

# BADRI NARAYANAN MURALI KRISHNAN

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## EXPERIENCE

### Graduate Research Assistant

Sep 2024 – May 2025 (9 Mos)

University of Wisconsin – Madison

Madison, WI

- Designed a system to process and ingest **80k+** medical documents, efficiently chunking and generating embeddings.
- Developed an **Agentic RAG** pipeline tailored for radiology reports, enabling clinicians to gain diagnostic insights.
- Established an evaluation framework using **NDCG@5**, achieving a score of **0.857** on 1K+ radiology reports.

### Autonomous System Research Intern

Jun 2024 – Aug 2024 (2 Mos)

Nokia Bell Labs

Murray Hill, NJ

- Created a multi-agent LLM system using **LangChain** and **LangGraph** for real-time problem solving.
- Explored and implemented **Chain-of-Thought** prompting to optimize reasoning and decision quality across agents.
- Visualized and deployed the **multi-agent system** using **streamlit** for interactive demonstration and user testing.

### Master's Research

Sep 2023 – May 2024 (9 Mos)

University of Wisconsin – Madison

Madison, WI

- Evaluated and ran benchmark tests on **LLMs** with different configurations on various hardware platforms.
- Assessed model safety and quality trade-offs**, measuring accuracy, hallucination frequency, and toxic output in compressed LLMs.
- Co-authored PalmBench, accepted at **ICLR 2025**, on compressed LLM evaluation for mobile use cases.

### Qualcomm

Jul 2022 – Jul 2023 (1 Yr)

Associate Engineer – AI/ML

Hyderabad, India

- Introduced evaluation frameworks and metrics for ML models to enhance efficiency and accuracy by **10.26%**.
- Ran inference and benchmark tests using SNPE (SnapDragon Neural Processing Engine), based on OEM requests.

### Machine Learning Intern

Mar 2021 – Jun 2022 (1 Yr 4 Mos)

Mad Street Den (Vue.ai)

Chennai, India

- Formulated an OCR/NLP-based document processing tool to convert unstructured data for workflow automation.
- Our efforts reduced document processing time by **37%** and achieved an accuracy of **85%**.

### Undergraduate Research Assistant

Feb 2020 – Jun 2022 (2 Yrs 5 Mos)

Bright Academy (Previously Solarillion Foundation)

Chennai, India

- Led the NLP team to translate German sign language weather videos into accurate German sentences.
- 30.88%** fewer model parameters than the SOTA, **98.19%** and **86.65%** retention for **ROUGE-L** and **BLEU-4**.

## TECHNICAL SKILLS

**GenAI Competencies:** ML, AI, NLP, CV, LLMs, RAG, Agentic Workflows, Prompt Engineering

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

**Frameworks & Tools:** PyTorch, TensorFlow, Keras, LangChain, LangGraph, Spark, Git, Docker, SQL, AWS, GCP

**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 (MICA), 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