

# BADRI NARAYANAN MURALI KRISHNAN

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## EXPERIENCE

<b>AI / ML Engineer - Short-Term Contract</b>	<b>Jun 2025 – Sep 2025</b>
<i>Brain Waves Digital</i>	<i>Remote, USA</i>
<ul style="list-style-type: none"><li>Lead engineer in creating a <b>Bank Statement Processing Engine</b> from scratch to extract financial data &amp; insights.</li><li>Outlined <b>schemas</b> detailing extraction features, used <b>few-shot prompting</b> to categorize transactions.</li><li>Created a dashboard with <b>ReactJS, Supabase SSO &amp; Firebase</b> to visualize the cash flow, balances, &amp; transactions.</li></ul>	
<b>Graduate Research Assistant</b>	<b>Sep 2024 – May 2025</b>
<i>University of Wisconsin – Madison</i>	<i>Madison, WI</i>
<ul style="list-style-type: none"><li>Designed a scalable ingestion system for <b>80k+</b> medical documents, optimizing chunking, embedding, and retrieval.</li><li>Developed an <b>Agentic RAG</b> pipeline tailored for radiology reports, enabling clinicians to gain diagnostic insights.</li></ul>	
<b>Autonomous System Research Intern</b>	<b>Jun 2024 – Aug 2024</b>
<i>Nokia Bell Labs</i>	<i>Murray Hill, NJ</i>
<ul style="list-style-type: none"><li>Constructed a <b>multi-agent system</b> leveraging <b>autonomous agents</b> for adaptive learning &amp; collaborative reasoning.</li><li>Coordinated agent workflows with an <b>Orchestrator LLM</b> and <b>Chain-of-thought</b> prompting for multi-step planning and optimization. Agents executed specialized tasks via <b>tool-calling interfaces</b>.</li><li>Built the framework with <b>LangGraph &amp; Streamlit</b> to visualize agent interactions and analyze emergent behaviors.</li></ul>	
<b>Qualcomm</b>	<b>Jul 2022 – Jul 2023</b>
<i>Associate Engineer – AI/ML</i>	<i>Hyderabad, India</i>
<ul style="list-style-type: none"><li>Introduced evaluation frameworks and metrics for ML models to enhance efficiency and accuracy by <b>10.26%</b>.</li><li>Collaborated with hardware and firmware teams to fine-tune and optimize AI workloads for mobile deployments.</li></ul>	
<b>Machine Learning Intern</b>	<b>Mar 2021 – Jun 2022</b>
<i>Mad Street Den (Vue.ai)</i>	<i>Chennai, India</i>
<ul style="list-style-type: none"><li>Engineered an <b>OCR + NLP</b> pipeline to extract structured data from unstructured documents with a <b>HITL</b> system.</li><li>Our efforts reduced document processing time by <b>37%</b> while achieving <b>85%</b> end-to-end extraction accuracy.</li></ul>	
<b>Undergraduate Research Assistant</b>	<b>Feb 2020 – Jun 2022</b>
<i>Bright Academy (Previously Solarillion Foundation)</i>	<i>Chennai, India</i>
<ul style="list-style-type: none"><li>Led the NLP team to translate German sign language weather videos into accurate German sentences.</li><li>Built <b>Multi Context Transformer</b> trained on <b>8, 12, and 16 frame</b> sequences to capture temporal context.</li><li><b>30.88%</b> fewer model parameters than the SOTA, <b>98.19%</b> and <b>86.65%</b> retention for <b>ROUGE-L</b> and <b>BLEU-4</b>.</li></ul>	

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

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

<b>University of Wisconsin-Madison</b>	<b>Sep 2023 – May 2025</b>
<i>Master of Science - Computer Sciences; CGPA: 3.827 / 4.0</i>	<i>Madison, WI</i>
<i>Courses: Intro to AI, Advanced NLP, Foundational Models, Big Data, Data Cleaning &amp; Integration for Data Science.</i>	
<b>SSN College of Engineering (Affiliated to Anna University), Chennai, India</b>	<b>Sep 2018 – May 2022</b>
<i>B.Tech in Information Technology; CGPA: 8.95 / 10.0</i>	<i>Chennai, India</i>