HEMANTH KARNATI

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Education

Bachelor of Technology in Computer Science and Engineering | VIT-Vellore 2020-2024

- Involved in Undergraduate research and contributed to open-source Machine Learning projects.
- Made user-friendly apps, including one that helps farmers, showing I'm a go-getter and quick learner.

Technical Skills:

Programming languages: C++, Python, Java, C, JavaScript, and SQL
Full Stack: Skilled in HTML, CSS, React.js, Node.js, React Native, Django, Bootstrap 4, MySQL, and MongoDB.
Cloud & DevOps: Experienced with AWS Lab, Azure, Google Cloud, Firebase, Docker, and Kubernetes.
Data Science & Machine Learning: Well-versed in PyTorch, TensorFlow, ScikitLearn, Keras, Pandas, and Numpy.
Tools & Environments: Proficient in Linux, Git, VS Code, Jupyter, and Tableau

Hackathons Projects: (Check this out on Devpost)

WaffleHacks 2023: Image2Nutrients - Food Ingredient Recognition

- Developed within 36 hours, we finetuned a ViT-GPT 2 (200 million parameters) using a food images and ingredients dataset, integrating with GPT-4 API for nutrition insights.
- Rolled out a user-friendly interface using StreamLit, hosting the model on Hugging Face.

Github Projects: (Check these out on my GitHub)

React-Based Food Web App | Tools: React, HTML, CSS, JavaScript.

- Developed a dynamic platform for food exploration, using React for a responsive UI and JavaScript for advanced search functionalities, aiding in recipe exploration and dietary filtering.
- Leveraged HTML/CSS to design the layout, ensuring an engaging user experience.

React-Native Job Search Mobile App using Rapid API | Tools: React Native, Rapid API.

- Crafted a mobile job search platform with React Native, enhancing performance and user navigation.
- Seamlessly integrated Rapid API to fetch real-time job listings, providing users with relevant, location-based search options.

Text Summarization and Keyword Generation Web App | Tools Used: Python, Flask, SpaCy, NLTK, JavaScript

- Constructed a web tool with Flask to dynamically generate text summaries, utilizing SpaCy and NLTK for natural language processing.
- Enhanced user interactivity with JavaScript, offering precise keyword extraction for quick content insights.

Stock Market App | Tools Used: React, Chart.js, Bootstrap

- Built a stock visualization tool with React, ensuring real-time data updates by integrating with the Yahoo Finance API.
- Utilized Chart.js for graphical stock data representation, and Bootstrap for a responsive design, enhancing user experience.

Research Projects:

Advanced Multimodal AI Systems for Self-Driving Cars: Accepted to MMLS Chicago 2023 Poster Presentation

- Applying Self-Supervised Sparse diffusion with Audio input to improve the driving experience in bad weather, lighting, and new environments.

Sustainable Air Pollution Monitoring System using Machine Learning (SMOTE Techniques)

- A system designed to monitor air pollution using machine learning techniques, specifically utilizing SMOTE (Synthetic Minority Over-sampling Technique) to address class imbalance.
- The system collects air pollution data from various sensors and applies SMOTE for accurate prediction and monitoring.

AI-Enabled Plant Disease Detection and Remedies - Leveraging OpenAI API for Smart Agriculture

- Processed a 70k+ image crop disease dataset, utilized transfer learning and finetuned the mobilenet (5 million parameters) for disease recognition.
- Developed a streamlit web platform for the model, integrated with GPT-4 for farmer interactions and chatting about remedies, and embedded a speech-to-text function for enhanced user communication.

Certifications

- Microsoft Certified: Security, Compliance, and Identity Fundamentals
- Meta Certification: React Basics
- IBM Developer Skills Network: IBM Full Stack Software Developer Professional Certificate
- Udemy: The Complete 2023 Web Development Bootcamp
- University of Michigan: Applied Machine Learning in Python

Research / Publications:

- IoT-Based Air Quality Monitoring System with Machine Learning for Accurate and Real-time Data Analysis
- AI-Enabled Plant Disease Detection and Remedies: Leveraging OpenAI API for Smart Agriculture (In Draft)
- Comparative Analysis and Optimization of Federated Learning Algorithms in Edge Computing (In Draft)