

# Krishna vamsi Dhulipalla

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## Experience

- Software Engineer - AI Platform** | Cloud Systems LLC | US Remote Jul 2025 - Present
- Architected an agentic workflow using LangGraph and ReAct prompting to automate SQL generation; automated ~65% of ad-hoc data-auditing requests from internal stakeholders, reducing the average response time from 4 hrs to <2 min
  - Optimized data ingestion performance by rebuilding ETL pipelines with batched I/O, incremental refresh logic, and dependency pruning, cutting daily execution runtime by 25%
  - Improved production reliability by shipping the agent service on Kubernetes with autoscaling and rolling deploys, then adding alerts and rollback steps for failed releases
  - Improved cross-service reliability by implementing Pydantic schema validation and contract tests, catching 100% of integration bugs during CI before they reached production
- Machine Learning Engineer** | Virginia Tech, Dept. of Plant Sciences | Blacksburg, VA Aug 2024 - Jul 2025
- Increased genomics sequence classification throughput by 32% by applying LoRA and soft prompting; packaged repeatable PyTorch pipelines that cut per-experiment training time by 4.5 hours
  - Engineered a distributed pipeline for 100+ multi-GPU experiments on HPC clusters; implemented custom checkpoint-resume logic that prevented data loss during preemptive node shutdowns, reducing total compute waste by ~15%
  - Reduced research environment setup time from hours to minutes by containerizing fine-tuned models with Docker and managing the experimental lifecycle (versions, hyperparameters, and weights) via MLflow
- Software Engineer** | UJR Technologies Pvt Ltd | Hyderabad, India Jul 2021 - Dec 2022
- Developed standardized REST APIs and UI workflows using FastAPI and JSON Schema, reducing cross-service integration defects by 40% across 3 core product modules
  - Engineered model-serving endpoints with automated input validation and deployment health checks, lowering prediction-related failures by 30% for ML-driven features
  - Automated CI/CD pipelines via GitHub Actions with comprehensive test coverage and scripted rollback procedures, decreasing release failures by 20% across production environments

## Projects

- Autonomous Multi-Agent Web UI Automation System**
- Developed a multi-agent system using LangGraph and Playwright to navigate non-deterministic UI changes across 5 high-complexity SaaS platforms
  - Increased task completion success rate from 68% to 94% by implementing a two-stage verification loop with step-level assertions and exponential backoff for dynamic DOM states
  - Integrated LangSmith traces for observability, reducing the mean-time-to-debug for broken selectors by 14 min per incident
- Proxy TuNER: Advancing Cross-Domain Named Entity Recognition through Proxy Tuning**
- Improved cross-domain NER F1-score by 8% by implementing a proxy-tuning approach for LLaMA 2 models (7B, 7B-Chat, 13B) using logit ensembling and gradient reversal
  - Optimized inference performance by 30% and reduced training costs by 70% through distributed execution and model-path optimizations in PyTorch
- IntelliMeet: AI-Enabled Decentralized Video Conferencing App**
- Architected a secure, decentralized video platform using WebRTC and federated learning to maintain data privacy while sharing only aggregated model updates
  - Reduced call dropouts by 25% by engineering network recovery logic and on-device RetinaFace attention detection for client-side quality adaptation

## SKILLS

**Languages:** Python, SQL, TypeScript, JavaScript, MongoDB  
**ML & AI Frameworks:** PyTorch, Transformers, LangChain, LangGraph, LoRA, RAG, NLP  
**Data & Infrastructure:** Docker, Kubernetes, Apache Airflow, MLflow, Redis, FAISS, AWS, GCP, Git  
**Tools & Observability:** LangSmith, Grafana, CI/CD (GitHub Actions/Jenkins), Weights & Biases, Linux

## Publications

- Predicting Circadian Transcription in mRNAs and lncRNAs, IEEE BIBM 2024
- DNA Foundation Models for Cross-Species TF Binding Prediction, NeurIPS ML in CompBio 2025
- Multi-omics atlas of the plant nuclear envelope, Science Advances (under review) 2025, University of California, Berkeley

## Education

**Virginia Tech** | Master of Science, Computer Science | Dec 2024 GPA 3.9/4.0  
**Vel Tech University** | Bachelor of Technology, Computer Science and Engineering GPA 8.24/10