Mahmudul Rapi

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Education

Princeton University, Princeton, NJ 09/2020 - Present

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

GPA: 3.94/4.00

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

Princeton University Psychology Department - Software Developer Research Assistant 01/2022 - Present

- Developed a web version of a motor-learning based WebGL Unity experiment, tripling the number of studies ran in Princeton's Intelligence and Adaptation Lab.
- Wrote C# code in Unity to fetch and log data into Google Firebase, using the REST API.
- Wrote Javascript code for uploading settings and trial data from CSV files into Firebase.

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

TigerClimb (Python, HTML/CSS/JS, PostgreSQL): Worked on a team of five to develop a web app allowing hundreds of students involved with the Princeton Climbing Wall to query climbing routes, and add/update routes. Implemented a comment system for users to comment on routes, and save a list of their favorite routes.

Princeton 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.

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, Bootstrap, jQuery, Github, Heroku, PostgreSQL, SQLAlchemy, Google Firebase