ARAV ADIKESH RAMAKRISHNAN

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EDUCATION

Master of Science in Computer Science **Expected Graduation: May 2026**
University of Massachusetts Amherst *GPA: 4.0*
Graduate Bay State Scholarship

Bachelor of Science in Computer Science **Aug 2021 - May 2024**
University of Massachusetts Amherst *GPA: 3.93*
Minor in Economics, Chancellor's Scholarship, Dean's List

Relevant Coursework: Data Structures & Algorithms, Software Engineering, Database Management, Machine Learning, Reinforcement Learning, Trustworthy Artificial Intelligence, Advanced Natural Language Processing, Algorithms for Data Science, Advanced Information Retrieval

SKILLS

Languages: Python, TypeScript, JavaScript, Java, SQL
Other Skills & Tools: AWS, Docker, PyTorch, Transformers, LangGraph, scikit-learn, Flask, PostgreSQL, Node.js

WORK EXPERIENCE

UMass Center for Data Science and Artificial Intelligence **Boston, MA**
Software Engineering Intern *Sept 2025 - Present*
- Designed and deployed Model Context Protocol (MCP) servers to enable document generation (PDF, DOCX) directly through LLM chat interfaces, improving content workflow efficiency by ~60%
- Implemented an MCP connector for Amazon Athena, enabling natural language querying of AWS-hosted databases through LLMs, cutting query formulation and debugging time by ~75%, empowering non-technical users to interact with structured data seamlessly.

Data Science Fellow *May 2025 – Aug 2025*
- Led development of Media Cloud classifier pipeline , a fully automated, containerized BERT-based classifier processing 100K+ news articles from a 2B+ corpus with 96% accuracy, automating ingestion, labeling, and model training.
- Implemented Optuna-based hyperparameter optimization and dashboard-driven evaluation, boosting reproducibility and deployment speed by 40%.

Prime Focus Technologies **Los Angeles, CA**
Machine Learning Intern *May 2024 - Sep 2024*
- Developed a RAG-powered support chatbot using LangChain and FAISS vector databases to handle 500+ daily client queries, reducing support workload by 30% and achieving 88% user satisfaction.
- Created an automated query classification system that reduced manual triage and saved $15K annually in support costs.
- Deployed end-to-end production-grade conversational AI systems with JavaScript frontends, Spring Boot microservices, and Flask APIs on AWS Lambda, achieving <200ms latency and 99.5% uptime in production.

PROJECTS

RescueBox – *Software Engineer (GitHub)*
- Engineered and deployed modular forensic analysis plugins for UMass RescueBox (GitHub), including deepfake detection and perceptual hash–based image similarity systems. Built RESTful APIs, PostgreSQL + pgvector–backed vector search, and auto-generated UIs, reducing manual forensic analysis time by ~70% and improving cross-platform accessibility.
- Optimized inference and data pipelines by converting PyTorch models to ONNX and integrating ONNX Runtime for real-time performance, achieving 3× faster inference speeds and enabling large-scale duplicate image detection (10K+ images) through high-throughput perceptual hashing algorithms (pHash, dHash, PDQ, etc.)

UMass BioNLP Lab – *LLM Researcher*
- Developed MedCOD framework integrating UMLS and LLM-KB knowledge sources to enhance English-to-Spanish medical translation, improving translation quality by 80% (BLEU increase from 24.47 to 44.23) through structured prompting and LoRA fine-tuning, enabling open-source models to outperform GPT-4o in clinical accuracy
- Published research in EMNLP 2025 Findings, contributing novel approach to domain-specific translation that addresses critical healthcare communication barriers for limited English proficiency populations