

# BADRI NARAYANAN MURALI KRISHNAN

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## EXPERIENCE

### AI / ML Engineer - Short-Term Contract

Jun 2025 – Sep 2025

*BrainWaves Digital*

*Remote, USA*

- Lead engineer in creating a **Bank Statement Processing Engine** from **scratch** to extract financial data & insights.
- Outlined **schemas** detailing extraction features, used **few-shot prompting** to categorize transactions.
- 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.

### 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.

### Qualcomm

Jul 2022 – Jul 2023

*Associate Engineer – AI/ML*

*Hyderabad, India*

- Introduced evaluation frameworks and metrics for ML models to enhance efficiency and accuracy by **10.26%**.
- Collaborated with hardware and firmware teams to fine-tune and optimize AI workloads for mobile deployments.

### Machine Learning Intern

Mar 2021 – Jun 2022

*Mad Street Den (Vue.ai)*

*Chennai, India*

- Engineered an **OCR + NLP** pipeline to extract structured data from unstructured documents with a **HITL** system.
- Our efforts reduced document processing time by **37%** while achieving **85%** end-to-end extraction accuracy.

### Undergraduate Research Assistant

Feb 2020 – Jun 2022

*Bright Academy (Previously Solarillion Foundation)*

*Chennai, India*

- Led the NLP team to translate German sign language weather videos into accurate German sentences.
- Built **Multi Context Transformer** trained on **8, 12, and 16 frame** sequences to capture temporal context.
- **30.88%** fewer model parameters than the SOTA, **98.19%** and **86.65%** retention for **ROUGE-L** and **BLEU-4**.

## TECHNICAL SKILLS

**GenAI Competencies:** GenAI, LLMs, LLM Fine-tuning, RAG, Multi-Agentic Systems, Prompt Engineering, NLP, ML

**Programming Languages:** Python, C, C++

**Frameworks & Tools:** PyTorch, TensorFlow, LangChain, LangGraph, Spark, Git, Docker, SQL, 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.**

*20<sup>th</sup> 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*