Aryasomayajula Ram Bharadwaj

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ABOUT

Versatile ML Engineer and Backend Developer with expertise in deep learning and strong DevOps knowledge. Skilled in multiple programming languages and refactoring legacy codebases, passionate about AI research.

EDUCATION

B.Tech Electronics and Communications   2015 - 2019
GMR Institute of Technology, Andhra Pradesh

PROFESSIONAL EXPERIENCE

Senior Developer at Innovation & Development Labs   2019 - Present
Musigma Business Solutions, Bengaluru

- Led development of multiple high-impact projects in LLM operationalization, automated trading, and MLOps.
- Specialized in backend development, DevOps, and ML engineering across various domains.
- Received multiple recognitions including Impact Awards and Star Performer of the Team.

ML Alignment Theory Research Trainee   May 2023 - July 2023
Stanford Existential Risk Initiative, Remote

- Underwent training for research in AI alignment and Agency foundations under guidance of John Wentworth.

KEY PROJECTS

LLM Agent Platform   Dec 2023 - Present
Team Lead, ML Engineer, Backend Developer

- Designed and implemented a semi-autonomous data analysis platform powered by LLM Agents.
- Developed training strategies or LLM Agents via automatic prompt optimization and integrated Retrieval-Augmented Generation (RAG) support.
- Implemented evaluation for LLM Agent's results using ensemble of locally mosted LLMS.
- Maintained a customized fork of Microsoft's Autogen framework.
- Successfully deployed for two major clients, assisted client teams in creating usecases.

Synthetic debate data generation   Feb 2024
Individual Contributor

- Implemented a LLM Agent system for generating debates using openai's gpt-4 model.
- Finetuned pythia and mistral models on the synthetically generated debates using LoRA and KTO methods
- Conducted experiments to understand emergance of deceptive behavior in LLM generated debates

High Velocity Trading Platform   2021 - Dec 2023
Team Lead, Backend Developer, DevOps

- Refactored backend code and migrated deployment from bare-metal to Kubernetes.
- Implemented automated hyperparameter search for ARIMA models.
- Rewrote legacy trade-signal generation from R to Scala using Akka framework.
- Enabled near real-time metric calculation and portfolio visualization.

Next-Gen Model Operationalization Platform   2019 - 2021
Backend Developer

- Developed automatic retraining pipelines for image classification models.
- Designed and implemented Java microservices for creating and serving Jupyter notebooks.
- Engineered a microservice for deploying ML models in a DAG structure with canary and blue-green deployment strategies.
- Created dashboards for monitoring model and resource usage metrics.

Open Source Contributions   Ongoing
Individual Contributor

- Developed a framework for evaluating LLM-generated code in a sandboxed environment.
- Extended lm-eval-harness (LLM Evaluation framework) to support benchmarking of mathematical and arithmetic reasoning tasks.

SKILLS

Languages	Scala, Python, Java, R
ML Frameworks	PyTorch, JAX
DevOps	Kubernetes, Docker-swarm
Frameworks	Akka, Spring-boot
AI/ML	LLM Fine-tuning, Neural Network Architecture Implementation

AWARDS & RECOGNITIONS

AI Alignment Awards   July 2023
www.alignmentawards.com
Winning entry for the "goal misgeneralization" track research proposal, 5 out of 118 entries were selected in this research competition

Honorable Mention   Mar 2022
Alignment Research Center
"Eliciting Latent Knowledge" is a open research problem in AI Safety, My proposal was one of the honoroble mentions in the ELK (Eliciting Latent Knowledge) research competition.

Impact Award   October 2022, December 2023
Musigma Business Solutions
Recognized for self-engagement, DevOps skills, and designing the LLM-Agent conversation platform.

Star Performer of the Team   2019 to 2023
Musigma Business Solutions
Received the SPOT award six times for exceptional contributions.

Bronze Position   Feb 2021
Build-on-Redis Hackathon
Winning entry in Build-on-redis hackathon, implemented a text2code search tool entirely on redis stack using codeBERT model's embeddings for a private coderepo