

Manoj Gurram

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EXPERIENCE

Researcher

Texas A&M University

Aug. 2023 – Present

College Station, TX

- Developed a **Python** tool using **REST API** in backend to automate code generation from GitHub Copilot
- Implemented **GAN-based obfuscation** to create millions of malware samples, bypassing 50% of known security defenses.
- Submitted a research paper detailing malware generation, enabling us to uncover vulnerabilities in antivirus tools.

Software Summer Intern

Fiserv

Jun. 2022 – Aug. 2022

Pune, MH

- Developed cloud-based **Java** microservices for financial transactions using **Vert.x** and **Spring Boot** libraries.
- Deployed microservices with **In-Memory Data Grid (IMDG)** in Hazelcast, enhancing scalability and performance.
- Optimized event-driven communication between microservices using **Vert.x event-bus**, enhancing system responsiveness.
- Collaborated with testing and development teams to optimize code, achieving near-native server speeds of 140 TPS

PROJECTS

Meal Nutrition Analysis | PyTorch, Pandas, NumPy, OpenCV, CNN, Multimodal

Sep. 2024 – Dec. 2024

Machine Learning Course Project

- Preprocessed multimodal meal photos and sensor readings using **OpenCV**, **Pandas**, and **NumPy** to standardize inputs.
- Built a **PyTorch** DataLoader and designed **multimodal** model to extract joint embeddings for calorie prediction.
- Trained the network with **RMSRE** loss, performed hyperparameter tuning, and outperformed the **Kaggle** benchmark.

Local Search Engine | Python, Streamlit, FAISS, BM25, LLMs

Dec. 2024 – Feb. 2025

Personal Project

- Built a **hybrid search engine** using dense embeddings **FAISS** and sparse **BM25** retrieval for enhanced accuracy.
- Implemented **LLM-driven Chain-of-Thought reasoning** to iteratively refine queries and improve relevance.
- Developed an **async pipeline** for PDF/text processing and applied **rank fusion** with **temporal scoring**.

Leadership Effectiveness Inventory | Ruby, Rails, Agile, Git, JavaScript, Postgres, SQL

Aug. 2024 – Dec. 2024

Software Engineering Course Legacy Project

- Built backend services with **Ruby on Rails** and **Git**, integrating **OAuth2** authentication via Auth0 for secure access.
- Effectively employed **Agile** methodology across four sprints to iteratively implement and refine user-requested features.
- Used **Postgres SQL** to efficiently fetch and aggregate survey data, powering dynamic dashboards for leadership feedback.

Operating Systems Kernel From Scratch | C, C++, Assembly, Shell

Jan. 2024 – Apr. 2024

Operating Systems Course Project

- Designed and implemented an OS in **VirtualBox**, emulated using **bochs**, with **x86 architecture** support.
- Developed a **2-level paging system** and exception 14 page fault handler to manage memory and address translation.
- Built thread functionalities with **Round Robin (RR)** scheduling, including I/O device **drivers** for sequential access.

Task Tracker Web Suite | Angular, Java, Spring Boot, REST API, Bootstrap

Nov. 2023 – Dec. 2023

Personal Full-Stack Project

- Developed a task tracker with **Angular** frontend and Java **Spring Boot** backend, supporting CRUD operations.
- Implemented **JWT-based auth** and form validation using Angular reactive forms and route guards.
- Built REST endpoints in Java to handle task logic, using Spring **MVC**, **JPA**, and **H2** in-memory database for quick testing.

EDUCATION

Texas A&M University, College Station, TX

Master of Science in Computer Science

Aug. 2023 – Apr. 2025

GPA: 3.90/4.00

Indian Institute of Technology, Kharagpur, India

Bachelor of Technology in Electrical Engineering

Aug. 2019 – Apr. 2023

GPA: 3.41/4.00

SKILLS

- Languages & Tools:** C, C++, Java, Python, Ruby, R, SQL, Dart, JavaScript, HTML, CSS, Bash, Git.
- Frameworks & Libraries:** Spring Boot, Angular, React, Express.js, Rails, TensorFlow, PyTorch, scikit-learn.
- Databases & Data:** MySQL, PostgreSQL, MongoDB, Kafka, Redis, Pandas, NumPy, Matplotlib, BM25, NLTK
- DevOps, Cloud & Testing:** Docker, Kubernetes, AWS (EC2, S3), Jenkins, Selenium, Terraform, JUnit, Mockito.

AWARDS AND ACHIEVEMENTS

- Awarded the Merit-cum-Means and the Texas A&M CS Department Scholarship for outstanding academic performance.
- Served as **Director of IT** for 1 year at the Indian Graduate Student Association at Texas A&M University.