Malvika Ranjitsinh Jadhav

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Technical Skills

Programming: Data Structures, Algorithms, C++, Python, Julia, R, F#, JavaScript, CSS, HTML, Java, JavaScript
Software Tools and Platforms: Git, Jira, VS Code, Eclipse, Linux, Tableau, R-studio, Django, NextJS, LangChain
Database: MongoDB, SQL, MySQL, BigQuery, ETL, Supabase

Work Experience

Research Assistant, Computer and Information Science Department, Gainesville, FL. Aug 2024 – Present

- Designing scalable LLM moderation frameworks to detect and mitigate harmful, coercive, and abusive outputs in IPV-related contexts, enabling safer deployment of generative AI systems.
- Developed privacy-preserving trajectory generation techniques that obfuscate sensitive location data while retaining analytical utility, reducing re-identification risks for IPV survivors and strengthening privacy-first AI solutions.

Research Intern, Florida Institute of Cybersecurity Research, Gainesville, FL. July 2023 – June 2024

- Identified and mitigated PII vulnerabilities in Android Stalkerware using Abstract Syntax Trees, big data analysis, and network traffic inspection, strengthening mobile privacy and security.
- Boosted data processing efficiency by 40% through an end-to-end pipeline integrating data engineering, fuzzy ML models, CI/CD, and Docker for scalable, secure deployment.
- Conducted data cleaning and discovery on a dataset comprising over 126 million code files, ensuring precise analysis.

Researcher Intern, UF Health Medical Physics Research, Gainesville,FL. May 2022 – Aug 2022

Project: Future frame prediction of Cine-MR Images with deep learning

- Enhanced future frame prediction by tuning with Gradient Magnitude Similarity Deviation, achieving a 20% performance increase.
- Designed and refined model for next frame prediction using Cyclic GAN on 2D Cine-MR images, achieving an SSIM value >0.8.

Associate Software Engineer, FIGmd Solutions, Inc. US Healthcare, Pune, India. Oct 2020 – July 2021

- Streamlined database administration for POLARIS Registry by implementing efficient data pipelines and ETL packages.
- Automated extraction and analysis of Centers for Medicare and Medicaid Services (CMS) metrics, resulting in a 40% reduction in manual data processing time.
- Proficient with Python, SQL Server, T-SQL, Big Query, Tableau, and Microsoft Excel for comprehensive database management and visualization.

Projects

Enterprise RAG Search Platform Aug 2025 – Present

- Designing a scalable RAG pipeline over 100,000+ Apache JIRA tickets, targeting semantic search and explainable Q&A for large-scale engineering data.
- Building retrieval and reasoning workflows with Supabase Vector DB and OpenAI APIs, integrating confidence scoring, snippet attribution, and reasoning traces for transparency.

Machine Unlearning for Membership Privacy Jan 2025 – May 2025

- Reduced privacy leakage by applying SISA unlearning on CIFAR-10 ResNet models, cutting Membership Inference Attack accuracy from 85% to 52.6% and attacker advantage from 0.17 to 0.05, approaching random guessing.
- Reduced attacker advantage by 71% (from 0.17 to 0.05) through SISA unlearning, proving that unlearning can significantly hinder adversaries while retaining model functionality.
- https://github.com/malvikajadhav/Neural-Forgetting

P2P File Sharing System Aug 2024 – Nov 2024

- Designed and deployed a scalable peer-to-peer file sharing system with 2,000+ lines of Python, implementing custom TCP-based messaging, multi-threaded concurrency, and chunk-based file transfer across distributed peers;
- Executed multi-machine deployment and stress testing on 5+ nodes via VPN/cloud, achieving complete replication of 10 MB+ files partitioned into 300+ chunks with fairness and throughput guarantees;
- Engineered choking/unchoking algorithms, intelligent bitfield management, and detailed logging to optimize performance, validate protocol correctness, and ensure reliability under real-world network conditions.

Education

Ph.D. in Computer and Information Sciences Aug 2024 –Present
University of Florida, Gainesville, FL.
Coursework: Machine Learning, Applied Machine Learning, Trustworthy Machine Learning, Distributed Systems, Algorithms

Master of Science in Computer Science (GPA: 3.8) Aug 2021 – May 2023
University of Florida, Gainesville, FL.
Coursework: Machine Learning, Applied Machine Learning, Trustworthy Machine Learning, Distributed Systems, Algorithms

Bachelor of Engineering (BE) in Computer Science June 2014 – Aug 2018
Pune Institute of Computer Technology, India.