Udayagiri Varun

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Education

Amrita Vishwa Vidyapeetham 2025
B.Tech Artificial Intelligence *Current GPA: 7.62/10.0*
Sainik School Kalikiri 2021
Higher Secondary *Marks: 406/500*
Sainik School Kalikiri 2019
Secondary *Marks: 416/500*

Skills

Languages: Java, Python, C, Matlab, HDL, MySQL, Scala

Tools: Git/GitHub, Shell, VS Code, IntelliJ IDEA, Eclipse, Jupyter, Atom

Artificial Intelligence:

- Machine Learning: Supervised Learning, Unsupervised Learning, Natural Language Processing.
- Deep Learning: CNNs, RNNs, LSTMs, Transformers
- Computer Vision: OpenCV
- Frameworks: Keras, TensorFlow, PyTorch

Frameworks and Other skills: Object-oriented programming, Arduino, Embedded Systems, MongoDB, Data Structures

Projects

Hospital Management System (HMS) | *MySQL, MongoDB, Streamlit, AWS RDS, AWS EC2, Apache Spark*

- Developed a Hospital Management System (HMS) to streamline healthcare facility operations, managing patient data and medical records efficiently.
- Implemented a dual-database system with MySQL and MongoDB, hosted on AWS RDS, ensuring robust data storage and retrieval capabilities.
- To uphold confidentiality standards for real-world hospital data, this project utilizes synthetic data to mimic the Hospital Management System's operations.
- Deployed on AWS EC2 for scalability and reliability, with Apache Spark for data processing tasks, enhancing performance and analytics capabilities.
- Designed an intuitive user interface with Streamlit, facilitating easy access for patients, doctors, and administrators.

Weather Monitoring System with ESP8266 | *IoT, ESP8266, Sensors, Mobile App, Web*

- Developed a compact weather monitoring solution using ESP8266 microcontroller and multiple sensors for real-time data collection.
- Created an IoT application for mobile devices to visualize sensor readings and a responsive webpage for remote access to weather data.
- Applied computer networking principles to establish seamless communication between the ESP8266 device, mobile app, and web interface.

Image Encryption and Decryption Service | *Python, OpenCV, AWS EC2, FastAPI*

- Implemented a secure Image Encryption and Decryption service integrating AES with user-selectable RSA or ECC for master key encryption.
- Utilized Python, OpenCV, and FastAPI to develop a robust solution capable of handling both color and grayscale images efficiently.
- Incorporated unique session identifiers using UUID for each encryption process to ensure secure decryption.
- Supported flexible file formats including JPG, PNG, and JPEG, enhancing usability for various image types.
- Deployed on AWS EC2 with Duck DNS for remote access, offering a secure and scalable solution for image encryption tasks.

Diabetes Disease Classification | *ML, DL*

- Developed a diabetes classification system, merging machine learning and deep learning techniques.
- Implemented an ANN model from scratch in Python and NumPy.
- Utilized a Kaggle dataset with predictor variables including pregnancies, BMI, insulin level, age, blood pressure, diabetes pedigree function, and skin thickness.
- Focused on understanding concepts like forward/backpropagation and activation functions.

COVID-19 Diagnosis in Chest X-ray Images | *SVM, CNN*

- Developed a machine learning model to expedite COVID-19 diagnosis through chest X-ray image analysis.
- Implemented Support Vector Machine (SVM) and Convolutional Neural Network (CNN) models for optimal accuracy.
- Conducted comprehensive evaluations of SVM and CNN models to assess training and testing accuracies.
- Deployed the model on Streamlit Cloud, providing a user-friendly web interface for global access.

Hack CPU and Sudoku Solver in Jack | *Logic Gates, 2D Arrays, Backtracking*

- Implemented Hack CPU with logic gates and Sudoku Solver using 2D arrays and backtracking in Jack, showcasing diverse applications of the language.
- Constructed essential components like ALU and 16-bit adder for the Hack CPU, while developing a Sudoku solver algorithm for efficient puzzle solving.
- Utilized Jack's capabilities for both CPU and Sudoku, compiled code into VM files, and tested functionality using the VM Emulator.

Awards and Certificates

Anokha Tech Fest - ML TUSSLE | *First Place* March,2023

∗ Won first place in the ML TUSSLE event at Anokha Tech Fest by achieving the high accuracy with ANN.

NVIDIA Deep Learning Institute Certificate *March, 2024*

∗ *Completed the Deep Learning course offered by Nvidia, gaining proficiency in deep learning concepts and applications.*

NVIDIA Deep Learning Institute Certificate *March, 2024*

∗ *This NVIDIA DLI Certificate has been awarded for the successful completion of Generative AI with Diffusion Models.*