

VINAY CHAUDHARI

United States | +1(636)331-0968 | vinaysanjay.chaudhari@slu.edu | linkedin.com/vinaychaudhari | vinaychaudhari02.github.io

Skills

Programming Languages: Python (TensorFlow, PyTorch, Keras, Scikit-learn), R, Bash.

Technologies: Deep Learning, Computer Vision (OpenCV), Multimodal LLMs, Generative AI, Hugging Face Transformers.

Cloud & DevOps: AWS (EC2, S3, Lambda), Docker, Git, CI/CD.

WORK EXPERIENCE

Donald Danforth Plant Science Center, St. Louis

August 2024 – Present

Research Assistant, Advisor: Dr. Andrea Eveland

- Predicted biomass for 285 sorghum genotypes with **95%** accuracy by engineering models using **TensorFlow** and **PyTorch**.
- Increased predictive accuracy by **20%** through collaboration with data scientists and geneticists to optimize **GNN** and **LSTM** models.
- Enhanced data scalability and security by **30%** by integrating genomic data using AWS EC2 and S3.
- Streamlined lab costs by **70%** by designing graph network data workflows and identifying optimal **RNA-seq** replicates.

Saint Louis University, St. Louis

January 2024 – Present

Research Assistant, Advisor: Dr. Jie Hou

- Reduced processing time by **50%** by optimizing algorithms to analyze biological datasets containing over 170K proteins and RNAs.
- Boosted RNA motif classification accuracy by **21%** by harnessing contrastive learning and fine-tuning, transfer learning (**LLMs**).
- Improved predictive accuracy by **15%** through constructing **AI models** using 420+ protein datasets, advancing molecular interaction studies.
- Decreased data preparation time by **50%** by automating data pipelines with **Python** and **Shell**.

Artificial Mind, India

February 2023 – May 2023

Data Science Intern

- Augmented customer insights by **20%** through advanced data analysis for segmentation using **Python** and **R**.
- Increased client satisfaction by **30%** by deploying **NLP** algorithms for sentiment analysis.
- Optimized data quality and accuracy by **15%** by building data pipelines for machine learning models.

RESEARCH PROJECTS

Application of Feature Tracking and High-Speed Motion for Event Cameras

October 2024 – December 2024

- Developed a ConvLSTM model integration for high-speed motion tracking, improving tracking accuracy by 20%.
- Evaluated model performance using datasets for accident vehicles and satellite debris to improve accuracy.

Master's Thesis: Artificial Intelligence in RNA Analysis Clustering

March 2024 – Present

- Designed and implemented a framework for analyzing 200,000+ **RNA motifs** using **3D CNN** and **ResNet-18** models.
- Achieved a 90% improvement in structural and sequence feature similarity, advancing motif classification.

Modeling Genomic Prediction of Sorghum Biomass Growth

August 2024 – Present

- Analyzed genotype **BLUPs data** for 285 sorghum plants, enhancing dataset robustness by 20%.
- Constructed and validated genomic prediction models using **LSTM**, increasing prediction accuracy by 15%.

EDUCATION

Saint Louis University, St. Louis

August 2024 – May 2025 (Expected)

M.S. in Artificial Intelligence – GPA: 3.78

- Relevant Courses: **Artificial Intelligence, Deep Learning, Machine Learning, Software Development.**

AWARDS AND CERTIFICATIONS

Pacific Symposium on Biocomputing (PSB) 2025, Stanford University

January 2025

- **Presented research poster** titled “Enhancing RNA Motif Representation with Contrastive Learning and Language Models for Sequence-Structure Analysis” at **PSB 2025**, Stanford University.

AI FARM 2024 Conference Presenter, St. Louis

October 2024

- **Delivered research presentation** titled “Modeling Genomic Prediction of Sorghum Biomass Growth” at **AI FARM 2024 Conference**, showcasing innovative **machine learning** applications.

Student Experience Program, Midwest Region Consortium, Chicago

April 2024

- **Received a \$500 stipend** for significant contributions to the **Annual Network Retreat**, advancing computing and AI fields through collaborative initiatives.