ROHITH RAO VUJJINI

Iowa City, Iowa | 319-936-6883 |vujjinirohith0507@gmail.com | LinkedIn | Portfolio

EDUCATION

University of Iowa, Iowa City, IA **Aug 2023-May 2025**
Master of Science in Computer Science, **GPA – 3.8/4**

NIIT University, Delhi, India **Aug 2019-May 2023**
Bachelor of Technology – Computer Science Engineering, **GPA – 8/10**
- Minor in Data Science

Relevant Coursework
Machine Learning for Data Science, Adversarial AI-ML, Data Mining, Statistical Modeling, Big Data, Advanced Analytics, Deep Learning, Data Management, Cloud Computing, Data Structures and Algorithms, Object-Oriented Programming, Software Engineering.

TECHNICAL SKILLS

Languages: Python, SQL, R, MATLAB, JavaScript
Frameworks: React, Node.js, Express, Flask
AI/ML: Deep Learning, Computer Vision, NLP
Gen AI: Lang Chain, Llama, SAM, GPT-3,4, BERT
Cloud Platforms: AWS, Azure
Statistical Tools: Pandas, NumPy, SciPy
Visualization Tools: Matplotlib, Seaborn, Tableau, ggplot2
Big Data Technologies: Hadoop, Apache Spark
Data Management and Storage: MySQL, MongoDB, Hadoop
Others: Git, CUDA, REST APIs, Flask, Jira, VSCode

EXPERIENCE

Graduate Research Assistant | Department of Microbiology, Haim Lab UIowa **Oct 2023-Present**
- Analyze CDC health data to identify key trends in HIV evolution, focusing on genetic markers critical for treatment resistance.
- Develop SePTeR, an innovative application for Viiv Healthcare that uses advanced gradient boosting techniques to predict HIV resistance and estimate IC50 values, enhancing treatment personalization.
- Develop and deploy the laboratory's website using the MEAN stack, enhancing data accessibility and research visibility.
- Use precise sequence alignment tools to ensure data accuracy, bolstering research reliability and outcomes.

DT Intern, Cloud & IoT Products |GE Appliances **Jan 2023 - Jul 2023**
- Integrate OpenAI's GPT-3 using LangChain to develop a responsive Q&A chatbot, enhancing customer support by providing accurate answers to user inquiries.
- Construct and implement machine learning models using LangChain and Llama to efficiently extract essential information from various user care manuals, reducing the time required by repair personnel to consult manuals by 80%.
- Analyze AWS Timestream data and write Python and SQL scripts to streamline data extraction processes, successfully reducing data collection and analysis time by 50%.
- Develop and continuously improve machine learning models with OpenAI's CLIP to analyze and report the cooking status of pizza in smart ovens, improving user satisfaction by 90% through enhanced AI Doneness accuracy.

PROJECTS

Data Storage in SDLC of IoT Devices – Big Data **MongoDB, Cassandra, MySQL, PostgreSQL**
- In-depth analyses of database storage solutions, comparing NoSQL and SQL db's to find the optimal systems for IoT data storage.
- Generate and collect data from household IoT devices to simulate real-world scenarios and analyze performance.
- Evaluate database performance, focusing on scalability, query efficiency, and data management for handling large-scale data.
- Provide recommendations based on factors such as read/write speed, consistency, and fault tolerance across different databases.

AI Assistant – Web-Based Interactive Platform **React.js, Flask, OpenAI GPT**

- A web-based AI Assistant in React.js and Flask, with integrated speech recognition and synthesis for voice and text interaction.
- Utilize OpenAI GPT for sophisticated natural language processing, supporting dynamic tasks like summarization and web searches, enhanced by direct Spotify and Telegram API integrations for multimedia and communication.
- Design a dynamic and responsive user interface and robust security measures for data protection for integrity.

Flower Vision – Advanced Image Recognition Model **Python, TensorFlow, EfficientNet**

- Develops a deep learning model to accurately identify flower species from blurred images, achieving 98% accuracy with CNNs.
- Enhances image quality and robustness through advanced processing techniques, data augmentation, and deblurring, using a transfer learning approach with EfficientNet.
- Leverages TF for real-time recognition, using stratified k-fold cross-validation and hyperparameter tuning to optimize performance

CensorFreeLLMs – Language Model Enhancement **Python, PyTorch, Transformer Lens**

- Develop "CensorFreeLLMs," utilizing the "abliteration" technique with Transformer Lens to dynamically adjust censorship mechanisms in language models, enhancing adaptability without retraining.
- Innovate with real-time activation manipulation and intervention hooks enabling precise control over model behaviors to accommodate diverse user inputs effectively.
- Validate enhanced models, achieving a 95% accuracy score while maintaining high ethical standards and robust performance.

Election Management System – Secure Voting Platform **React.js, Express.js, MySQL, Node.js**

- A web-based system with roles for Voters, Poll Managers, and Admins, featuring role-based authentication, encrypted credentials.
- Enabled secure voting with live race displays and detailed candidate profiles, ensuring seamless data handling and execution.
- Designed admin tools for managing races, precincts, and live voting, with data validation, restricted access, encrypted storage.

CliniCare Systems – Hospital Management Systems **React.js, Flask, MySQL, Selenium**

- A scalable hospital system, offering tailored functionalities across microservices for Admins, Doctors, and Patients.
- A dynamic ui that supports real-time appointment scheduling, patient admissions, and secure financial transactions.
- Implement Selenium WebDriver for testing, ensuring reliable system performance and securing sensitive healthcare data.

Publications

- **Location-Aware Octa Section Routing Protocol (LOR)**: A paper on enhancing wireless ad hoc network efficiency by reducing control overhead through a novel section-based routing protocol. This proposes a routing protocol that concentrates on finding a shortest path between the nodes.

- **Big Data Analysis in the Finance Sector**: Demonstrates the impact of big data analytics on business decision-making and operational efficiency, exploring advanced techniques for extracting and analyzing large datasets to devise improved and cost-effective business strategies.