensional settings while making no assumptions about the underlying objective function.
- Exploring two novel algorithms (Neural Thompson Sampling and a Neural Upper Confidence Bound (UCB)-based algorithm), iterated upon using Stochastic Gradient Langevin Dynamics.

Adversarial Robustness via Model Ensembles

October 2020 - May 2021

CMU Machine Learning Department

Pittsburgh, PA

- Advised by Prof. Pradeep Ravikumar and Arun Suggala of the Statistical Machine Learning Group for the Computer Science Research Practicum.
- Evaluated the effects of weighted ensembles of classifiers on adversarial robustness of deep neural networks.
- Witnessed a 1 to 2% (statistically significant) improvement in accuracy on perturbed samples from MNIST and CIFAR-10 datasets under a wide range of attacks.

EXPERIENCE

Software Engineer Intern

June 2021 - August 2021

Splunk

San José, CA

- Worked on the Observability Cloud Analytics team to improve real-time streaming capacities and efficiency of platform that drives all metric transformations processed by the SignalFx products.
- Developed a novel workflow for large window, fine resolution tasks that increased capacity by ~3,500%, and cut job migration and restart times by ~700% by offshoring window data to external persistence.

Student Lead

May 2019 - December 2019

CS Academy

Pittsburgh, PA

- Drove content creation, testing, and development of free platform for teaching computer science principles.
- Participated in development of features that improved ease-of-use, achieving a five-fold increase in active users.
- Led support and outreach team, and contributed to the organization of professional development seminars for instructors.

SELECTED PROJECTS

SafeEvents | *Python, Firebase*

August 2020 - November 2020

- Developed a mobile event tracking application providing COVID-19 risk estimates by locality using active data from Georgia Tech-developed tool.
- Used at University of Minnesota - Twin Cities and University of Texas - Austin.

Dendrogram Generator | *R*

June 2020 - August 2020

- Created pipeline to convert DNA marker information for different crop varieties into dendrograms to aid in trait association and breeding, all wrapped in an easy-to-use GUI.
- Used at the International Institute for Tropical Agriculture.

ConvoCoach | *Python, GCP*

March 2019 - June 2019

- Developed application - along with four colleagues - to assist and improve the capabilities of autistic individuals with daily conversations.
- Utilized cloud NLP, image association, speech recognition and synthesis tools to drive predictive and dynamic conversations.

PyStocks | *Python*

October 2018 - December 2018

- Constructed a trading simulator intended as an introduction to the financial markets.
- Utilized live stock and forex data to make intelligent predictions using stochastic modeling.

TEACHING

Undgraduate Teaching Assistant

August 2021 - December 2021

*CMU School of Computer Science**Pittsburgh, PA*

- Served as a TA for the Research and Innovation in Computer Science (07-300) course. Led lectures and recitations, graded assignments, and held regular office hours.

SELECTED COURSEWORK

Computer Science: Algorithm Design and Analysis, Distributed Systems, Foundations of Programming Languages, Foundations of Software Engineering, Parallel Data Structures and Algorithms.

Machine Learning: Machine Learning with Large Datasets, Machine Learning Ethics and Society, Introduction to Machine Learning.

Mathematics: Modern Regression, Probability Theory.

TECHNICAL SKILLS

Languages: Python, Java, C, C++, Standard ML, OCaml, R, x86 Assembly.

Frameworks: PyTorch, JAX, TensorFlow, Keras, Scikit-Learn, Spark.

Tools: \LaTeX , Git, Vim.

Platforms: AWS, Azure, GCP, Docker.

ACHIEVEMENTS

CMU SCS Dean's List: High Honors (Fall 2020, Fall 2021, Spring 2022).

William Lowell Putnam Mathematical Competition: Top 500 (Fall 2019).

TartanHacks: Best Social Welfare Hack (Spring 2019).

President's Award of Kenya: Gold Standard (awarded by H.E. Uhuru Kenyatta).