Ramachandra Rahul Taduri

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Summary

Machine Learning Engineer with a decade-long engineering background, recently transitioned into AI/ML with hands-on experience in LLMs, model deployment, MLOps, and deep learning projects. Skilled in building and deploying ML solutions (BERT, GPT-2, RAG, Agentic AI) using Python, PyTorch, Hugging Face, FastAPI, and Docker. Passionate about applying AI to real-world problems in healthcare, finance, and automation.

Skills

ML/DL Frameworks & Libraries: TensorFlow, PyTorch, Keras, Hugging Face, Scikit-learn, OpenCV

ML & AI Techniques: Deep Learning, Computer Vision (Object Detection, Segmentation, OCR), NLP, Reinforcement Learning, LLM Fine-tuning, Prompt Engineering, RAG, Agentic AI (LangChain)
Model Architectures: YOLOv5/v8, EfficientNet, Faster-RCNN, TrOCR, Vision Transformers (ViT), GPT-4, LLaMA, Claude
MLOps & Deployment: DVC, MLFlow, Git, CI/CD, Docker, Kubernetes, Airflow, HPO (Ray Tune),Evidently

Cloud & Big Data: AWS, Microsoft Fabric, GCP

Projects

Droplet Detection System – Embedded CV Application | OpenCV | LiDAR + IR Sensors | TensorRT
Developed a real-time embedded system for windshield droplet classification in autonomous vehicles. Reached 95% accuracy and reduced latency by 40% with optimized deployment on Jetson Nano.

Custom Decoder-only LLM – Instruction Fine-tuning | Transformers | GPT-2 | Tokenizer | Hugging Face
Constructed a decoder-only LLM with grouped-query attention and classification head. Integrated pre-trained GPT-2 with custom BPE tokenizer; fine-tuned on 500K+ instruction-style records.

Patient Readmission Prediction – ML Pipeline Deployment | Random Forest | Deep Learning | MLflow | FastAPI | CI/CD
Engineered, trained, and deployed models to predict diabetic patient readmissions. Achieved 88% F1 score by combining tree-based and neural models with hyperparameter optimization via Ray Tune. Built CI/CD pipeline with MLflow model registry and Evidently AI for drift detection.

Resume Coach, AI-powered Coaching Assistant | GPT-4 | LangChain | Streamlit | RAG | Prompt Engineering
Built an AI-powered resume optimization assistant using Streamlit, LangChain, OpenAI (GPT-4), and RAG architecture. Delivered customized feedback based on job descriptions, improving keyword match scores by 40%. Integrated REST APIs and multi-turn prompt engineering for contextual conversation flow.

Predictive Analytics for Project Funding (NLP & Classical ML) | Tackled the challenge of highly imbalanced textual data to automate project funding predictions, integrating PCA for dimensionality reduction and leveraging BERT models for classification. Achieved a strong F1 score of 0.82, demonstrating effective model performance for critical decision support

Music Genre Classification | Classical ML & Deep Learning
Performed multi-class classification on close genres in EDM tracks using enormous AcousticBrainz dataset, achieving good F1 score of 0.80 with the best model.

Publications

He, Z., Mongeau, L., Taduri, R., and Menicovich, D., "Feedforward Harmonic Suppression for Noise Control of Piezoelectrically Driven Synthetic Jet Actuators," SAE Int. J. Adv. & Curr. Prac. in Mobility 6(2):945-952, 2024, https://doi.org/10.4271/2023-01-1042.

Professional Experience

NVH Lead | Actasys Inc, Brooklyn, NY **Oct 2021 - March 2024**

- Developed Matlab-based control algorithms integrating deep learning with novel feedforward active noise cancellation, reducing cabin noise by 6 dBA (>50% reduction in perceived loudness).
- Designed a low-cost laser vibrometer test bench (<$500) using Digital Signal Processing (Fast Fourier Transform) to analyze vibration data, optimizing piezoelectric actuator design by 30 dBA (>75% reduction)
- Created a real-time droplet classification pipeline for windshield cleaning in autonomous vehicles. Achieved 95% detection accuracy with fused IR and LiDAR sensor data.

Engineer III | ZF USA, Livonia, MI **July 2015 - Oct 2021**

- Automated data analysis pipelines for acoustics and vibration datasets using Python and MATLAB.
- Designed experiments and validated simulation models to optimize damping system behavior..
- Applied DOE and statistical modeling to reduce part failure rates by 30%, saving $300K annually.

Assistant Manager | NTPC Ltd., India **July 2010 - July 2013**

- At India's largest power utility, improved processes increasing annual revenue by $0.7 million.

Education

Interview Kickstart March 2024 - Present

- Machine Learning program covering mathematical foundations and practical applications in classical ML, deep learning, NLP, computer vision, LLMs/ Generative AI (fine-tuning, RLHF, RAG, Agentic systems).

McGill University Jan 2023 - June 2023, Visiting Scholar, Montreal, QC, Canada

- Developed and tested 3D-printed acoustic enclosure prototypes with novel materials, and programmed code to collect data from various sensors for prototype evaluations.

The Ohio State University Aug. 2013 - Aug. 2015, Master of Science, Columbus, OH USA

- Developed mathematical models to optimize vehicle exhaust system design. (Link)

National Institute of Technology Karnataka Aug. 2006 - May 2010, Bachelor of Tech., Surathkal, India

- Designed and tested vertical axis wind turbines for power generation in areas with low wind speeds.

Certifications

- Erdös Institute : Data Science Bootcamp, Deep Learning Bootcamp
- Microsoft Fabric : Data Analyst (DP600) Certified
- IBM Data Warehouse Engineer (Coursera)