

EXPERIENCE

- Graduate Research Assistant — Genomic Prediction of Soybean Yield

University of Georgia

Jan 2025 - Present  
Athens, GA

- Engineered a scalable dimension reduction pipeline for high-dimensional DNA sequence data, implementing Gaussian Process models with distributed computing that improved prediction accuracy by 23%.
  - Developed optimized Python data preprocessing algorithms for genetic sequences, implementing NumPy vectorization that reduced processing time by 65% while ensuring cross-dataset model performance.
  - Implemented multiple dimensionality reduction techniques (PCA, t-SNE, UMAP) with scikit-learn hyperparameter tuning to identify the most efficient approach for genomic data visualization.
- Graduate Research Assistant — Automated Maize Brace-Root Phenotyping

University of Georgia

Jan 2025 - Present  
Athens, GA

- Designed computer vision system using PyTorch and OpenCV for agricultural phenotyping, improving maize root segmentation accuracy from 47% to 71% through optimization of U-Net architecture.
  - Established deep learning pipeline including transfer learning and data augmentation techniques that reduced analysis time by 35% compared to manual methods.
  - Architected data processing solution with Python that resolved complex JSON annotation formats and data integrity challenges for distributed machine learning model training.
- Cybersecurity Intern

Corizo

Feb 2023 - Mar 2023  
Bengaluru, India (Remote)

- Identified 50+ vulnerabilities using Nmap, Burp Suite and Metasploit; implemented patches improving security by 25% and developed automation reducing manual effort by 40%.

PROJECTS

- Image Caption Generator - TensorFlow, VGG16, LSTM, Python

Dec 2024

- Created image captioning system combining VGG16 CNN for feature extraction and LSTM networks, achieving BLEU-1 score of 0.64; processed 8,000+ images extracting 4096-dimensional vectors.
  - Developed custom data generator with Keras/TensorFlow, implementing checkpoint-based training reducing model loss from 6.36 to 3.96 with 8,700+ word vocabulary.
- E-Cinema Booking System - React, Node.js, Express, MongoDB, JWT

Feb 2025

- Architected a comprehensive full-stack web application providing interactive digital experiences for movie browsing and booking, implementing modern UI design patterns and responsive layouts that enhanced user engagement.
  - Engineered dynamic seat selection interface with client-side rendering optimizations, reducing load times by 40% while maintaining a seamless, visually compelling user experience.
  - Developed modular, reusable frontend components and backend microservices with thorough test coverage, ensuring 99.9% uptime and 1000+ concurrent users support through clean, maintainable code and efficient algorithms.
- Student Face Recognition System - Python, Flask, React, OpenCV

Jan 2025

- Designed and implemented a full-stack application leveraging computer vision for real-time student identification, creating an intuitive user interface with React that visualizes complex data and provides seamless user interactions.
  - Built scalable microservices architecture with RESTful APIs connecting frontend experience to backend processing, implementing efficient data flow patterns and responsive feedback mechanisms.
  - Containerized application using Docker with CI/CD pipeline for continuous deployment, ensuring reliable delivery of new features while maintaining 95%+ system accuracy and intuitive user experience.

TECHNICAL SKILLS

- Languages: Python, Java, JavaScript, SQL

ML/AI: TensorFlow, PyTorch, Scikit-Learn, Keras, NLP

Data Engineering: NumPy, Pandas

DevOps: Docker, CI/CD, Kubernetes

EDUCATION

- University of Georgia

Master of Science in Computer Science

Athens, GA  
Aug 2024 - May 2026 (Expected)
- RMK Engineering College

Bachelor of Science in Computer Science

Chennai, India  
Aug 2020 - May 2024

PUBLICATIONS

- IEEE ICRMKM-AI

Jan 2024

- Vemuru, V.D., et al. Enhancing Image Deblurring Algorithm Selection and Performance Evaluation for CCTV.
  - Vemuru, V.D., et al. Securing Children Based on IoT and Emotion Prediction.
  - Vemuru, V.D., et al. AI-Powered Visual Aid System for the Blind.