Sangam Pratap Singh

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Education

ABV-Indian Institute of Information Technology and Management (IIIT), Gwalior　　　　Aug 2023 – Aug 2027
B.Tech in Information Technology　　　　*CGPA (4th Sem): 7.45*

Experience

Software Development Intern　　　　Jul 2025 – Sept 2025
OpenSphere　　　　*Remote*

- Owned the end-to-end development of a full-featured **real-time commenting system** within the **in-house text editor**, enabling seamless **discussion threads** for multiple **concurrent collaborators** and reducing dependency on external tools.
- Redesigned the end-to-end **drafting workflow**, simplifying the process and eliminating **redundancies**, which significantly minimized **manual handling** and enhanced overall **drafting efficiency**.
- Streamlined **task creation pipelines**, accelerating **onboarding speed** and optimizing **client task setup time**, which contributed to improved overall **client satisfaction**.
- Introduced support for **self-petitioning visa applications**, expanding **platform coverage** to encompass previously unsupported cases and unlocking **new client segments**.
- Established a robust **user activity tracking dashboard** logging actions across the entire user base, which optimized **operational visibility** and enabled comprehensive **compliance reporting**.

Projects

Astra | **GitHub** | ***Tools used:*** *Electron, React.js, Node.js, Express, MongoDB, Tree-sitter, Gemini CLI*　　　　Aug 2025 – Sep 2025

- Engineered a cross-platform **Electron** desktop app with **React.js**, **Node.js**, and **MongoDB** to **scan and analyze** multiple repositories, **auditing** an extensive range of dependencies.
- Integrated the **OSV.dev API** with **batch queries**, enabling **vulnerability lookups** across **source files** while ignoring **junk folders** and respecting **.gitignore** rules.
- Leveraged **Tree-sitter** and the **Gemini CLI** for **AI-powered static analysis**, generating **contextual patches** for detected vulnerabilities.
- Implemented **automated fix workflows** by creating a dedicated **branch diverged from main/master**, streamlining **remediation** and reducing manual **patch cycle time**.

SecurePDF | **GitHub** | ***Tools used:*** *Python, CustomTkinter, Cryptography's Fernet, PyMuPDF*　　　　June 2025

- Constructed an offline **DRM desktop app** with a **Tkinter-based GUI**, securing **PDF sharing** for a broad base of test users.
- Implemented **AES-256 PDF encryption** with **embedded metadata**, including email identifiers, file IDs, MAC addresses, and **validity time windows**.
- Developed a **dual-factor verification model** for offline PDFs, using **MAC binding** and **timed validity** to enforce strict **access control**.
- Integrated a **custom PDF viewer** that disables **printing, copying, and exporting** functionalities to effectively mitigate **unauthorized data sharing**.

Code Sync | **GitHub** | ***Tools used:*** *React.js, MongoDB, Node.js, Socket.io, Tailwind CSS*　　　　Feb 2025 – Mar 2025

- Created a **real-time collaborative code editor** with **syntax highlighting**, tab management, and seamless **multi-user editing** capabilities.
- Achieved low-latency **synchronization via WebSockets**, ensuring **stable coherence** with negligible **network delay**.
- Designed a flexible **file explorer system** for intuitive file/folder creation and applied a **custom Monaco theme**.
- Implemented **multi-user cursor tracking** with **real-time synchronization**, enhancing visibility and significantly reducing **edit conflicts**.
- Integrated **Piston API backend** for instant **multi-language execution** across a wide array of programming languages.

Technical Skills / Course Work

- **Languages:** C++, C, JavaScript, Go, Python
- **Tools/Technologies:** Linux, Git, Github, MySQL, Photoshop, Figma, Websockets, MongoDB
- **Frameworks:** ReactJS, NodeJS, Tailwind, Socket.io, Express, Pandas, Numpy, Streamlit, AOS
- **Courses:** Data Structures, OOP's, DBMS, Computer Networks, Operating System, Graph Theory, Computer Graphics

Leadership and Extracurricular

Core Member, Infotsav'24　　　　Jul 2024 – Oct 2024
ABV-IIITM Gwalior

- Revived institute's techno-managerial fest after **5 years**, attracting **1,200+ attendees** (3x previous record).
- Led a design team of **12 members**, producing **25+ digital creatives and print materials** for branding.

Front Page Designer, AASF Annual Magazine　　　　Sep 2024 – Oct 2024
ABV-IIITM Gwalior

- Designed the **front cover** for AASF's annual magazine, distributed to **800+ students and faculty**.