

# Aryasomayajula Ram Bharadwaj

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## ABOUT

Backend Developer fluent in multiple languages, with a knack for refactoring legacy codebases and strong DevOps knowledge. ML Engineer with strong foundations in deep learning and skilled in implementing various neural network architectures.

## EDUCATION

**B.tech Electronics and Communications**

*GMR Institute of Technology, Andhra Pradesh*

2015 - 2019

## WORK EXPERIENCE

**Senior Developer at Innovation & Development Labs 2019 - Present**

*Musigma Business Solutions, Bengaluru*

2019 - Present

- Designed and implemented the entire backend stack for a semi-autonomous LLM Agent platform for data-analysis
- Implemented strategies for automatically optimizing LLM agent's prompts based on user conversation feedback
- Implemented support for retrieval-augmented generation (RAG) for LLM agents
- Maintained an internal fork of Microsoft's Autogen framework with customized changes to display timestamps for each agent interaction and the capability to retrieve SQL databases
- Performed evaluation of various hyperparameter optimization algorithms for timeseries models
- Designed and built an automated intra-day trading system, and also acted as a team-lead
- Migrated legacy code for trade-signal generation from R to Scala
- Implemented automatic hyperparameter search strategies to tune parameters for time series models based on previous performance on live market data
- Designed and implemented a framework for deployment strategies (blue-green, canary) for ML models deployed on Kubernetes

**ML Alignment Theory Research Trainee May-2023 - July-2023**

*Stanford Existential Risk Initiative, Remote*

May-2023 - July-2023

- MATS is a scientific and educational seminar and an independent research program. I underwent training for research in AI alignment and Agency foundations under guidance of John Wentworth.

## SKILLS

Languages	Scala, Python, Java, R
ML	Pytorch, JAX
DevOps	Kubernetes, Docker-swarm
Misc	Akka, Spring-boot
AI/ML	LLM Finetuning, Can implement almost any transformer based architecture, Proficient in implementing/replicating most deep-neural network based models

## PROJECTS

**LLM Agent platform (Team Lead/ ML engineer/ Backend Developer)**

An LLM Agent platform, built using autogen, for automating data science tasks. It was deployed into production for internal use for two major clients.

**High Velocity Trading Platform (Team Lead/ Backend Developer/ DevOps)**

An web based application for advanced financial market analysis, executing & visualizing algorithmic trading strategies in real-time.

## Next-Gen Model Operationalization platform (Backend Developer)

An end to end web-platform for operationalizing machine learning models. Provides a jupyter-notebook like one-stop solution for deploying and monitoring ML models

## Opensource-contributions

Implemented a framework for evaluating code generated by language models in a sandboxed environment, and evaluation of language-model's performance in math-word problems

## Telugu text recognition using CRNN

Implemented an end-2-end trainable convolutional-recurrent-neural-network for recognising strings of telugu handwritten characters

## Synthetic Debate Data Generation for LLM Finetuning

Built a platform for generating debate-transcripts given a set of topics using gpt-4, benchmarked mistral and pythia models by LoRA finetuning them on these debate transcripts.

## AWARDS

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### AI Alignment Awards *July 2023*

[www.alignmentawards.com](http://www.alignmentawards.com)

My research-proposal was one of the winning entries for the "goal misgeneralization" track

### Honorable Mention *Mar 2022*

Alignment Research Center

ELK (Eliciting Latent Knowledge) is an open theoretical research-problem in AI safety/AI alignment. ARC (Alignment Research Center) hosted a competition for promisable proposals which could potentially solve this problem.

### Impact Award *October 2022, December 2023*

Musigma Business Solutions

Self-engaging with any challenge, and comes up with alternate choices, commanding devops and integration skills, For single-handedly designing and implementing the entire LLM-Agent conversation platform (received twice)

### 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

Built a natural-language semantic code-search using codeBERT's embeddings for build-on-redis hackathon, organized by redis-conf