KEERTHISHREE KESAVAN

DOMAIN: Machine Learning | Full-Stack | Data Science
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LinkedIn | GitHub | Portfolio

PROFESSIONAL SUMMARY

AI & ML undergraduate with a 9.8 GPA and IEEE publication, shipping production-grade systems spanning LLM-powered platforms, RL-based simulations, and cloud-native pipelines. Passionate about blending research depth with Full-Stack and Cloud execution to design, build, and deploy intelligent systems that solve real-world problems at scale.

EDUCATION

Bachelor of Technology in Computer Science Engineering (Artificial Intelligence & Machine Learning) Aug 2023 - Present
Sri Ramachandra Institute of Higher Education and Research Chennai, India
GPA: **9.8/10** and CGPA: **9.0/10**

Vel Tech Dr. RR & DR. SR Matriculation Higher Secondary School Year of Completion - 2023
Class XII (State Board) percentage: **87%** Chennai, India

TECHNICAL SKILLS

Machine Learning and Deep Learning: Scikit-learn, AutoML, RL, SHAP, LIME, Llama-3, BGE Embeddings, CNN, NLP, BERT
Web/Full-Stack Development: React.js, Node.js, Express.js, REST APIs, Socket.io, BullMQ, JWT, HTML, CSS, JavaScript
Data, Visualization and Databases: SQL, Pandas, NumPy, MongoDB, MySQL, Redis, Tableau, Plotly, Streamlit
Cloud, DevOps & Programming: AWS (Lambda, S3, DynamoDB, Textract, Rekognition, Transcribe), Docker, Python, Java, C

INTERNSHIP

Machine Learning and Data Science Intern - REUDE Technologies, Chennai May 2025 - July 2025
Tech Stack: Python, Scikit-learn, Machine Learning, Streamlit, Open3D, Data Visualization

- Built predictive ML models to detect patterns, anomalies in spatial datasets with strong validation performance
- Designed Python-based feature engineering and preprocessing pipelines to deploy insights via a Streamlit dashboard
- **Impact:** Reduced manual analysis effort and improved interpretability of spatial data for faster decision-making

RESEARCH AND PUBLICATION

13th IEEE International Conference on Intelligent Systems and Embedded Design (ISED-2025), NIT Raipur *[View Publication]*
Hybrid SVM-Naïve Bayes Ensemble with LIME + SHAP for Transparent Air Quality & Health Risk Prediction [**GitHub**]

- Co-authored and presented an IEEE conference paper on a hybrid ensemble model for AQI and multi-disease health risk
- Developed a hybrid SVM–Gaussian Naive Bayes model achieving **96.2%** AQI classification accuracy and **0.921** F1-score
- Integrated LIME and SHAP for local and global explainability, ensuring transparent and trustworthy predictions
- Built an interactive geospatial dashboard for real-time air quality and health risk visualization for smart city deployment

PROJECTS

ReviewGuard - AI-Powered Review Moderation Platform | React, Node.js, Express.js, MongoDB Atlas, Redis, BullMQ, Socket.io, Llama-3 (Groq), BGE (BAAI) Embeddings(Hugging face) [**GitHub**]

- Architected a multi-layered AI detection engine using **Llama-3** (Groq) and **BGE (BAAI) embeddings** (Hugging Face) to detect toxic, semantic duplicate, and overlapping violations (content flagged as both toxic and redundant)
- Built a scalable async pipeline with BullMQ and Redis, reducing API latency by **~90–95% (1.2s → <100ms)**
- Developed a real-time system with **Socket.io** for instant user feedback and live admin threat monitoring
- Engineered a Hybrid Defense Mechanism **(LLM + BGE + TF-IDF/Regex fallback)** for reliability during AI/network failures
- Secured RBAC platform (Admin, Moderator, User) with JWT, Bcrypt, email verification, audit logs, and rate limiting

3D RL-Based Traffic Signal Control System with Ambulance Priority | Python, Reinforcement Learning, Policy Gradient, Q-Learning, Matplotlib, Seaborn, 3D Simulation **[GitHub]**

- Designed an RL-based traffic control system (Policy Gradient & Q-Learning) to optimize signal timing & reduce congestion
- Developed a real-time 3D simulation environment to monitor traffic flow; achieved **45% reduction** in traffic wait times
- Implemented ambulance priority logic resulting in **83% faster** emergency response times and built a live dashboard to visualize RL reward trends and agent performance

Heart Disease Risk Prediction using AutoML and Explainable AI | H2O AutoML, GBM, SHAP, Streamlit, Docker, Render **[GitHub]**

- Built a heart risk prediction platform using H2O AutoML, achieving **~74% accuracy** and **0.80 AUC** on 70K+ patient records
- Automated model selection, hyperparameter tuning, and cross-validation across numerous machine learning algorithms
- Integrated SHAP explainability for transparent feature-level predictions and deployed via Docker on Render, including PDF and Excel/CSV export support

Explainable AI for Air Quality & Health Risk Prediction using Hybrid ML Model | Python, SVM, Naive Bayes, SHAP, LIME, Geospatial Visualization **[GitHub]**

- Built a hybrid SVM+GNB ensemble model hitting **96.2% AQI accuracy** and **0.921 F1-score** across multi-disease prediction
- Applied SHAP and LIME to surface global and local model explanations, making predictions interpretable and audit-ready
- Engineered an interactive geospatial dashboard visualizing real-time air quality and health risk indicators for smart cities

Automated Descriptive Answer Evaluation System | FastAPI, OpenCV, Sarvam OCR, Ensemble models, Ollama, PostgreSQL

- Built a hybrid AI pipeline evaluating handwritten exam answers via OCR, semantic scoring, and LLM-powered feedback
- Fused 5 models (SBERT, KeyBERT, DistilRoBERTa, SciBERT, Qwen2.5) into a weighted scoring pipeline with full insights
- Async FastAPI backend with task queuing for non-blocking ML inference, persisting results in PostgreSQL

AutoVerify – AWS Powered Driving License Verification System | AWS (Textract, Rekognition, Lambda, S3, DynamoDB)

- Built a serverless AWS pipeline (Textract → Lambda → DynamoDB → S3) to automate driving license data extraction
- Implemented structed data validation with high-accuracy OCR output parsing and error elimination and data retrievals
- Developed real-time retrieval and visualization via Streamlit, cross-validating Textract & Rekognition outputs for accuracy

ACHIEVEMENTS AND INVOLVEMENTS

Soft Skill Development - NPTEL (8-week course, 2026): Achieved 90% (Elite + Gold); ranked in Topper (Top 1%)

Effective Writing - NPTEL (8-week course, 2026): Secured 87% (Elite + Silver); ranked in Topper (Top 5%)

IEEE Publication (ISED-2025): Co-authored and presented research at NIT Raipur on hybrid ML for AQI prediction

AWS Academy Machine Learning Foundations (**Digital Badge**)

IBM Z Day 2025 - IBM Z Skills (**Digital Badge**)

MongoDB and Linux Course Completion: Completed and Certified in MongoDB and Linux system administration.

Hackathon and Tech Expo Participation: Shortlisted in a hackathon, showcased projects at Tech Expo and Research Day.

LEADERSHIP POSITIONS

Research Club Coordinator (2025 - Present):

- Hosted various research club and technical events(Tech Expo, Research Day, and Mindspark) and conducted engaging and informative activities for students, managing coordination, planning and scheduling

NCC Certified (Lance Corporal - LCpl): 13 (TN) BN NCC, Government of India

- Achieved NCC Certificate 'A' (Grade A) under National Cadet Corps, Government of India. Trained in disciple, leadership and drill activities.