

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

June 2019 - Nov 2024

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.

KEY PROJECTS

LLM Agent Platform

Dec 2023 - Nov 2024

Team Lead, ML Engineer, Backend Developer

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

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.

RESEARCH PAPERS

Understanding Hidden Computations in Transformer Language Models

August 2024

Independent Researcher

- Conducted research to decode the "hidden" computations in transformer models during Chain of Thought (COT) reasoning.
- Investigated methods to enhance the faithfulness and internal mechanics of chain-of-thought reasoning in LLMs.

Investigating the Platonic Representation Hypothesis

August 2024

Independent Researcher

- Evaluated representational convergence across in-distribution, out-of-distribution (ImageNet-O), and random noise data, identifying limits of the Platonic Representation Hypothesis.
- Conducted noise injection experiments on Vision Transformer models, tracked alignment across LLM training stages, showing phases of similarity that indicate convergence toward a shared structure.

PERSONAL PROJECTS

AdvisorMatch

Nov 2024

Creator, Developer

- Built a PhD advisor-matching tool, AdvisorMatch (advisormatch.in), to help candidates find faculty advisors aligned with their research interests.
- Designed a similarity search mechanism that matches the user's research interests with the latest work of over 23,000 global faculty to recommend suitable matches.

SKILLS

Programming Languages: Scala, Python, Java, R

Machine Learning Frameworks: PyTorch, JAX

DevOps Tools: Kubernetes, Docker Swarm

AWARDS & RECOGNITIONS

AI Alignment Awards

July 2023

www.alignmentawards.com

Winning entry for the "goal misgeneralization" track research proposal, selected among 118 entries in this research competition.

Honorable Mention

Mar 2022

Alignment Research Center

"Eliciting Latent Knowledge" is an open research problem in AI Safety. My proposal was one of the honorable 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 the Build-on-Redis hackathon. Implemented a text2code search tool entirely on Redis Stack using CodeBERT model's embeddings for a private code repository.