A AKHIL

Kollemcode, Kanyakumari,TamilNadu

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TECHNICAL SKILLS

Languages: Python, Java, C, C++, JavaScript, MATLAB, SQL, HTML/CSS, Bash
Technologies/Frameworks: Linux, GitHub, ReactJS, NextJS, NodeJS, ExpressJS, Git, MongoDB, MySQL, PostgreSQL, Kubernetes, AWS, Azure
Developer Tools: VS Code, Android Studio, IntelliJ IDEA, Eclipse, PyCharm, Docker

INTERNSHIP

Defence Research & Development Organisation (CAIR-DRDO)　　　　　**December 2024 – Present**
Research Intern
- Developing an advanced web scraper leveraging LLM capabilities to efficiently extract and analyze data from websites.

Indian Space Research Organisation (ISSDC-ISRO)　　　　　**December 2024 – January 2025**
Intern
- Developed a recommendation engine for the PRADAN website by ISSDC, enhancing user experience and data accessibility for ISRO.

Defence Research & Development Organisation (CVRDE-DRDO)　　　　　**July 2024 – August 2024**
Research Intern
- Developed an AI model achieving 92% accuracy in predicting the remaining lifespan of BLDC motors and identifying faults in real-time during operation for Armoured Fighting Vehicles (AFVs).
- Reduced diagnostic time by 80% by automating fault identification and prediction processes.

Samsung R&D Institute　　　　　**January 2024 – July 2024**
Research Intern
- Developed a Generative AI Large Language Model integrated with a web scraper that analyzed over 10,000 products and reviews, achieving 85% accuracy in sentiment analysis and data classification.
- Reduced product review processing time by 60% using automated scraping and NLP techniques.

PROJECTS

PathoSynX: An AI-Driven Pipeline for Synthetic Multi-Disease Data Generation | Python
- Developed PathoSynX, an AI-driven pipeline integrating clinical records, medical imaging, and genomic data, leveraging VAEs, GNNs, GANs, and diffusion models to generate synthetic multi-disease data.
- Annotated synthetic medical images with clinical ontologies and structured data, achieving up to 96.4 Hit@1 and 95.3 F1 score in predicting disease interactions and progression.
- Facilitated deeper understanding of co-morbidity dynamics, advancing diagnostic accuracy and enabling personalized treatment strategies.

Comparative Study using Machine Learning Algorithms for Predicting Diabetic Patients | Java
- Conducted a comparative study on Ridge, Lasso, and ElasticNet regression models, achieving a prediction accuracy of up to 88%.
- Implemented and optimized models in Java, processing datasets with over 10,000 patient records.
- Evaluated model performance using metrics like R-squared and Mean Absolute Error, providing actionable insights into their strengths and weaknesses.

Advanced Traffic Sign Detection | Python, Computer Vision
- A research paper introducing an innovative methodology for small object detection with a focus on traffic signs, achieving a reduction in detection errors by 79%.
- Implemented advanced image processing algorithms for real-time detection and recognition, achieving an inference time of 0.23 seconds per image.
- Conducted 100+ experiments using datasets containing over 50,000 images to validate the methodology's effectiveness.

Real-time parking detection using Computer vision ⧉ | Python, Computer Vision
- Developed a real-time parking detection system to monitor 200+ parking slots using computer vision technology.
- Utilized Python and OpenCV to process live video feeds, detecting vacant spaces with an accuracy of 94%.

Mental Health Assessment System | Flask, Python, LLM, Ollama AI, JSON
- Developed a Flask web application to assess mental health for 1,000+ students, analyzing responses to pre-defined questions.
- Integrated an LLM via Ollama AI to generate scores with 95% accuracy based on individual responses.
- Reduced manual intervention in mental health evaluations by 60%.

Cloud and Fog Removal System using GAN | PyTorch, GAN, SPANet, Satellite Imagery
- Enhanced satellite image clarity by 84% by optimizing ISRO's models for cloud and fog removal.
- Designed and implemented a GAN-based system leveraging SPANet architecture to process over 10,000 satellite images efficiently.
- Deployed multi-GPU training, reducing model training time by 40% and improving overall scalability.

Real Time Crime Detection using Live CCTV footage ⧉ | Python, Machine Learning
- Designed and implemented a Crime Detection system that analyzed live CCTV footage from 50+ cameras to identify suspicious activities.
- Integrated Django for managing a database of 1,000+ reports and Web3 for secure user authentication.
- Achieved real-time classification of criminal activities with 90% accuracy.

AWARDS RECEIVED

MIT Anna University Hackathon   National Level
- Won First Prize at the national-level MIT Anna University Hackathon, competing against top teams from across the collage.

IEEE GRSS Hackathon for Data Driven AI in Remote Sensing   National Level
- Won First Prize at the national-level IEEE GRSS Hackathon for Data-Driven AI in Remote Sensing, supported by NASA.

Smart Campus Hackathon   National Level
- Secured First Place in Smart Campus Hackathon organized by SRM Institute of Science and Technology, competing against 100+ teams.

Smart India Hackathon   National Level
- Advanced to the final round in Smart India Hackathon, out of 2,000+ teams nationwide.

Dark Pattern Buster Hackathon   National Level
- Selected for the final round in Dark Pattern Buster Hackathon, among 5000+ participants.

EDUCATION

SRM Institute of Science and Technology   **06-2022 – Present**
B.Tech Computer Science and Engineering With Specialization in AI-ML   *Chennai, India*

Sacred Heart International School   **2021 – 2022**
ISC - Maths-Biology   *Kanyakumari, India*