

# SHYAM SUNDAR

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## Experience

### USEReady

April 2024 – Present

Machine Learning Engineer Intern

Bengaluru, Karnataka

- Developed a **custom RAG chatbot** that leverages **multi-query generation** and **keyword extraction**, integrates with **Azure**, **AWS**, and **local storage**, and features an interactive **Streamlit** user interface.🔗📄
- Engineered a **Retrieval-Augmented Generation** incorporating **human feedback** by labelling responses, fine-tuning the **cross-encoder**, and integrating it into a **Streamlit** interface for enhanced user interaction.🔗

## Projects

### Signature Authenticity Verification System 🔗📄 | Python, Streamlit, Pytorch,Pytorch lightning, Jupyter

April 2024

- Utilized the **CEDAR dataset** to analyze 2,640 signature samples, distinguishing between genuine and forged signatures.
- Engineered two **PyTorch models**, achieving a high accuracy of 98.11% with SiameseNetwork1 and optimizing model performance with Contrastive Loss in SiameseNetwork2.
- Integrated models into a **Streamlit application**, enabling user-friendly signature authenticity verification.

### LLM-Powered Coupon Recommender 🔗📄 | Python, Streamlit, Langchain, OpenAI

November 2023

- Developed a **QA system for e-commerce** with personalized coupon recommendations using **OpenAI's LLMs**.
- Streamlined user interactions through a **Streamlit** interface and **Langchain** for real-world scenario simulations.
- Incorporated **FAISS** for refined recommendation processes.

### PeopleCare Insurance Prediction 🔗 | Python, Jupyter, Azure Cloud, Flask, Docker

October 2023

- Expanded PeopleCare into vehicle insurance with a predictive model for **effective customer targeting**.
- Thorough analysis of customer behaviour and data cleaning for accurate predictive modelling.
- Achieved **80%** prediction accuracy using **LightGBM**.

### Hate Speech Prediction 🔗 | Python, Pytorch Lightning, Flask, Docker

October 2023

- Developed a robust hate speech detection algorithm for content filtration.
- Attained **91.95% accuracy** with fine-tuned pre-existing **Bert model**.
- Executed model deployment via **Flask** and **Docker** for scalability.

### Machine Failure Prediction 🔗 | Azure Machine Learning

September 2023

- Conducted an extensive investigation of a Milling machine to enhance operational reliability.
- Conceived **97% recall rate** for predicting machine failures using logistic regression and **SMOTE**.
- Managed in **Azure Designer** for comprehensive data analysis and predictive modeling.

### Data Driven Model for Anomaly Detection and Path Prediction | Python, Deep Learning

July 2022 - April 2023

- Investigated and improved AIS for cargo vessel anomaly detection and path prediction.
- Formulated a statistical method for robust **anomaly detection**.
- Engineered a path prediction algorithm using a **sequence-to-sequence model with an attention mechanism**.

## Education

### Defence Institute of Advanced Technology

Pune, IN

M.Tech in Modelling and Simulation, GPA: 7.95

May 2023

### National Institute of Technology

Tiruchirappalli, IN

B.Tech in Chemical Engineering, GPA: 7.65

May 2021

## Technical Skills

**Languages:** Python, C/C++, SQL (Postgres), Matlab, Latex

**Frameworks & Tools:** Pytorch, Tensorflow, Flask, Pytorch Lightning,Tableau, Power Bi, Azure, Git, Jupyter, Docker

## Certifications

- Certified Associate Data Analyst
- SQL [Advanced] - Hackerank
- Management Consulting Mentorship
- Generative AI at SAP
- ML for Business professionals using No-Code AI tools
- Python [Basic] - Hackerank
- Software Engineer Intern -Hackerank
- Generative AI Fundamentals - Databricks

## Publications

Suspicious Event Detection of Cargo Vessels Based on AIS Data at ICDMAI,2023