

Swastik Agarwala

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EDUCATION

Purdue University

B.S. in Computer Science, Minor in Math, Economics (GPA: 3.95/4.0, Dean's List)

Relevant Coursework: *Software Engr., Operating Systems, ML, C Programming, OOP, DSA*

West Lafayette, IN

Expected May 2026

SKILLS

Languages: Java, Python, JavaScript, TypeScript, C, C++, SQL (MySQL), Dart, HTML, CSS, R

Technologies: React, Node.js, Redux, Express.js, Expo, Flutter, JUnit, Three.js, pandas, NumPy, Matplotlib

Developer Tools: Git, Docker, AWS, Maven, Firebase, Linux, Bash

EXPERIENCE

SML ISUZU Ltd. (Vehicle Manufacturing) – Software Engineering Intern

May 2024 – July 2024

- Built a **React Native (Expo)** app to monitor the condition of factory equipment used by **400+ employees**
- Created a database of hardware specifications and locations, and added **QR scanning** for machine identification
- Integrated a **repair pipeline** with a seamless notifications board to ensure timely reports to the concerned dept.

Jyoti Portfolio Pvt. Ltd. (Stock Broking) – Software Engineering Intern

June 2023 – July 2023

- Developed a **Java (Maven) desktop client** for the National Stock Exchange (NSE) India Extranet **REST API**
- Designed a user-friendly UI using **Java Swing** to browse/download items from the file-system served by the API
- Devised a **query definition system** for downloading a list of files, **saving 3+ hours of daily manual work**

Purdue EPICS Information Management Systems – Developer

Jan 2023 – May 2023

- Worked on a **nutrition app for kidney patients** by Purdue students, helped by National Kidney Foundation
- Developed using **Flutter and Firebase**; Stored nutrient intake data and calculated diet recommendations
- Implemented personalized push reminders to deliver the recommendations, **enhancing prescription compliance**

Purdue Computer Science Dept. – Undergraduate Teaching Assistant

Jan 2024 – May 2024

- Held office hours, lectures, and lab sessions for **C programming** and **Discrete math** courses (**800+ students**)

PROJECTS

Discussion Forum – Reddit Clone | TypeScript, React, Express.js, MongoDB | [GitHub](#)

June 2024 – July 2024

- Leveraged the **MERN stack** to develop the website, including **JWT** for user authentication, **Redux Toolkit** for state management and API integration, **React Router** for client-side routing, and **TailwindCSS** for styling
- Implemented features for starting, joining communities, and creating, voting, deleting posts with text and images

Gesture & Speech Browser Control | Python, OpenCV, Concurrency, MediaPipe | [GitHub](#)

Jan 2024

- Engineered a **Python application** to capture hand gestures and voice commands and a **Chrome extension** to translate them into effects in the browser such as navigation, scrolling, volume adjustment, etc.
- Integrated **OpenCV** for video and **PocketSphinx** for speech concurrently using **multiprocessing**
- Tracked positions of fixed landmark points on the hand using **MediaPipe** and mapped them to intuitive gestures
- Established real-time communication between the Python app and the Chrome extension via **web-sockets**

Custom Unix Shell (Bash Strategy) | C++, Lex, Yacc, Unix, Bash, OOP

Jan 2024 – May 2024

- Employed appropriate system calls to pipe executables, manage processes, and handle environment variables
- Utilized **Lex and Yacc** for parsing, and **OOP** to store, manage, and execute different types and lists of commands
- Integrated features such as subshells, wildcards, interpolations, conditional statements, loops, and more
- Incorporated a readline interface with a comprehensive edit mode and command history

LEADERSHIP

Boiler Gold Rush (Purdue Orientation Programs) – Team Leader

Mar 2023 – Present

- Participated in Purdue's flagship week-long, on-site orientation program to welcome new undergraduates
- Guided directly **10+ incoming students**, providing support and ensuring a smooth transition to university life

Hello World Hackathon 2023 – Exec Team Member

Jan 2023 – Sep 2023

- Organized a hackathon at Purdue with **300+ participants** aimed at introducing freshmen to hackathon culture
- Coordinated organizers, developed the event website, and helped raise funds through sponsorships