

Varsha Balaji

Portfolio | GitHub | LinkedIn
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EDUCATION

UNIVERSITY OF ILLINOIS CHICAGO | MASTERS OF SCIENCE IN COMPUTER SCIENCE

2024-Present | Chicago, Illinois
Coursework: Data Science, Computer
Algorithms, Neural Networks
GPA: 4.0

SSN COLLEGE OF ENGINEERING | BACHELOR OF ENGINEERING IN COMPUTER SCIENCE

2020-2024 | Chennai, India
GPA: 3.65

SKILLS

PROGRAMMING

Languages:

Java • Python • SQL • C • C++ • LaTeX •
HTML • CSS • Javascript • Socket
Programming & Networking

Tools:

Git • Google Colab • Jupyter Notebook
MLFlow • Visual Studio Code

Frameworks & Libraries:

Scikit-learn • Pandas • Numpy •
Matplotlib • TensorFlow • OpenCV •
Seaborn • PyTorch • ReactJS • NodeJS •
Flask • MySQL • WebRTC

CERTIFICATIONS

Stanford- Neural Networks & Deep
Learning(Ongoing)

AWS - Generative AI & Large Language
Models (LLM) (Ongoing)

IBM- AI Workflow: Machine Learning,
Visual Recognition and NLP

Great Learning: Data Science Foundations

NPTEL: Programming in Modern C++

AWARDS & LEADERSHIP

2nd Runner-Up, All Girls KLA Hackathon
2023 - AI/ML.

Best Project Awarded at National BigData
Workshop 2022 in Data analytics.

Event Head - DataWhiz, SSN Technical
Symposium 2023, leading a 200+
participant data analytics event

Volunteer & Teaching Assistant UI NGO
(STEM mentorship).

EXPERIENCE

PRELUDESYS | DATA SCIENCE INTERN

February 2024 - May 2024 | Chennai, India

- Researched AI-driven beacon technologies and cross-app marketing strategies, analyzing data from over 500,000 social media interactions to identify customer behavior patterns. Designed a machine learning prototype for customer analytics, achieving a 20% improvement in CRM efficiency upon integration with Dynamics 365.
- Conducted preprocessing on a dataset of over 100GB, engineered features, and optimized model performance using grid search and cross-validation, resulting in a 15% reduction in prediction error rates.

SYNERGY MARITIME | DATA SCIENCE INTERN

July 2022 - August 2022 | Chennai, India

- Engineered ML-powered virtual sensors for "Scrubber Management," applying advanced regression techniques to improve accuracy from 60% to 85%, enhancing environmental compliance for over 30 maritime vessels.
- Streamlined data pipelines, reducing preprocessing time by 30%, and implemented hyperparameter tuning to optimize model performance, achieving a 25% accuracy improvement. Presented findings to stakeholders, contributing to data-driven decision-making.

PROJECTS

FACIAL ANTISPOOFING | TRANSFORMER NETWORKS, FLASK

Sept 2023 – April 2024

- Developed an advanced facial antispoofing system using Vision Transformers (ViTs), utilized Exploratory Data Analysis (EDA) to clean and visualize training data, identifying key features for model optimization.
- Created SPAN (Cross-Layer Relation) and MSWF (Feature Fusion) techniques, improving model accuracy and robustness for real-time use.
- Designed a Flask-based web application to deploy the model, enabling real-time image capture and dynamic client-server interactions via WebRTC.

VOIDVOICES WEB APPLICATION | JAVASCRIPT, OPENCV

February 2023

- Led the development of a web application aimed at enhancing accessibility for differently-abled using deep learning techniques.
- Implemented real-time gesture recognition with OpenCV and TensorFlow, enabling seamless sign language translation for communication in real-world scenarios.
- Integrated JavaScript for Braille-to-text conversion and ensured efficient front-end and back-end communication, improving accessibility for users with visual and hearing impairments.

PUBLICATIONS

- [1] P. Ravisankar, V. Balaji, et al. Deep learning-based renal stone detection: A comprehensive study and performance analysis. *Applied Computer Systems*, 29(1):112–116.