

Sudha Rani Maddala

Applied AI/ML Engineer | Data Scientist

Bristol, UK · Open to relocating to the Netherlands or Germany · UK Graduate visa holder

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PROFESSIONAL SUMMARY

Applied AI/ML engineer and data scientist with an MSc in Data Science from the University of Bristol (January 2025). I build and evaluate AI applications and data products end to end: a deployed FastAPI, PostgreSQL and React analytics platform with a grounded LLM assistant and 1,193 CI-gated backend tests; a reproducible 9,800-image object-detection dataset for assistive-navigation research; and a LangChain CV-screening tool. I report what was measured and what was not. Targeting graduate and junior Data Scientist, Applied AI, ML Engineer and Data Engineer roles.

TECHNICAL SKILLS

- **Languages and data:** Python, SQL, PostgreSQL, pandas, TypeScript; statistical analysis, time series, Tableau
- **Machine learning:** PyTorch, TensorFlow/Keras, scikit-learn, XGBoost; Transformer implemented from scratch; BERT/DistilBERT; anomaly detection
- **LLMs and retrieval:** LangChain, Claude API, OpenAI API, LLM output validation, TF-IDF retrieval; RAG with LlamaIndex (experimental)
- **Computer vision:** Ultralytics YOLO, OpenCV, CNN transfer learning (VGG-16, DenseNet121), dataset curation and licence auditing
- **Engineering and cloud:** FastAPI, Pydantic, Alembic, React, pytest, GitHub Actions, Git, Streamlit, Flask; Vercel, Azure PostgreSQL, Google Cloud APIs, AWS

EDUCATION

MSc Data Science | University of Bristol, UK | Sep 2023 – Jan 2025

Dissertation: Transformer implemented from scratch in PyTorch for sentiment analysis, 82.45% test accuracy on SST-2 (sarcasm the main failure case). Modules: Software Development, Large-Scale Data Engineering, Visual Analytics, AI and Text Analytics, Ethics. Bristol PLUS Award; Top 100, Google Solution Challenge 2024 (team).

BTech Electronics and Communication Engineering | Central University of Karnataka, India | Jul 2018 – Aug 2022

First Class, CGPA 8.22/10. Modules: Data Structures, Algorithms, Machine Learning, Signal Processing.

EXPERIENCE

Software Developer | 4 Real Consulting Limited, Remote

Aug 2026 – Present · Freelance

- Lead developer of a deployed social-impact analytics platform for a UK charity: React/TypeScript, FastAPI and PostgreSQL, with Alembic migrations and REST APIs for attendance, service activity, missions and finance.
- Wrote a workbook importer that traces every summary-sheet formula and flags rows reading the wrong quarter or mission; kept source data separate from estimates for clear provenance.
- Added AI summaries and Q&A (Claude API) behind one gateway with a kill switch and rate limiting; every number in an AI answer is checked against the supplied data before display.
- Built CI in GitHub Actions (secret scan, 1,193 passing backend tests on PostgreSQL 17, type-check, lint, build) that gates every Vercel deployment.

AI-ML Intern | Labmentix, Remote

Sep 2025 – Oct 2025 · Internship

- Built predictive models for FBI crime time series and analysed fitness-app, retail and financial customer data in end-to-end projects.

Data Science Consultant, then Artificial Intelligence Consultant | DataMites, Bengaluru, India

Oct 2021 – May 2022; Nov 2022 – Jun 2023 · Consulting

- Built an XGBoost flight-fare model with SQL and Tableau EDA; supervised data analysts and acted as secondary account manager.
- Built predictive models for healthcare and IoT data, with GANs for synthetic data and fairness and interpretability analysis.

Earlier internships

Artificial Intelligence Intern | Personify | May – Jul 2025 · Internship. Developed and tested ML models for practical AI use cases.

Project Development Intern | Streams Learning Hub, Bristol | May – Jul 2024 · Internship. Researched AI for personalised education for neurodivergent students; findings in Tableau.

Market and Competitor Analyst Intern | Albotherm, Bristol | Jan – Mar 2024 · Internship. Market research and segmentation for management.

Student Intern | 1Stop.ai | Nov 2021 – Jan 2022 · Internship. CNNs for digit and face recognition; NLP news categorisation.

Data Science Intern | Innomatics Research Labs | Apr – Jul 2021 · Internship. Music recommender served with Flask.

RESEARCH AND PROJECTS

Vision Assist: assistive object detection | Bristol, UK

2024 team prototype; independent research Nov 2025 – Present (ongoing) · Research

- Research question: is mAP enough to judge the safety of navigation aids for blind and low-vision pedestrians? Defined a 14-class taxonomy and audited datasets (per-image licence check of 17,858 COCO images).
- Built reproducible conversion and validation scripts producing a 7-class YOLO dataset of 9,800 images (0 structural errors, 0 duplicates). Baseline training, phone latency and user testing not yet done.
- 2024 Google Solution Challenge team prototype (Top 100): YOLOv8n detection with spoken alerts; I worked on the speech-to-text voice commands. Detector validation mAP50 0.774 on WOTR.

Fraud detection and customer value | University of Bristol × Lloyds Banking Group

Jan 2024 – May 2024 · MSc partner project, not employment with Lloyds

- Random Forest spend-category classifier, Isolation Forest and One-Class SVM for unsupervised fraud detection, and CLV segmentation on transactional data.

Selected projects

- **Resume Screener** (LangChain, scikit-learn, Pydantic, pytest): ranks CVs with blind screening and an explainable score; deterministic, no generative model. [GitHub](#)
- **Conversational AI for PDFs and websites** (LangChain, LlamaIndex, TruLens): experimental RAG pipelines; not formally evaluated.
- **Retail Sales SQL Analysis** (PostgreSQL): 20 business queries incl. window functions on 1,040,200 synthetic rows. [GitHub](#)
- **AI-MedVision** (TensorFlow, Keras): MRI, OCT and X-ray classifiers evaluated on public datasets; educational prototype, not clinically validated.

CERTIFICATIONS AND ACTIVITIES

GenAI Mastermind (Growth School) · Azure ML AI Skills Challenge (Microsoft) · Certified Data Scientist (DataMites) · Google Data Analytics (Coursera). IBM Call for Code, Encode AI Healthcare Hackathon, Bristol Datathon, BrisHack. National-level kabaddi for England. Languages: English, Hindi, Telugu.