

# Sam Reeves Susikar

## Machine Learning and Software engineer

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### SUMMARY

With a strong background in machine learning and software development, I am committed to harnessing my technical skills to further develop intelligent and data-driven applications. As a passionate machine learning engineer, I seek opportunities to make impactful contributions in the field of technology and engineering.

### EDUCATION

#### New Horizon College of Engineering

*Bachelor of Engineering in Artificial Intelligence and Machine Learning*  
CGPA: 8.54

Bangalore, India  
October 2022 – present

- Gained comprehensive understanding in subjects such as Machine Learning, Deep Learning, Full Stack development, Database Management Systems and Statistical and discrete math.
- Completed a certificate course on Full stack web development using flask
- Played as part of the College Football squad.

### FREELANCE EXPERIENCE

#### Co-founder and Developer

##### HireLens

##### DriveMetrix

- Designed and developed a scalable placement drive tracking system, enabling the college to monitor students' hiring progress efficiently.
- Created a streamlined process that allows teachers to upload excel files that can be parsed into the database
- Implemented a RAG (Retrieval-Augmented Generation) Model using Gemini, allowing administrators to generate student-specific SWOT analysis for each students performances.
- **Tech Stack:** NextJS, TailwindCSS, Clerk, Supabase, Flask, Gemini, Render, Vercel

##### InterviewIndex

- In the process of building an assessment platform that allows universities to carry out preliminary assessments before placement drives
- Carried out data analysis on students performances for so teachers can cater to specific weaknesses of students
- **Tech Stack:** NextJS, TailwindCSS, Clerk, Supabase, Vercel

#### Web Developer

##### North East United in Christ Fellowship

- Designed a website for the NUICF organisation (www.nuicf.com)
- Developed a seamless front end design and built a responsive solution for both mobile and desktop clients.
- Created CSS classes and used javascript's IntersectionObserver library to trigger smooth CSS animations
- Carried out search engine optimisation tasks that help the website get recognised more by Google search.
- **Tech Stack:** HTML, CSS, Javascript, Vercel

Newcastle, England  
May 2024 – June 2024

#### Web Developer

##### Smudge's Hub

- Designed and built a Portfolio website cum Blog for a Client (ismudgeu.tech)
- Developed structured app that consists of routes to handle smooth login and auth using cookies with NextJS
- Built a protected admin dashboard from which the user can handle the blogs present on the website and upload more
- **Tech Stack:** NextJS, TailwindCSS, Supabase, Uploadthing, Vercel, MDX-JS

Bangalore, India  
June 2023 – September 2023

## RELEVANT PROJECT EXPERIENCE

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### Border Surveillance System | YOLOv4-Tiny

Bangalore, India

#### Group project

October 2024 – December 2024

- Developed and optimized an AI-based image segmentation module using YOLOv4-Tiny, tailored for real-time object detection in border surveillance
- Fine-tuned the YOLO model with a dataset consisting CCTV images with labeled humans
- Published a paper on our findings in the IEEE Xplore journal which then got scopus indexed.

### Vehicle detection using YOLOv8 | YOLOv8n

Bangalore, India

#### Personal project

May 2023 – August 2023

- Developed a real-time vehicle classification script using YOLOv8n for detecting and classifying vehicles.
- Trained a robust model that can be used in the fields of traffic monitoring, autonomous systems, and smart surveillance

### SongRecognizer | Librosa, scipy

Bangalore, India

#### Mini project

June 2024 – August 2024

- Developed Python script using the librosa library to replicate Roy van Rijn's song recognition algorithm.
- Extracted frequencies from given audio clips using a short term fourier transformation algorithm present in the scipy library.
- Built a database of audio fingerprints for a set of mp3 files and compared the fingerprints to identify the song

### Transformer | torch.nn, numpy, pandas

Bangalore, India

#### Personal project

November 2023

- Built a Custom Chatbot based on the Transformer architecture as found in the research paper "Attention is all you need" by Ashish Vaswani
- Trained the built CNN model on a dataset that consisted of basic lines or sentences used by chatbots.
- Leveraged positional encoding, multi-head attention, and layer normalization for improved performance.

### Brain tumour segmentation | keras, tensorflow, U-net

Bangalore, India

#### Personal project

June 2023

- Developed and implemented a brain tumour segmentation pipeline using the SegNet architecture to identify and segment tumour regions in MRI scans.
- Trained SegNet on annotated brain tumour datasets, leveraging TensorFlow/Keras, with custom loss functions to handle class imbalance.
- Optimized model performance through hyperparameter tuning, including learning rate scheduling, batch size adjustments, and early stopping

### StockSense | Expo-cli, React Native, sklearn, flask, Render

Bangalore, India

#### Hackathon group project

May 2023

- Built a full stack mobile application using ReactNative's expo-cli framework with typescript in order to monitor and predict stock trends using the AlphaVantage API
- Implemented machine learning techniques such as logistic and linear regression in order to predict future stock trends based on given data

## PUBLICATIONS

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- |   |  |
|---|--|
| • Privacy-Preserving and Efficient Border Surveillance System using Advanced Deep Learning and Cryptographic Techniques | DOI: 10.1109/I-SMAC61858.2024.10714893 |
| • Machine Learning Optimisation: Adaptive Hessian-free optimisation   | DOI: 10.17148/IJARCCE.2024.13653       |
| • A comprehensive analysis of natural language processing   | DOI: 10.17148/IJARCCE.2024.13617       |
| • HarmonyNet: blockchain technology for sustainability and scalability  | DOI: 10.17148/IJARCCE.2024.13653       |

## SKILLS

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**Python for machine learning, stats and data analysis:** Pandas, PyTorch, scikit-learn, yolov5, huggingface, transformers, matplotlib, seaborn, numpy, scipy, keras

**Data structures and algorithms:** Python, Javascript, Java, C++

**Full stack development:** NextJS, Expo-CLI, MySQL, MongoDB, Supabase, MERN stack, flask, Tailwind, CSS

**Version control and collaboration:** git, github

**SOFT SKILLS:** Leadership, communication, problem solving, collaboration, teamwork, decision making, logical reasoning, critical thinking