Vaishnavi Gupta

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personal website | github | linkedin

EDUCATION

Cornell University, MS
Computer Science
August 2022 - August 2023

Cornell University, BA
Computer Science + Math
August 2019 - May 2022
GPA: 4.00, Summa Cum Laude

ORGANIZATIONS

Cornell Concert Commission
Hortus Form (Horticulture Club)

COURSEWORK

Graduate Algorithms
Large Scale Machine Learning
Compilers, Operating Systems
Graduate Network Theory
Hons. OOP & Data Structures
Hons. Discrete Mathematics
Computational Genetics
Probability, Hons. Real Analysis
Algebra, Linear Algebra

SKILLS AND TECHNOLOGIES

Software Design + ML

C++ | Python (incl PyTorch) | Kotlin | OCaml | Java

Web Development
Frontend and backend experience

JS/Typescript (React, Node.js) | HTML5 | CSS | SQL

AWARDS

Compilers Bakeoff Winner: Awarded the best compiler for CS 4120 as a team of 3

Cornell Prize for Teaching Excellence: $500 reward, given to 1 out of graduating class

Grace Hopper Full Funding

ACM-ICPC for High Schools: 2nd in the India qualifiers

Indian National Olympiad in Informatics Finalist

EXPERIENCE

Meta AI - *Software Engineer Intern*
June 2022 - August 2022

› Working on making vision transformers for video machine learning tasks more compute-efficient, while maintaining accuracy. Implemented adaptive token sampling modules from research papers in PyTorch, and incorporated them into workflows for downstream tasks like Reels understanding.

› New trained models showed a 25% decrease in transformer inference time latency and flops, with a 10% final decrease in the production model.

Instagram - *Software Engineer Intern*
June 2021 - August 2021

› Worked on infrastructure in the Instagram Suggested Users team, to increase efficiency and recommendation quality. Used C++ and Python, as well as SQL, Hive, and A/B testing frameworks for statistical analysis.

› Optimizing cache refresh scheduling based on user activity prediction led to a 30% decrease in CPU cycles during peak hours, and an overall 10% decrease.

Cornell Design & Tech Initiative - *Backend Developer*
August 2020 – Present

› I work on CoursePlan ↗ , a website helping students plan coursework. Worked to set up requirements infrastructure using a bipartite matching algorithm.

› Worked on flux ↗ , an app assessing crowdedness at Cornell eateries. Implemented M/M/1 queue model to predict wait-times using swipe data.

Cornell University - *Undergradute Researcher*
January 2021 – Present

› As a member of CUAI ↗ , I'm working on problems related to improving the performance of Graph Neural Networks on non-homophilous graph structures.

› Also exploring online learning algorithms, advised by Prof. Robert Kleinberg.

Cornell University - *Head Teaching Assistant*
August 2020 – Present

I lead a weekly recitation section, handle the autograder, and help write review materials for **CS 4820 - Algorithms** and **CS 2802 - Hons. Discrete Math**.

PUBLICATIONS

› Large Scale Learning on Non-Homophilous Graphs: New Benchmarks and Strong Simple Methods *(NeurIPS 2021)* PDF ↗

› Non-Stochastic CDF Estimation Using Threshold Queries *(in submission)*

PROJECTS

PhyloML - Demo ↗ Source ↗

› A phylogenetic tree library in OCaml to parse DNA sequence files and generate most-likely evolutionary trees, demoed via a React frontend.

› Implemented Bayesian inference MCMC sampling algorithms for heuristic based sequence alignment. Also wrote an XML lexer and parser.