A.R. KEERTHANA

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Portfolio: keerthana-portfolio-sigma.vercel.app

PROFESSIONAL SUMMARY

Computer Science Engineering student with hands-on experience in AI, ML, and Generative AI, focused on building reliable and deployable systems for healthcare and real-world applications. Strong background in data pipelines, model deployment, and system integration using Python and modern ML frameworks.

INTERNSHIP EXPERIENCE

Data Science Specialist Intern Jun 2024 – Aug 2024

GUVI Geek Network Pvt. Ltd. (IIT Madras Research Park), Chennai

- Designed and developed end-to-end machine learning and deep learning solutions for real-world NLP and computer vision use cases.
- Performed data collection, preprocessing, feature engineering, model training, evaluation, and optimization on large-scale datasets.
- Worked across the complete ML lifecycle with focus on deployment readiness, performance tuning, and production- oriented workflows.

TECHNICAL SKILLS

Programming Languages: Python, Java, R, SQL, NoSQL
Machine Learning / AI: Machine Learning, Deep Learning, NLP, Computer Vision
Frameworks & Libraries: PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, Pandas, NumPy
Tools & Platforms: Docker, Flask, React, Streamlit, Git, GitHub, Jenkins, Tableau, Power BI
Cloud Computing: AWS (EC2, S3, IAM – basics)
Databases: MySQL, MongoDB, Neo4j
Concepts: Model Deployment, CI/CD, Data Pipelines, Feature Engineering, System Integration

PROJECTS

Graph-Based Drug Repurposing Recommender System

- Developed a healthcare-focused drug repurposing system using **Graph Neural Networks (GNNs)** to predict novel drug–target interactions, enabling data-driven biomedical insights.
- Built a **Neo4j-based knowledge graph** to model complex drug–protein relationships, improving interpretability and relationship analysis in large biomedical datasets.
- Achieved **84% accuracy** and **0.84 F1 score** through supervised link prediction using **PyTorch Geometric, RDKit, and Python**.

Precedent-Aware Legal Verdict Generator (RAG-Based System)

- Designed and implemented a **Retrieval-Augmented Generation (RAG)** system to analyze historical legal precedents and generate context-aware verdict predictions.
- Fine-tuned **transformer-based NLP models** using **Hugging Face** and integrated retrieval pipelines to improve grounding and reduce hallucinations in generated outputs.
- Achieved a **0.87 F1 score** by grounding predictions on relevant precedents extracted from large-scale legal corpora using **Python and NLP frameworks**.

AI-Based Dark Pattern Detection System

- Built an end-to-end **NLP pipeline** using **fine-tuned BERT models** to detect deceptive user interface text patterns across live websites.

- Classified eight dark-pattern categories with **97.5% accuracy** and **0.95 weighted F1 score** on unseen datasets, demonstrating strong model generalization.
- Developed and deployed a **real-time Streamlit dashboard** with automated analytics and visualization, integrating **Selenium-based web scraping** for dynamic data extraction.

Somnolence & Emotion-Adaptive Smart Lamp (IoT + AI)

- Developed a **real-time computer vision system** for emotion and drowsiness detection, integrated with **IoT-controlled adaptive lighting** for user-aware automation.
- Designed a **modular hardware–software architecture** with automation logic and **text-to-speech feedback**, enabling seamless interaction between AI inference and embedded systems.
- Engineered a scalable multimodal system using **Python and OpenCV**, demonstrating real-time processing, embedded AI, and system integration capabilities.

HistoAI – AI-Based Breast Cancer Detection System

- Developed a **full-stack healthcare analytics application** using a **ResNet50-based CNN** for histopathology image classification in breast cancer detection.
- Achieved **85% accuracy** and deployed the model for real-time inference using a **Flask API** and **React-based frontend**.
- Implemented **DevOps practices** including **Docker containerization and Jenkins-based CI/CD pipelines**, enabling cloud-ready, scalable deployment.

EDUCATION

Vellore Institute of Technology, Chennai 2022 – 2027
Integrated MTech – Computer Science Engineering (Business Analytics)
CGPA: **8.27 / 10**

D.A.V. Group of Schools - Class XII (HSC) 2021 – 2022
Percentage: **88.8%**

D.A.V. Senior Secondary School- Class X (CBSE) 2019 – 2020
Percentage: **92.4%**

ACHIEVEMENTS

Winner – Hack the Horizon (VIT Chennai), ranked as **1st** among **700+** participants
3rd Place – Welldoc Hackathon (Bangalore), ranked **Top 24** among **400+** participants
Finalist – Myntra HackerRamp 2024, ranked in the **top 4%** among **29,000+ teams**
Smart India Hackathon 2023 – Selected for second round at college level

CERTIFICATIONS

Building RAG Agents with LLMs – NVIDIA
Fundamentals of Generative AI – GUVI
Machine Learning 101 – GUVI
Java (Intermediate) – HackerRank

LANGUAGES

English (Professional) • **Tamil** (Native) • **Hindi** (working proficiency) • **French** (Basic)

INTERESTS

Artificial Intelligence & Machine Learning, Data Analytics, Data Science, AI Engineering, Cloud Computing