Harsh Singh

👤 Portfolio | ⊙ harsh-singh | 💼 harsh-singh | 📞 +919301264769 | ✉ harsh31102005@gmail.com

WORK EXPERIENCE

Intern   Dec 2023 - Feb 2024
- AI Intern at **Tripfox Travel India**; boosted engagement **30%** via smart itinerary suggestions.
- Integrated **OpenAI APIs** and **LangChain** for natural language trip planning.
- Built LLM-powered backend with **Node.js** and optimized data flow using **MongoDB**.

Lab Association   Mar 2024 - Present
- Driving collaborative learning and project development at **Next Tech Lab** with **80+ members**.
- Organized **workshops** and contributed to **9 hackathon wins**, fostering innovation and teamwork.

PROJECTS

SafeClick – AI-Powered Phishing URL Detection   Link
- Developed a **machine learning–based web app** that detects phishing URLs with high accuracy.
- Implemented models using **Logistic Regression, Random Forest**, and **Neural Networks**, achieving 96% accuracy.
- Built REST APIs with **FastAPI** for inference and integrated a **React-based frontend** for user interaction.
- Deployed using **Docker** and connected to a **MongoDB database** for storing prediction logs.

FitFusion: Fitness Tracker Application (University-Recognized)   Link
- Engineered **FitFusion**, an advanced fitness tracking app leveraging the **MERN stack** to monitor **50+ user activities** user activity, calorie expenditure, and workout progress with real-time synchronization.
- Designed a scalable system with **MERN stack**, handling **500+ users** with **40%** better performance.

Intelligent File Verification and Decentralized Sharing System   Link
- Crafted a browser extension to monitor **1,000+ downloads** downloads, extracting file size and computing partial checksums for files over **10MB** to enhance verification and integrity.
- Transmitted metadata to a central server via **XHR/Fetch API** for duplicate file detection with response times under **200ms**.

RESEARCH

Predicting Sports Engagement Using Machine Learning
- Analyzed sports engagement of **500+ students** using **classification algorithms**, achieving **85%** accuracy.
- Applied **evaluation metrics** like **accuracy (85%)** and **F1-score (0.80)** to identify critical factors.

Crystal Plasticity Modeling for Microstructural Analysis
- Conducted research in **material modeling** using DAMASK, simulating **crystal plasticity** to predict mechanical behavior and deformation with **95% accuracy** at the microstructural level.
- Architected **10+ microstructure-driven models** incorporating **slip systems, twinning, and grain boundaries** to enhance phase transformation and plasticity simulations **20%**.

HACKATHONS AND CONTRIBUTIONS

Hackathon Achievements
- **Hack SRM 6.0 (Winner)**: Refined a spam-blocking browser extension using a **Random Forest** model.
- **9Hacks at Next Tech Lab (Winner)**: Created **Sentiment Analysis** using social profile data from Facebook, WhatsApp, and Spotify, fixed bus-related issues, and improved website **SEO**.
- **Unfold 2024 (Participant)**: Fixed **20+** website bugs and boosted SEO by **35%**, earning **Rabble Recognition**.

Open Source Contributions
- **Hacktoberfest 2024**: Made **4 merged contributions**, including UI/UX design improvements and code enhancements.
- Implemented **OAuth authentication** (Google, GitHub login) for secure access, reducing signup time by **50%**.
- Established a **real-time chat feature** using WebSockets, enhancing communication and boosting engagement by **40%**.

SKILLS

Coding Languages: Python, JavaScript, C++, TypeScript
Libraries/FrameWorks: Next.js, React.js, Node.js, Express.js, Zustand, Redux, APIs, HTML, Bootstrap, Tailwind, SCSS, CSS
AI/ML Frameworks: PyTorch, TensorFlow, Scikit-learn, HuggingFace Transformers, LangChain, OpenAI API, Whisper
Conversational AI Tools: LangChain, FAISS, Vector Stores, RAG Pipelines , LLM Prompt Engineering
MLOps Basics: Docker, GitHub Actions, Model Deployment (Streamlit/Flask)
Additional Skills: Database Management, OOPs, Operating System

EDUCATION

SRM University AP
Bachelor of Technology in Computer Science and Engineering **(GPA: 8.99/10.00)**   June 2022 – June 2026
Relevant Coursework: Data Structures and Algorithms, Design and Analysis of Algorithms, Object-Oriented Programming, Database Management Systems, Operating Systems, Computer Networks, Probability and Statistics, Linear Algebra, Discrete Mathematics