

# BADRI NARAYANAN MURALI KRISHNAN

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## EDUCATION

### University of Wisconsin-Madison

Master of Science - Computer Sciences

**Courses:** Artificial Neural Networks, Artificial Intelligence.

Sep 2023 – May 2025 (Expected)

Madison, WI

### Sri Sivasubramaniya Nadar College of Engineering (Autonomous)

Affiliated to Anna University

B.Tech in Information Technology

Graduated First Class with Distinction.

**Courses:** Machine Learning, Artificial Intelligence, Probability, Statistics, Data Structures and Algorithms.

Aug 2018 – May 2022

Chennai, India

CGPA: 8.955 / 10.00

## 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

Univeristy of Wisconsin-Madison

→ 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

Sep 2023 – Present

Madison, WI

### Associate Engineer - AI/ML

Qualcomm

→ Contributed towards the development and maintenance of SNPE (SnapDragon Neural Processing Engine).

→ Working to improve 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

**Advisor:** Mrs. Archana Patil, Engineer - Staff / Manager

Jul 2022 – Jul 2023 (1 Yr)

Hyderabad, India

### Machine Learning Intern

Mad Street Den (Vue.ai)

→ 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

**Advisor:** Mr. Anand Chandrasekharan, Founder and CTO

Mar 2021 – Jun 2022 (1 Yr 4 Mos)

Chennai, India

### Part-Time Undergraduate Research and Teaching Assistant

Bright Academy (Previously Solarillion Foundation)

→ 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<sup>th</sup> Mexican International Conference on Artificial Intelligence (MICA), 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.

→ Guided 5+ students in research, evaluated assignments and projects in Python and Machine Learning.

→ Oversaw the website development and managed the server for our research group.

→ Wrote bots for posting office hours and creating polls.

**Skills:** Research, NLP, CV, PyTorch, Tensorflow, NumPy, pandas, scikit-learn, NLTK, spaCy, OpenCV

**Advisor:** Mr. Vineeth Vijayaraghavan, Director - Research and Outreach

Feb 2020 – Dec 2022 (2 Yrs 11 Mos)

Chennai, India

## 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<sup>th</sup> 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<sup>th</sup> Mexican International Conference on Artificial Intelligence (MICAI), 2021.