Aditya Kannan

akannan2@andrew.cmu.edu

EDUCATION

Carnegie Mellon University, Pittsburgh, Pennsylvania, USA

- M.S. in Computer Science   Aug 2022 – Aug 2023
  - Cumulative QPA: 4.00 / 4.00
  - Current work involves learning domain-agnostic and agent-agnostic reward functions by utilizing in-the-wild, human interaction data at scale.

- B.S. in Artificial Intelligence   Aug 2019 – May 2022
  - Cumulative QPA: 3.96 / 4.00
  - Dean's List High Honors, all semesters

Interlake High School, Bellevue, Washington, USA   Aug 2015 – May 2019

- Cumulative GPA: 3.96 / 4.00
- Received IB Diploma with score of 42/45 (top 2% internationally)

RESEARCH EXPERIENCE

Learning Embodied Action and Perception Lab, CMU Robotics Institute   Oct 2021 – Present

- Working under Prof. Deepak Pathak with the mentorship of PhD student Shikhar Bahl as part of the Learning Embodied Action and Perception (LEAP) Lab.
- Worked on detecting wrist-to-chest pose trajectories from human video demonstrations and using them as action priors for robotics learning tasks.

Mohimani Lab, CMU Computational Biology Department   Oct 2020 – May 2021

- Worked under Prof. Hosein Mohimani with the mentorship of PhD student Mustafa Guler as part of the Metabolomics and Metagenomics Lab.
- Developed machine learning methods to predict molecule interactions and natural products for the purposes of drug discovery.
- Reproduced work in a paper that involved using Graph Neural Networks to predict Compound-Protein interactions and applied it on a novel dataset.
- Refactored existing C++ codebase using Rust, improving memory usage and runtime by a factor of 100x.

Institute for Health Metrics and Evaluation, University of Washington   Oct 2018 – Aug 2019

- Worked under Prof. Abraham Flaxman in the Simulation Science Team.
- Developed microsimulation models to determine efficacy of public health interventions on children in sub-Saharan Africa.
- Synthesized relative risk and intervention coverage results from journals articles in literature reviews using meta-analyses.
- Presented a poster of my work in the International Disease Modelling (IDM) Symposium.

PUBLICATIONS

Cost-effectiveness of Vitamin A Supplementation among children in three sub-Saharan African countries: an individual-based simulation model using estimates from Global Burden of Disease 2019. **Aditya Kannan**, Derrick Tsoi, Yongquan Xie, Cody Horst, James Collins, Abraham Flaxman. *Published in PLoS One.*

UNDER REVIEW

HypoNPAtlas: an Atlas of Hypothetical Natural Product for Mass Spectrometry Database Search. Yi-Yuan Lee, Haodong Liu, Neel Mittal, Liu Cao, Mustafa Guler, **Aditya Kannan**, Keshav Narayan, Samuel T Slocum, Bryan L Roth, Alexey Gurevich, Hosein Mohimani.

TEACHING

Algorithm Design and Analysis (15-451) , Carnegie Mellon University   Aug 2021 – Dec 2021
Teaching Assistant

- Led and presented in weekly recitations of 30 students.
- Held weekly office hours and hosted the final exam review session.
- Graded biweekly homeworks.
- Test solved and proctored exams.

WORK EXPERIENCE	**Hudson River Trading**, New York, New York, USA May 2022 – Aug 2022

WORK EXPERIENCE

Hudson River Trading, New York, New York, USA   May 2022 – Aug 2022
Algorithm Developer Intern

- Developed signals using order book microstructure and wrote order execution strategies for live trading cryptocurrencies.
- Created a model for predicting intraday market volume for various equities and asset classes. Developed pipeline so that model could be implemented in production efficiently.

Facebook AI Research, Menlo Park, California, USA   May 2021 – Aug 2021
Software Engineering Intern

- Productionized new optical character recognition (OCR) model that Facebook uses to detect hate speech, terrorism, and illegal activities in over 60 languages.
- Improved latency and interpretability of the OCR model.
- Introduced weakly-supervised learning paradigm to augment training data by 20x.

Fiat Chrysler Automobiles, Auburn Hills, Michigan, USA   Jun 2020 – Aug 2020
Software Engineering Intern

- Leveraged data mining tools like PostgreSQL to find opportunities for tax savings in FCA's supply chain.
- Initiated work on a greenfield project and brought attention to an area that could result in tens of millions of dollars in savings.
- Recognized for showing leadership in integrating expertise of colleagues on data science and finance teams.

RELEVANT COURSEWORK

Machine Learning and AI: Deep Learning for Robotics, Visual Learning and Recognition, Cooperative AI, Deep Reinforcement Learning, Neural Computation, Computer Vision, Intro to Robotics, Intro to Machine Learning.

Mathematics and Theory: Algorithm Design, Great Ideas in Theoretical Computer Science, Vector Analysis, Modern Regression, Matrix Theory.

Computer Systems and Design: Parallel Computer Architecture and Programming, Intro to Computer Systems, Parallel and Sequential Data Structures and Algorithms.

ACTIVITIES & AWARDS

Google Code Jam, Round 2   2021
- Placed among top 2500 competitors internationally (top 250 in US) in Round 2.

American Invitational Mathematics Examination (AIME), 5x Qualifier   2019
- Received highest score of 9 (top 300 students in US).

Program in Mathematics for Young Scientists (PROMYS) Invitee   2017 – 2018
- Learned undergraduate-level mathematics on topics such as Number Theory, Cryptography, and Galois theory.
- Completed an independent research project on Elliptic Curves.