Bharavi Misra

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EDUCATION

The Pennsylvania State University (Schreyer Honors College)　　　　**August 2021 – May 2025**
Bachelor of Science in Computer Engineering. Cumulative GPA: 3.93/4.00.　　　　*University Park, PA*

RELEVANT COURSEWORK

Operating Systems, Deep Learning in Computer Vision, Machine Learning, Communication Networks, Computer Architecture, Systems & Network Programming, Data Structures & Algorithms, Object-Oriented Programming.

TECHNICAL SKILLS

Programming Languages: Python, C/C++, Java, JavaScript, HTML/CSS, MATLAB, SQL, R.
Developer Tools/Frameworks: React.js, Node.js, Express, MongoDB, REST API, PyTorch, Git, Linux, Bash, CI/CD.

WORK EXPERIENCE

Siemens Digital Industries Software　　　　**May 2023 – August 2023**
Software Engineer Intern　　　　*State College, PA (Remote)*
- Automated monthly library updates for Siemens' PLM Vis AW, **reducing testing time by 89%**, from **90 minutes to 10 minutes**.
- Designed **webapp using d3.js** to visualize and implement **histogram-based comparison** of rendered models in PLM Vis AW.
- Wrote **unit tests** for **29 2D file types** supported by PLM Vis AW using **JavaScript**.
- Installed, validated, built, and pushed updates for **2 external dependencies** of Siemens' Vis using **C++** and **Linux terminal**.
- Collaborated in **Agile team environment** during internship to deliver projects on schedule.

Materials Research Institute　　　　**May 2022 – May 2023**
Undergraduate Fellow　　　　*University Park, PA*
- Produced fume hood sustainability module using **C++, Arduino, and IR sensor** for use in **10 labs** across Penn State.
- Created an **automated image analysis** framework for materials applications using **Python, scikit-image, and scikit-learn**.

PROJECTS

Spotify User Data Visualizer | *MongoDB, Express.js, React.js, Node.js*　　　　**December 2023 – Present**
- Implemented a secure **user authentication** system following the **OAuth 2.0** protocol using Spotify's **API**.
- Fetched user data from Spotify using **Express** backend, stored it in **MongoDB NoSQL database**, and displayed it using **React**.

Memory System Emulator | *C, Linux, Shell*　　　　**August 2023 – December 2023**
- Implemented functionality of a device driver in **C** for **memory access** and manipulation through read and write functions.
- Improved system responsiveness by implementing a **variable size cache** with an **LRU** policy to store frequently accessed blocks.
- Used **socket API** to add **networking** support to memory system implementation and allow **concurrent** disk operation.
- Utilized **Linux terminal** to execute trace files and unit tests, and to employ **GNU compiler with gdb commands** for debugging.

CPU Design Optimization Tool | *C++, Linux, Shell*　　　　**November 2023 – December 2023**
- Designed **optimization** algorithm to find most time-efficient and energy-efficient designs from $1.48 * 10^{12}$ possibilities.
- Used **1000 iterations** to optimize for time/energy with respect to **18 parameters**.
- Generated design that executed **84%** faster and consumed **63%** less energy than baseline results.

Course Scheduler App | *Java, Java2D, SQL*　　　　**April 2023 – May 2023**
- Designed and implemented a **Java**-based course scheduler app with **GUI** using **Java 2D** framework for OOP course.
- Developed backend logic to manage class capacity, waitlists, and student enrollment in **MySQL database**.

LEADERSHIP / EXTRACURRICULAR

HackPSU　　　　**January 2023 – Present**
Sponsorship Chair　　　　*University Park, PA*
- Organize fundraising efforts for a **600-participant**, **48-hour** hackathon at Penn State, **securing $6000** in funding over six weeks.
- Work with a **team of 6** student developers and marketers to brainstorm new fundraising techniques.

Engineering Ambassadors　　　　**May 2023 – Present**
Ambassador　　　　*University Park, PA*
- Conduct **K-12 engineering outreach** events and workshops, fostering STEM interest in the State College community.
- Represent Penn State at national conference, networking with **40+ chapters nationwide**.

Formula SAE　　　　**August 2021 – May 2023**
Electronics Team Engineer　　　　*University Park, PA*
- Worked with a **team of 20 engineers** to develop the electronic components of an all-electric racing vehicle.
- Utilized oscilloscope and function generator to analyze CAN bus signals, troubleshooting and **debugging microcontroller code**.