# Vaishnavi Gupta

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personal website | github | linkedin

## EDUCATION

### Cornell University, BA
Computer Science + Math
August 2019 - May 2023
GPA: 4.00

## ORGANIZATIONS

Rewriting The Code Fellow
Women In Computing at Cornell
Cornell Concert Commission
Hortus Form (Horticulture Club)

## COURSEWORK

Algorithms
Honors OOP & Data Structures
Large Scale Machine Learning
Compilers
Functional Programming
Honors Discrete Mathematics
Computational Genetics
Probability
Algebra
Linear Algebra, Multivariable Calc

## SKILLS AND TECHNOLOGIES

### Software Design + Data Science

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

### Web Development

Frontend and backend experience

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

## AWARDS

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

**Dean's List:** all semesters

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

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

## EXPERIENCE

### Facebook - *Software Engineer Intern*
June 2021 - August 2021

› Working on infrastructure in the Instagram Suggested Users team, to increase CPU efficiency and recommendation freshness by optimizing cache refresh times.

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

› I work on CoursePlan ↗ , a website helping Cornell students plan course requirements. Worked on setting up requirements infrastructure using a bipartite matching algorithm. So far, we have over 500 users!

› Worked on flux ↗ , an app assessing crowdedness at locations on the Cornell campus. Implemented an M/M/1 queue model to accurately predict queue wait-times using swipe data, which improves through crowdsourced feedback.

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

I lead a weekly recitation section, hold office hours and grade problem sets as a TA for **CS 4820 - Algorithms** and **CS 2802 - Discrete Math Honors**.

### Buckler Lab, Cornell University - *Undergradute Researcher*
June 2020 – August 2020

Worked on BioKotlin, a statically typed library providing optimized genetic analysis tools, and using machine learning to predict haplotypes by optimally stitching fragmented DNA alignments.

### All India Institute of Medical Sciences, India - *Developer*
January 2018 – July 2019

› Built an online learning platform ↗ to train medical students and doctors on optimal neonatal care practices; scaled up to 10,000+ users across India

› Implemented features like interative timed quizzes, webinars, and automatic certificate generation.

## 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 distance-measure and Bayesian inference Markov Chain Monte Carlo sampling algorithms. This involved applying the Metropolis Hastings algorithm, dynamic programming, and heuristic based 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 also involved designing bit-by-bit file reader and writer classes.