

Yashashwi Singhania

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EDUCATION

Indian Institute of Technology (BHU) Varanasi
B.Tech. + M.Tech. in Biochemical Engineering | CGPA: 8.74

Aug 2023 – May 2028 (Expected)
Varanasi, India

EXPERIENCE

Machine Learning Intern

June 2025 – July 2025

Fxris.ai

Remote

- Architected a **multimodal RAG pipeline** utilizing **Weaviate** to parse complex enterprise documents.
- Engineered **advanced embedding models** to seamlessly extract **structured text and tabular data**.
- Automated **analytical report generation** from UK corporate tax filings to **accelerate compliance**.

PROJECTS

Tableau - Swift, SwiftUI, AppKit, Core Animation

June 2026

- Developed a native, open-source **macOS desktop widget** using **SwiftUI and AppKit** that preserves true image aspect ratios without forced cropping, delivering a polished user aesthetic that acquired **14+ GitHub stars** and 20+ downloads.
- Engineered a custom “Smart Canvas” engine utilizing **GPU-accelerated Core Animation** crossfades and cyclic spatial memory, ensuring the retention of independent coordinate and proportional size states for dynamically rotating user images.
- Implemented deep macOS system integrations, incorporating custom **click-through window mechanics, global modifier-key event monitoring**, and seamless **Mission Control lifecycle management** to guarantee a frictionless desktop user experience. | **Links:** [GitHub](#) | [Download](#)

OMR-Checker - Python, OpenCV, NumPy

May 2026

- Built an **optical mark recognition (OMR)** system using **Python and OpenCV** to process **200+ sheets per minute**.
- Achieved **near 100% accuracy** on scanned documents and **90% on mobile images** under varying lighting conditions.
- Engineered **dynamic layout configurations** and **visual debugging tools** to adapt to complex custom OMR templates. | **Links:** [GitHub](#)

TDigest - C++, Multithreading, STL

June 2025

- Built C++17 **t-Digest library** achieving $\mathcal{O}(\delta)$ space complexity for **real-time streaming quantile estimation**.
- Optimized **multithreaded ingestion system** achieving **8.4M+ points/second throughput** with **0.52μs query latency**.
- Created **automated benchmarking framework** with build scripts and **performance profiling** across multiple configurations. | **Links:** [GitHub](#)

pyFOOMB GUI - Next.js, React, Data Visualization

May 2026

- Built a responsive **Next.js GUI** for pyFOOMB to streamline complex **bioprocess modeling workflows**.
- Engineered **interactive visualizations** and dynamic layouts for **real-time multi-reactor analysis**. | **Link:** [GitHub](#)

CAMPUS INVOLVEMENT

Club of Programmers (COPS), IIT BHU

Category Head

- Organised Byte the Bits under Technex, attracting **over 3000 participants** all over India.
- Facilitated an ‘Intro to Python’ workshop attended by **200+ students** at IIT BHU.

ACHIEVEMENTS

- **Programming & Hackathons:** Achieved a **Codeforces rating of 1720** (hackerman15), awarded **1st Prize in DevBits** at Udyam (IIT BHU 2025), and secured **top 50 national rankings** in AMS Derive 2026 (**AIR 13** in POSTERIOR, **AIR 39** in PRIOR).
- **National Examinations & Olympiads:** Attained **AIR 1105 in KVPY-SA 2021-2022**, secured **State Rank 20 (Uttar Pradesh)** in the **National Talent Search Exam (NTSE)**, and qualified the **Indian Olympiad Qualifier in Mathematics (IOQM)** 2021.

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, TypeScript, Markdown, L^AT_EX

Web/Frameworks: NextJS, React, Flask, Tailwind CSS, SwiftUI, AppKit

Tools/Platforms: Docker, Git, GitHub Actions, Render, Google Colab, VS Code, Vercel, Bash, Zsh, SSH

Operating System: Linux, macOS