

# Mahmudul Rapi

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Portfolio: [mahmudulrapi.netlify.app](https://mahmudulrapi.netlify.app)

## Education

Princeton University, Princeton, NJ

09/2020 - Present

**B.S.E. in Computer Science, Expected Graduation Date: May 2024**

GPA: 3.95/4.00

Minor: Statistics & Machine Learning

Coursework: Full Stack Programming Techniques, Algorithms & Data Structures, Systems Programming, Machine Learning, Java Programming, Digital Logic Design, Discrete Mathematics, Linear Algebra

## Experience

L3Harris Technologies - Incoming Software Engineering Intern

Starting 06/2022

Princeton University Psychology Department - Software Developer Research Assistant

01/2022 - Present

- Developing a web version of a motor-learning based Unity project using Javascript and the Google Firebase SDK, for expanding the number of study subjects in Princeton's Intelligence and Adaptation Lab.
- Wrote C# code for Firebase authentication, data retrieval and logging for Unity projects using REST API.

Princeton University Computer Science Department - Course Grader

09/2021 - Present

- Grading over 200 students' programming assignments for the *Algorithms & Data Structures* course at Princeton and provided personalized feedback on code style.
- Helping debug students' Java code for correctness and efficiency.

Centers for Disease Control & Prevention - Data Science Intern

06/2021 - 08/2021

- Used R programming and Microsoft Excel to generate visual data from CDC's Career Program Selection Reports and develop new recommendations on current selection measures.
- Worked on a content inventory to catalog and organize over 150 directories on CDC's Science Office SharePoint storage system to improve accessibility for internal users.

## Activities

The Daily Princetonian (*School Newspaper*) - Software Engineer

09/2021 - Present

- Working on the frontend development (HTML, CSS, Typescript) for various pages on the Daily Princetonian online website which are seen and used by hundreds of students on campus.
- Created a Python script for caching web scraped dining meal data for each day into Google Firebase to significantly speed up user access to the meal data by 5 seconds.

Princeton High Powered Rocketry - Software Subteam Lead

09/2020 - Present

- Teaching the software team of 15 people how to use Python to program a Raspberry Pi microcomputer, and C for programming an Arduino microcontroller, used for implementing sensors on our rocket.
- Created the team's first dashboard using Arduino IoT Cloud for tracking sensor measurements.

## Projects

**My Portfolio Website** (HTML, CSS, Javascript): My personal website contains information about me, my resume, projects, socials, and contact information. Deployed at <https://mahmudulrapi.netlify.app/>

**Registrar Application** (Python, SQLite): Created a Python graphical user interface that allows Princeton students and other interested parties to query a database of classes and courses offered during a semester.

**LC3 Computer** (Verilog): Programmed a 16-bit processor that implements the LC3 instruction set and executes assembly programs. This processor is Turing complete and is a full-fledged stored program computer.

**Digit Classifier** (Python: Numpy): Implemented a 0 to 9 digit classifier using a machine learning model trained on about 1800 images which runs gradient descent to classify pictures of digits with 80% accuracy.

**Seam Carving** (Java): Implemented seam carving which is a content-aware image resizing technique where the image is reduced in size by one pixel of height (or width) at a time while preserving content.

## Skills

Languages: Java, Python, C, C#, HTML, CSS, Javascript, Typescript, SQL, R, Verilog

Frameworks & Tools: Flask, Node.js, NumPy, PyQt5, Socket, jQuery, Google Firebase, PostgreSQL, Github, Heroku