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: 3.91/4.00. *University Park, PA*

RELEVANT COURSEWORK

Data Structures & Algorithms, Systems & Network Programming, Computer Architecture, Computer Vision, Signals & Systems, Digital Design, Object-Oriented Programming, Probability Theory, Mathematical Statistics.

TECHNICAL SKILLS

Programming Languages: Python, 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* **August 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 – Present**

- 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.
- Utilized **Linux terminal** to execute trace files and unit tests, and to employ **GNU compiler with gdb commands** for debugging.
- Utilized **AFL** to perform **fuzzing** on memory system implementation and identify sources of failure.

Stereo Image Reconstruction Tool | *MATLAB* **October 2023 – November 2023**

- Projected **3D motion capture** points onto **2D pixel locations**, creating accurate pixel overlays on stereo images.
- Implemented **triangulation** to recover 3D points, achieving ≈ **0% error** when comparing computed points with mocap data.
- Used triangulation to **measure objects** in the scene and answering complex **3D spatial questions** such as feature height.

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**.