VINAY CHAUDHARI

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SKILLS

Programming Languages: Expert in **Python** (TensorFlow, PyTorch, Keras, Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn) and **R**, with proficiency in **Shell scripting**.

Technologies: Skilled in **Deep Learning**, **Transformers**, **Contrastive Learning (CL)**, **Generative AI (LLMs)**, **Computer Vision (CV)**, and frameworks like **Hugging Face** and **OpenCV**.

Cloud & DevOps Tools: Proficient in **AWS** (EC2, S3, Lambda), with experience in **Docker**, **Git**, and CI/CD pipelines.

EXPERIENCE

Donald Danforth Plant Science Center, St. Louis *August 2024 – Present*
Research Assistant, Advisor: Dr. Andrea Eveland

- Engineered **TensorFlow** and **PyTorch** models for biomass prediction across 285 sorghum genotypes.
- Partnered with data scientists and geneticists to optimize **GNN** and **LSTM** models, improving predictive accuracy.
- Integrated genomic data using **AWS EC2** and **S3**, enhancing scalability and secure storage.
- Designed graph network data workflows and identified optimal **RNA-seq** replicates, reducing lab costs by 70%.

Saint Louis University, St. Louis *January 2024 – Present*
Research Assistant, Advisor: Dr. Jie Hou

- Optimized algorithms to analyze biological datasets with 170K+ **proteins** and **RNAs**, reducing processing time by 50%.
- Harnessed **contrastive learning** and fine-tuned large language models (**LLMs**), boosting RNA motif classification accuracy by 21%.
- Constructed **AI models** leveraging 420+ **protein datasets** to advance molecular interaction studies, enhancing predictive accuracy and research insights
- Automated data pipelines with **Python** and **Shell**, reducing data preparation time by 50%.

Artificial Mind, India *February 2023 – May 2023*
Data Science Intern

- Performed advanced data analysis for customer segmentation using **Python** and **R**, improving insights by 20%.
- Deployed **NLP** algorithms for sentiment analysis, increasing client satisfaction by 30%.
- Built data pipelines for **machine learning models**, improving data quality and accuracy by 15%.

RESEARCH PROJECTS

Application of Feature Tracking and High-Speed Motion for Event Cameras, CV *October 2024 – Present*

- Integrated **feature descriptors** with **ConvLSTM models** to enhance sequence tracking in high-speed environments.
- Evaluated model performance using datasets for accident vehicles and satellite debris to improve accuracy.

Master's Thesis: Artificial Intelligence in RNA Analysis Clustering, Deep Learning *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, Deep Learning *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*
Master of Science in Artificial Intelligence – GPA: 3.67/4.00

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

AWARDS AND CERTIFICATIONS

AI FARM 2024 Conference Presenter, St. Louis *October 2024*

- Delivered a research presentation titled "Modeling Genomic Prediction of Sorghum Biomass Growth," showcasing innovative **machine learning** applications.

Student Experience Program, Midwest Region Consortium, Chicago *April 2024*

- Recognized for active participation in advancing **computing** and **AI** fields.
- Earned a $500 stipend for contributions to the Annual Network Retreat.

Certification in Generative AI with Large Language Models *January 2024*