

# MAHMUDUL RAPI

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## Education

### Princeton University

Aug 2020 – May 2024

*Bachelors of Science in Engineering (B.S.E.) in Computer Science*

*Princeton, NJ*

- GPA: 3.96/4.00 | Graduated Tau Beta Pi, Phi Beta Kappa, and Sigma Xi
- Coursework: Distributed Systems, Computer Networks, Computer Architecture, Information Security, Machine Learning, Advanced Programming Techniques, Algorithms & Data Structures, Computer System Design, Systems Programming

### Stuyvesant High School

2016 - 2020

*Advanced Regents Diploma, Graduated National AP Scholar*

*New York, NY*

- GPA: 97.5/100 | SAT: 1560, SAT II Math 2: 800, SAT II Physics: 800 | 12 AP Courses & Math up to Complex Calculus

## Technical Skills

**Languages:** C++, Java, Python, C, Golang, Rust, HTML, CSS, TypeScript, SQL

**Technologies:** AWS, React.js, Flask, Bootstrap, Git, PostgreSQL, Firebase, GraphQL, Linux

## Experience

### Meta

Jun 2024 – Present

*Software Engineer — Distributed Tracing Infrastructure (Artillery)*

*New York, NY*

- Optimized C++ and Python Artillery SDK for performance tracing infrastructure to provide Meta internal customers (FB, Instagram) insights across the end-to-end execution path of requests in their complex, distributed architectures.
- Worked on feature enhancements on C++ backend for managing ingestion, storage and processing of huge volumes of tracing data (15GB/s) that ensures correctness, scalability and efficiency.

### Amazon Web Services (AWS)

May 2023 – Aug 2023

*Software Development Engineer Intern — AWS Internet of Things (IoT)*

*New York, NY*

- Developed a real-time AWS data pipeline for an IoT use case, which streamlines data transmission from an automotive embedded system up to the AWS Cloud for processing and visualization.
- Spearheaded development of C++ device software with multithreading and shared memory to increase throughput of messages sent by the vehicle to the cloud by over 50% and decrease end-to-end latency by several hundred milliseconds.
- Performed unit testing using gTest framework and mocked network calls using gMock, achieving 100% code coverage.

### Borderless

Dec 2022 – Feb 2023

*Software Engineer Intern — Full Stack Development*

*Louisville, KY (Remote)*

- Developed React.js dashboard allowing clients to view aggregate financial transactions and business metrics over any date range, which attracted new business partners and contributed to startup's first \$1M month of money transfers.
- Designed new GraphQL DB schemas and TypeScript query functions for accounting payments related data.
- Optimized queries for financial data leveraging asynchronous JavaScript calls to decrease latency by over 30%.

### Princeton University Intelligent Performance Lab

Jan 2022 – Dec 2022

*Software Developer Research Assistant*

*Princeton, NJ*

- Deployed web version of a Unity motor-learning experiment, tripling number of studies ran in Princeton's IPA Lab.
- Developed a C# backend with REST API integration to store and fetch experimental data from Google Firebase.
- Automated the uploading of experiment setup data from CSV files into the Firebase DB using Firebase JavaScript API.

## Projects

### TigerClimb | Python, JavaScript (jQuery), HTML, CSS, MySQL, PostgreSQL

Worked in a team of four to develop a Flask web app allowing 300+ Princeton students involved with the Outdoor Action Climbing Wall to create climbing routes, using our jQuery GUI to drag-and-drop climbing holds.

Implemented feature for users to comment on climbing routes pages, and save list of their favorite routes.

### Python Trading Bot | Python, Pandas, Numpy

Programmed a trading bot which automates real trades using the Robinhood API and leverages data analytic libraries to employ a moving average strategy and a Twitter sentiment strategy.

### HTTP Proxy | Golang, Python

Developed a web proxy that passes requests and data from local web clients to remote web servers for improved web performance by leveraging DNS prefetching, data caching, and content filtering specified HTML elements such as ads.