Badri Narayanan Murali Krishnan

✉ immbadri3@gmail.com ☎ +1 848 - 363 - 8431 in mbadrinarayanan MBadriNarayanan

EXPERIENCE

Founding AI / ML Engineer **Sep 2025 – Present**
CuroNow *Madison, WI*

- Architected a **Medication Agent** to provide reliable medication insights using **LLM reasoning** & fallback handling.
- Built a **centralized AI caching microservice** that reduced duplicate LLM API costs by **40%** and latency by **25%**.

AI / ML Engineer - Contract Role **Jun 2025 – Sep 2025**
BrainWaves Digital *Remote, USA*

- **Led the development** of a **Finance Agent** from **scratch** to extract data & insights effectively.
- Deployed a **multi-model AI** stack comprising Gemini 2.5 Pro/Flash, GPT-4 with intelligent fallback mechanisms.
- Created a dashboard with **ReactJS**, **Supabase SSO** & **Firebase** to visualize the cash flow, balances, & transactions.

Graduate Research Assistant **Sep 2024 – May 2025**
University of Wisconsin – Madison *Madison, WI*

- Designed a scalable ingestion system for **80k+** medical documents, optimizing chunking, embedding, and retrieval.
- Developed an **Agentic RAG** pipeline tailored for radiology reports, enabling clinicians to gain diagnostic insights.
- Generated document embeddings and stored them in a **Vector DB**, serving **locally hosted LLMs** via **Ollama**.
- Established an evaluation framework using **NDCG@5**, achieving a score of **0.857** on **1K+** radiology reports.
- Engineered an **Orchestrator LLM** to route queries across three specialized nodes (**Retriever-only**, **RAG**, and **general-purpose LLM**) for adaptive, clinician-friendly handling.

Autonomous System Research Intern **Jun 2024 – Aug 2024**
Nokia Bell Labs *Murray Hill, NJ*

- Constructed a **multi-agent system** leveraging **autonomous agents** for adaptive learning & collaborative reasoning.
- Coordinated agent workflows with an **Orchestrator LLM** and **Chain-of-thought** prompting for multi-step planning and optimization. Agents executed specialized tasks via **tool-calling interfaces**
- Built the framework with **LangGraph** & **Streamlit** to visualize agent interactions and analyze emergent behaviors.

Associate Engineer – AI/ML **Jul 2022 – Jul 2023**
Qualcomm *Hyderabad, India*

- Introduced evaluation frameworks and metrics for ML models to enhance efficiency and accuracy by **10.26%**.
- Benchmarked **quantized** and **pruned models** on **Snapdragon SoCs** to assess latency, throughput, and power consumption under production workloads on SNPE (SnapDragon Neural Processing Engine).

TECHNICAL SKILLS

GenAI Competencies: GenAI, LLMs, RAG, Multi-Agent Systems, Prompt Engineering, Vector DB, ML
Programming Languages: Python, C, C++, TypeScript, ReactJS, PyTorch, Tensorflow
Frameworks & Tools: PyTorch, TensorFlow, LangChain, LangGraph, Spark, Git, Docker, Azure, AWS, GCP, CI/CD
Libraries: NumPy, pandas, matplotlib, scikit-learn, Streamlit, NLTK, spaCy, OpenCV

SELECTED PROJECTS

Relationship Extraction using Large Language Models *Repo*

- Extracting complex relationships between entities from unstructured text data, by fine-tuning **Llama3.2 LLM**.

Optimizing Natural Language Understanding: Fine-tuning Mistral 7B *Repo*

- Fine-tuning **Mistral 7B LLM** on the Samantha dataset for conversational and contextual question answering.

SELECTED PUBLICATIONS

Palmbench: A comprehensive benchmark of compressed Large Language Models on mobile platforms
The Thirteenth International Conference on Learning Representations (ICLR), Singapore, 2025
Sign Language Translation using Multi Context Transformer.
20th *Mexican International Conference on Artificial Intelligence (MICAI), Mexico City, 2021*

EDUCATION

University of Wisconsin-Madison **Sep 2023 – May 2025**
Master of Science - Computer Sciences; **CGPA: 3.827 / 4.0** *Madison, WI*
Courses: Intro to AI, Advanced NLP, Foundational Models, Big Data, Data Cleaning & Integration for Data Science.

SSN College of Engineering (Affiliated to Anna University), Chennai, India **Sep 2018 – May 2022**
B.Tech in Information Technology; **CGPA: 8.95 / 10.0** *Chennai, India*