

# Irfan Firosh

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## EDUCATION

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### Purdue University

West Lafayette, IN

*B.S. Computer Science and Mathematics; GPA: 3.99*

*Aug. 2023 – May 2027*

**Coursework:** Data Structures and Algorithms, Data Mining and Machine Learning, Analysis of Algorithms, Compilers, Systems Programming, Operating Systems, Object-Oriented Programming, Relational Databases

## EXPERIENCE

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### Software Engineering Intern

Jan. 2026 – Present

*Department of Computer Science, Purdue University*

*West Lafayette, IN*

- Benchmarking **LLMs** (LLaMA-3, DeepSeek-R1) on target and sentiment detection using **zero-shot** and **few-shot in-context learning**, optimizing prompt configurations across model scales (3B to 70B) on HPC infrastructure
- Encoding **text-attributed graphs** as natural language prompts using graph serialization techniques, enabling **graph-enhanced LLM reasoning** for grounded entity disambiguation across political social network datasets
- Designing experiments comparing graph-augmented vs. text-only baselines, quantifying **structured reasoning** improvements on sentiment prediction through **macro-F1 evaluation across imbalanced multi-class targets**

### Software Engineering and ML Intern

May 2025 – July 2025

*ONOW Enable*

*Chesterton, IN*

- Developed a Python-based **RAG** system using **LangChain** to enable intelligent querying of 120+ survey databases, implementing semantic search capabilities that reduced manual data analysis time by 29% for 15+ field agents
- Containerized **REST API** backend with **Docker** and automated deployment via CI/CD, delivering a scalable **LangChain** + OpenAI API that automated data analysis and visualization, cutting client analysis time by 83%
- Built a real-time ETL pipeline using **Kafka** and **Redis** to stream and cache live survey responses

### Software Engineering Intern

Jan. 2025 – Present

*Weldon School of Biomedical Engineering*

*West Lafayette, IN*

- Implemented **PyTorch**-based nnU-net for 3D pore connectivity analysis and bone deterioration prediction, integrating NIfTI conversion and Roboflow pipelines for automated ML training
- Developed an automated bone segmentation pipeline in **Python** using **OpenCV** and **pydicom** processing 168+ DICOM slices, extracting 1.09M+ voxels with morphological refinement with structured metrics in **PostgreSQL**
- Built graph analytics pipeline in NetworkX modeling 3,162+ nodes and 140k+ edges for bone structure mapping

### Software Engineer Intern

May 2024 – July 2024

*Mindster*

*Bangalore, India*

- Developed an OCR pipeline and Naive Bayes classifier in **SciKit-Learn**, reducing manual data entry by 41%
- Built a full-stack workflow management system with **Laravel** and **MySQL**, boosting team efficiency by 35%
- Built and launched a production-ready Laravel app with an interactive Vue.js interface for 30+ users

## PROJECTS

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### Yapply | *FastAPI, Supabase, LangChain, JWT, Vite, React, TypeScript*

Feb. 2025

- Built and deployed an AI-powered mock interview SaaS with a FastAPI + Supabase backend on **AWS EC2** and a **React.js** + **TypeScript** frontend on Vercel, featuring magic-link authentication
- Integrated voice-driven AI interviews using Vapi.ai (GPT-4o, Azure TTS, AssemblyAI) and automated performance scoring with LangChain + OpenAI, providing structured and actionable candidate feedback

### TokBot | *Cartesia, Zapier, FFmpeg, AWS Lambda, Google Sheets API*

July 2025

- Developed a viral Reddit-to-TikTok automation system integrating Google Sheets API for post tracking, with FFmpeg video conversion, AI-generated voiceovers (Cartesia), and CLIP-powered subtitle refinement
- Deployed a serverless **AWS Lambda** pipeline automating 2 daily video uploads, averaging 1.7K+ views per post

## TECHNICAL SKILLS

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**Languages:** Java, Python, C, C++, C#, Rust, Kotlin, SQL, JavaScript, Golang, R, HTML/CSS, Ruby

**Frameworks:** React.js, Next.js, Express.js, Flask, Laravel, Pandas, PyTorch, TensorFlow, OpenCV, LangChain

**Tools:** Node.js, Git, Docker, Kubernetes, Unix Shell, AWS, Jenkins

**Concepts:** Deep Learning, LLMs, CI/CD, Agile, Full-Stack Development, Cloud Engineering, SDLC