Mahmudul Rapi

mrapi@princeton.edu
(347) 679-5659
Portfolio: mahmudulrapi.netlify.app

Education

Princeton University, Princeton, NJ 09/2020 - Present

B.S.E in Electrical & Computer Engineering, Expected Graduation Date: May 2024
GPA: 3.93/4.00
Minor: Applications of Computing (CS), Statistics & Machine Learning
Relevant Coursework: Data Structures & Algorithms, Systems Programming, Logic Design, Introductory Java Programming, Power Electronics, Electronic Circuit Design

Experience

Princeton University Computer Science Department - Course Grader 09/2021 - Present

- Grading students programming assignments for COS226, the Data Structures and Algorithms course taught at Princeton.
- Evaluating programming assignments for code correctness, efficiency, and style.

Khan's Tutorial - 8th Grade Instructor 11/2020 - Present

- Teaching 8th grade mathematics and writing to prepare students for the New York State Common Core examination and improving students' performance at school.
- Grading students' classwork and diagnostic exams to give feedback and track progress.

Centers for Disease Control and Prevention - Data and Program Evaluation Intern 06/2021-08/2021

- Generated visuals, graphs, tables using Excel for first draft of the Division's Selection Report.
- Worked on a content inventory and cataloging all contents on Science Office SharePoint website for improving user experience and UX design.

Princeton University Office of Information Technology - Closed Captions Editor 09/2020-05/2021

- Closed captioned videos (content such as lectures, talks, guest speeches) posted on Princeton's Media Central website to ensure correct readability.
- Worked on external website census project to manually identify and sort out hundreds of Princeton affiliated website links which were old and non-functioning.

Projects

My Portfolio Website (HTML, CSS, Javascript): My personal website is programmed in HTML, CSS, Javascript, Bootstrap and Node.js packages. It contains information about me, my resume, projects, socials, and contact information. Deployed at https://mahmudulrapi.netlify.app/

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

Symbol Table (C): Implemented a symbol table, a fundamental key-value pair data structure, with a linked list implementation and resizing hash table (more efficient) implementation.

Power Electronics Library (Java): My own power electronics library containing various power electronic topologies (diode-rectifier, buck converter, boost converter, flyback converter). User-interactive to ask for circuit parameters, and computes the output current and voltage along with other design considerations.

Seam Carving (Java): Implements 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. The project implements dynamic programming and backtracking to find the seam of pixels which can be removed while preserving content.

Programming Languages

Java, C, Python, HTML, CSS, Javascript, Git/Github, R/RStudio, Verilog, Microsoft Excel