Badri Narayanan Murali Krishnan

mbadrinarayanan.com | github.com/MBadriNarayanan | linkedin.com/in/mbadrinarayanan |
bmuralikrish@wisc.edu | +1 (848)-363-8431 | Madison, United States of America

Objective

Detail-oriented and diligent professional with a deep passion for machine learning. Seeking a **Machine Learning** role to apply my meticulous approach, perseverance, and expertise to develop impactful real-world solutions.

Education

University of Wisconsin-Madison **Sep 2023 – May 2025 (Expected)**
Master of Science - Computer Sciences *Madison, WI*
Courses: Artificial Neural Networks, Artificial Intelligence.

Sri Sivasubramaniya Nadar College of Engineering (Autonomous) **Aug 2018 – May 2022**
Affiliated to Anna University *Chennai, India*
B.Tech in Information Technology **CGPA: 8.95 / 10.00**
Graduated First Class with Distinction.
Courses: Machine Learning, Artificial Intelligence, Probability, Statistics, Data Structures and Algorithms.

Skills

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

Work Experience

Independent Study **Sep 2023 – Present**
Univeristy of Wisconsin-Madison *Madison, WI*
→ Working on a machine learning approach to mini localization problem.
→ Creating a customized trajectory prediction engine based on historic and current user data.
Advisor: Dr. Suman Banerjee, David J. DeWitt Professor

Associate Engineer - AI/ML **Jul 2022 – Jul 2023 (1 Yr)**
Qualcomm *Hyderabad, India*
→ Contributed towards the development and maintenance of SNPE (SnapDragon Neural Processing Engine).
→ Improved the testing pipelines for running deep neural networks on SnapDragon SoCs.
→ Introduced evaluation frameworks and metrics for ML models to enhance efficiency and accuracy.
Skills: Edge Machine Learning, Python, Docker
Manager: Mrs. Archana Patil, Engineer - Staff / Manager

Machine Learning Intern **Mar 2021 – Jun 2022 (1 Yr 4 Mos)**
Mad Street Den (Vue.ai) *Chennai, India*
→ Developed a tool for document processing as part of the NLP core group using an OCR engine, image processing, and NLP techniques to process unstructured data and convert them to a structured format.
→ Built Computer Vision models to serve educational recommendations.
Skills: NLP, CV, Python, PyTorch, Tensorflow, NumPy, pandas, scikit-learn, NLTK, spaCy, OpenCV, AWS
Manager: Mr. Anand Chandrasekharan, Founder and CTO

Part-Time Undergraduate Research and Teaching Assistant **Feb 2020 – Dec 2022 (2 Yrs 11 Mos)**
Bright Academy (Previously Solarillion Foundation) *Chennai, India*
→ Collaborated on Terms of Service Classification, an NLP problem statement that uses a two-stage knowledge distillation DL approach on low-resource devices with cutting-edge architectures like BERT to find unfair Terms of Service terms.
→ Lead the NLP group that presented the "Sign Language Translation using Multi Context Transformer" paper at the 20^{th} *Mexican International Conference on Artificial Intelligence (MICAI)*, Mexico City, 2021.
→ To translate the input sign video, Multi Context Transformer architecture employs transformers and runs on batched video inputs. Our model achieved comparable results with the state-of-the-art model while reducing the parameters significantly to enable the model deployment in more accessible devices.
Skills: Research, NLP, CV, PyTorch, Tensorflow, NumPy, pandas, scikit-learn, NLTK, spaCy, OpenCV
Advisor: Mr. Vineeth Vijayaraghavan, Director - Research and Outreach

Student Researcher **Dec 2020 – Apr 2022 (1 Yr 5 Mos)**
Sri Sivasubramaniya Nadar College of Engineering *Chennai, India*
→ Introduced 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. Our work was accepted for publication in the Science Citation Index Expanded journal: *IOS Press - Journal of Intelligent & Fuzzy Systems, 2023.*
→ Developed a robust and cost-effective automatic speech recognition model for Tamil language leveraging Baidu's Deep Speech architecture. Our work was published in the Science Citation Index Expanded journal: *Intelligent Automation & Soft Computing*, 2022.
Skills: Research, NLP, Speech Signal Processing, PyTorch, Tensorflow, NumPy, pandas, scikit-learn, NLTK, spaCy
Advisor: Dr. Shahina A - Professor & Dr. Gayathri K S - Assistant Professor, Department of IT

Publications

Fake News Detection using a Deep Learning Transformer Based Encoder-Decoder architecture
***M Badri Narayanan**, Arun Kumar Ramesh, Gayathri K S, Shahina A*
IOS Press - Journal of Intelligent & Fuzzy Systems, 2023
Journal indexed in Science Citation Index Expanded.

End-to-End Speech Recognition of Tamil Language
*Mohamed Hashim Changrampadi, A Shahina, **M Badri Narayanan**, A Nayeemulla Khan*
Intelligent Automation and Soft Computing, 2021
Journal indexed in Science Citation Index Expanded.

Sign Language Translation using Multi Context Transformer
***M Badri Narayanan**, K Mahesh Bharadwaj, G R Nithin, Dhiganth Rao Padamnoor, Vineeth Vijayaraghavan*
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.

Academic Projects

Terms of Service Classification **Jun 2022 - Dec 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.

Freelance Projects **Oct 2020 – Feb 2021**
Undertook projects from Freelancer.com in Natural Language Processing and Computer Vision. Completed a project with a US-based company "EasyComtec" to predict the ICD diagnosis code given a doctor report using Transformer architecture.

Clickbait Classification **Aug 2020**
Classifying clickbaits: articles with potentially misleading titles, using a state-of-the-art NLP architecture.

Object Detection Using YOLO v3 **Aug 2020**
Detecting everyday objects using the YOLO v3 network with a custom dataset.

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 Department of Information Technology.

→ Served as the class representative for the entire duration of my undergraduate study.

→ Volunteered with Chennai Volunteers to teach spoken English classes for socio-economically weaker students.

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.