Vaishnavi Gupta

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personal website | github | linkedin

EDUCATION

Cornell University
BS (Computer Science)
August 2019 - May 2023
GPA: 3.960

ORGANIZATIONS

Women In Computing at Cornell
The Hortus Form (Horticulture Club)

COURSEWORK

Honors OOP & Data Structures
Functional Programming
Honors Discrete Mathematics
Intro to Machine Learning
Visual Imaging
Multivariable Calculus
Differential Equations

SKILLS AND TECHNOLOGIES

Software Design + Data Science

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

Web Development

Frontend and backend experience

Javascript (React, Node.js) | HTML5 | CSS | MySQL | PHP

Graphic Design

Adobe Illustrator | InDesign

AWARDS

Dean's List: all semesters offered

ACM-ICPC for Schools Contest: 2nd place in the India ICPC qualifiers amongst 100 high school teams

Dean's List: all semesters offered

3-time Indian National Olympiad in Informatics Finalist: Amongst the top 60 students in the country

AIME qualifier

EXPERIENCE

Cornell University - *Teaching Assistant*
August 2020 – Present

I hold weekly office hours and grade problem sets and exams as a TA for **CS 2802 - Discrete Math Honors**.

Buckler Lab, Cornell University - *Researcher*
June 2020 – Present

Working on writing a set of lightning fast genetic analysis tools and adding bioinformatics support for Kotlin.

All India Institute of Medical Sciences, Delhi, India - *Developer and Intern*
January 2018 – July 2019

› Built an online learning platform ↗ from scratch to train medical students and doctors on optimal neonatal care practices; PHP and MySQL used for backend

› Scaled up nationwide, with 10,000+ users from India and the Maldives

Institute of Genomics and Integrative Biology, Delhi, India - *Research intern*
March 2018 - June 2018

Implemented machine learning models using various classifiers (Naive Bayes, Random Forest) to predict the chemical reactivity of untested molecules for tuberculosis drug discovery programmes

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 various distance-measure and Bayesian inference Markov Chain Monte Carlo sampling algorithms. This involved using the Metropolis Hastings algorithm and implementing dynamic programming and heuristic based multiple sequence alignment.

› Wrote an XML lexer and parser from scratch to read in existing tree data.

Crunch - Source ↗

A fast command line tool written in C++ implementing various lossless file compression algorithms like LZW and Huffman Coding. This involved designing bit-by-bit file reader and writer classes and optimizing the storage size of the codes in the output file.

Critterworld

A 10,000 line+ Java game consisting of a world of programmable 'critters'. In the process, I wrote a server and implemented thread-safety to support concurrent API calls from multiple players, and wrote a parser to read in critter instruction files. The frontend was made using JavaFX.