CH Varun

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Education

B.Tech in Department of Computer and Communication Engineering   Aug 2021 – present
Amrita Vishwa Vidyapeetham, Chennai, Current Aggregate: 7.02 CGPA   Chennai, India

Skills

Languages: C | Python | Java | Java Scripts
Frame Works: My SQL | MangoDB | HTML | CSS | React Native | Flutter
Machine Learning: Data Science | GANs | CNNs | Computer Vision | Reinforcement Learning
Network Communication: Experience with TCP/IP | Network Sensors | Cisco Packet Tracer

Projects

Real-Time Control Optimization in Cyber-Physical Systems using Reinforcement Learning   Dec 2023 – Feb 2024
- Trained a robust RL model on 50+ diverse test cases within the CPS environment, enabling the agent to learn optimal control strategies in real-time.
- Deployed learned RL policies from software simulation to actual hardware, establishing a closed-loop learning and control system for seamless real-world application, ensuring a 90% transition success rate and strategy applicability.
- Resulted in a remarkable 80% efficiency improvement combined with traditional control methods, demonstrating the effectiveness of RL in optimizing CPS performance for real-world applications.

Sensor-Fusion based Elderly Fall Detection System with Enhanced Prediction and Monitoring   Sep 2023 – Jan 2024
- Revamped a Generative Adversarial Network (GAN) system to predict body joint values from a single sensor, slashing hardware requirements by 90%. This led to substantial cost savings and simplified the system's complexity.
- Implemented TCP/IP communication to enable wireless functionality for the BNO055 IMU sensor, enhancing user mobility and comfort by eliminating cable constraints while ensuring reliable data transmission.
- Managed a team of 3, strategically delegating tasks, providing supportive guidance, and fostering a collaborative and motivated environment. This ensured project success and team member growth.

AI-Powered Real-Time Plant Disease Detection and Prediction System   Mar 2022 – Jun 2022
- Curated and labeled a diverse dataset of 10,000+ plant disease images. This enriched training data enabled the model to accurately identify a wider spectrum of pathologies compared to previous approaches.
- Achieved 98% disease detection accuracy using CNNs and advanced deep learning methods, surpassing industry standards and revolutionizing diagnosis compared to traditional methods.
- Constructed a user-friendly Django web application for real-time disease detection, empowering over 500 farmers and professionals with instant identification for informed decisions and timely interventions.

Context-Aware Robot Path Prediction for Enhanced Agricultural Efficiency   Nov 2022 – Dec 2022
- Utilized computer vision techniques to extract key environmental features such as obstacles and terrain variations, incorporating them into a robust path prediction algorithm with an accuracy improvement of over 85%.
- Engineered a system capable of predicting robot paths with 92% accuracy, significantly improving field efficiency and autonomous operation capabilities.
- Led a two-person team to a top-three finish at Vit Agrithon hackathon, showcasing our project's agricultural impact. 70% of potential users found our solution valuable, emphasizing its real-world potential.

Work Experience

Government Internship   Jul 2022 – Aug 2022
Water and Land Management Training and Research Institute(WALAMTARI)
- Developed technology addressing a critical environmental challenge (water scarcity) through data-driven decision-making and resource optimization upto 90%.
- Employed sensor fusion techniques to combine data from the 10 sensors for comprehensive environmental monitoring. Leveraged GSM mobile communication for wireless data transmission from 10 sensors.
- Designed and deployed a user-friendly mobile app for farmers to monitor and manage water usage, which empowered 50+ farmers with real-time water usage optimization capabilities.

Certificates

- Soft Skills IBM Certification
- Introduction to Raspberrypi and Computer Vision in Python
- Machine Learnig and Data Science in Udemy

Awards

Smart India Hackaton(SIH)
- Spearheaded a team of 6, securing 2nd place in a Smart Street Light Management System competition with our groundbreaking idea for sustainable cites.

VIT Agrithon
- Scored 3rd at VIT Agrithon, collaborating with Nvidia & IIT Hyderabad, thanks to our team's successful development of an AI-powered algorithm.

Head of Inter-College-Competition Event
- Strategically led and coordinated a vibrant inter-college competition scene, overseeing 15+ unique events and inspiring participation and healthy competition among student communities.