BADRI NARAYANAN MURALI KRISHNAN

mbadrinarayanan.com ◇ github.com/MBadriNarayanan ◇ linkedin.com/in/mbadrinarayanan
bmuralikrish@wisc.edu ◇ Madison, WI

OBJECTIVE

Detail-oriented and diligent professional with **2+ years** of experience in applied and theoretical ML. Seeking a **Machine Learning FTE role** to apply my meticulous approach to develop impactful real-world solutions.

EDUCATION

University of Wisconsin-Madison **Sep 2023 – Present**
Master of Science - Computer Sciences; **CGPA: 3.65 / 4.0** Madison, WI
Relevant Courses: Advanced NLP, Foundational Models, Big Data, Data Clean & Integration for DS.
SSN College of Engineering (Affiliated to Anna University) **Aug 2018 – May 2022**
B.Tech in Information Technology; **CGPA: 8.95 / 10.0** Chennai, India

SKILLS

Programming Languages	Python, C, C++
Frameworks and Tools	PyTorch, TensorFlow, Keras, LangChain, Spark, Git, Docker, SQL, AWS
Libraries	NumPy, pandas, scikit-learn, streamlit, NLTK, spaCy, OpenCV

WORK EXPERIENCE

Autonomous System Research Intern **Jun 2024 – Aug 2024 (2 Mos)**
Nokia Bell Labs *Murray Hill, NJ*
→ Designed a **multi-agent LLM** system using **LangChain** and **Prompt Engineering** techniques to facilitate automation.
→ Visualized and deployed the agents using **streamlit** to interact and demonstrate their capabilities.

Master's Research **Sep 2023 – May 2024 (8 Mos)**
University of Wisconsin - Madison *Madison, WI*
→ Ran comprehensive benchmark tests on various LLMs with different configurations on platforms with varying levels of hardware capability.
→ Formulated an RNN-based approach for trajectory prediction using Wifi signal data and historical user data.

Associate Engineer - AI/ML **Jul 2022 – Jul 2023 (1 Yr)**
Qualcomm *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*
→ Developed a document processing tool using OCR, image processing, and NLP techniques to transform unstructured data into a structured format for workflow automation.
→ Our efforts reduced document processing time by **37%** and achieved an accuracy of **85%**.

Part-Time Undergraduate Research Assistant **Feb 2020 – Jun 2022 (2 Yrs 5 Mos)**
Bright Academy (Previously Solarillion Foundation) *Chennai, India*
→ Lead the NLP group that worked to translate the video input of a German sign language translator depicting the weather, into cohesive and accurate German sentences.
→ Our work uses **30.88%** fewer model parameters than the SOTA and was able to retain **98.19%** and **86.65%** performance when using **ROUGE-L** and **BLEU-4** as a metric.
→ Collaborated on an NLP project to classify unfair Terms of Service clauses using a two-stage knowledge distillation approach with BERT.

Student Researcher **Dec 2020 – Apr 2022 (1 Yr 5 Mos)**
Sri Sivasubramaniya Nadar College of Engineering *Chennai, India*
→ Posited a novel architecture for Fake News Detection based on Transformer architecture, which considers the title and content of a news article to determine its integrity with an accuracy of **74.0%**.
→ Proposed a robust and cost-effective automatic speech recognition model for the Tamil language leveraging Baidu's Deep Speech architecture. Our work was compared against Google's speech-to-text API, outperforming it by **20%.**

ACADEMIC PROJECTS

Relationship Extraction using Language Models Github **Feb 2024 - May 2024**
→ A machine learning system for extracting complex relationships between entities from unstructured text data, leveraging language models.
Optimizing Natural Language Understanding: Fine-tuning Mistral 7B Github **Feb 2024**
→ This project focuses on fine-tuning Mistral 7B LLM on the Samantha question-answering dataset. It aims to adapt the Mistral model to conversational and contextual question answering.
Terms of Service Classification Github **May 2022 - Jun 2022**
→ Identify unfair Terms of Service clauses using a two-stage knowledge distillation DL algorithm on devices with minimal resources using state-of-the-art architectures like BERT.

PUBLICATIONS

Fake News Detection using a Deep Learning Transformer Based Encoder-Decoder architecture
Publication Github
IOS Press - Journal of Intelligent & Fuzzy Systems, 2023 (Science Citation Index Expanded Journal.)
End-to-End Speech Recognition of Tamil Language Publication Github
Intelligent Automation and Soft Computing, 2021 (Science Citation Index Expanded Journal.)
Sign Language Translation using Multi Context Transformer Publication Github
20^{th} *Mexican International Conference on Artificial Intelligence (MICAI), Mexico City, 2021*
Paper published in Springer Lecture Notes in Artificial Intelligence (LNAI) proceedings.
Won the 3rd best paper award.

VOLUNTEERING AND RESPONSIBILITIES

→ Reviewed manuscripts for the Science Citation Indexed Journal: IOS Press - Journal of Intelligent & Fuzzy Systems.
→ Conducted classes in NLP and CV, evaluated ML and DL assignments as the ML head of PROCODE - the official coding club of the Department of Information Technology.

AWARDS AND HONOURS

→ Awarded the **Merit Scholarship** for my academic performance in the 3rd year of my undergraduate study.
→ Won the **3rd best paper** award for "**Sign Language Translation using Multi Context Transformer**" at the 20^{th} Mexican International Conference on Artificial Intelligence (MICAI), 2021.