Aryasomayajula Ram Bharadwaj

Passionate ML Engineer and Backend Developer with a strong research aptitude
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EDUCATION

B.tech Electronics and Communications 2015 - 2019
GMR Institute of Technology, Andhra pradesh CGPA: 7.53/10

WORK EXPERIENCE

Developer (Apprentice Leader) at Innovation & Development Labs 2019 - Present 2019 - Present
Musigma Business Solutions, Benguluru

- 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 framework for deployment strategies (blue-green,canary) for ML models deployed on Kubernetes
- Recognized as "Star performer of the team" 6 times
- Received the 'Impact Award' twice for exceptional work

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

- MATS is a scientific and educational seminar and an independent research program that underwent AI alignment research training under John Wentworth in the Agent Foundations stream.

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 (ML engineer/ Backend Developer) *flask, autogen*
An LLM Agent platform, built using autogen, automates data science tasks. It was deployed into production for internal use for two major clients.

Tplusone.Org (Team Lead/Backend Developer/DevOps) Tplusone.Org
An in-house web based application for advanced financial market analysis, executing & visualizing algorithmic trading strategies in real-time.

In-house MLOps 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 *Python* https://github.com/rokosbasilisk/code-eval-harness
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 *python, torch* https://www.ijeat.org/wp-content/uploads/papers/v8i5/E7422068519.pdf
Implemented an end-2-end trainable convolutional-recurrent-neural-network for recognising strings of telugu handwritten characters

Synthetic Debate Data Generation for LLM Finetuning *python, transformers* https://github.com/rokosbasilisk/synthetic_debates/
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

AI Alignment Awards *July 2023* 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 entier LLM-Agent conversation platform (received twice)

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