Kothapalli Likhit Sai

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Education

University of Colorado, Boulder — Colorado, USA
Professional Masters in Computer Science — *Aug 2024 – Present*

National Institute of Technology Puducherry — Puducherry, India
Bachelor of Technology in Electrical and Electronics Engineering (GPA : 8.83/10) — *November 2020 – April 2024*

Experience

Research Intern (Defence Research Development Organization) — May 2023 -July 2023
Institute of Nuclear Medicine Allied Sciences — *Delhi, India*

- Developed an automated the video capturing process for an in-house developed imaging device used for specimen analysis.
- Integrated hardware and software by establishing serial connectivity with an Arduino board, utilizing Python libraries such as PyFirmata and OpenCV for efficient control and data processing.
- Effectively automated the video capture procedure, allowing researchers to carry out scans, keep data consistent, and eventually improve the quality of their analysis.

Research Intern (Defence Research Development Organization) — Dec 2022 - Feb 2023
Institute of Nuclear Medicine Allied Sciences — *Delhi, India*

- Worked on various image processing techniques for enhancing and analyzing medical images, contributing to improved diagnostics.
- Collaborated on the development of an AI/Deep Learning model for detecting COVID-19 from X-ray images, leveraging image processing and classification techniques using Convolution Neural Network, achieving an accuracy of 71%.
- Evaluated the performance of various pre-trained models using transfer learning in detecting COVID-19 from X-ray images, employing transfer learning techniques. Focused on fine-tuning networks (CNNs), optimizing hyperparameters, and analyzing model accuracy through metrics.

Projects

BART Text Summarizer — NLP, LLM

- Developed a text summarization model using the BART-base transformer, fine-tuned with custom datasets.
- Utilized the Hugging Face transformers library, employing advanced training strategies such as weight decay, warmup steps, and evaluation after each epoch to optimize performance.

Chatbot Development with Dialogflow — FastAPI, SQL

- Developed a chatbot using Google's Dialogflow integrated with a SQL database, implemented a FastAPI backend for functionalities such as adding, removing, and searching items in the database, through chat conversation.
- Leveraged Dialogflow's natural language processing for intent recognition and optimized backend performance through efficient query handling and response management.

Cold Email Generator using LLaMA 3.1 — LLM, ChromaDB

- Developed a cold email generator utilizing Facebook's LLM LLaMA 3.1, with job descriptions scraped through WebPageLoader for personalized email content.
- Integrated the generator with ChromaDB, a vector database, to efficiently link relevant project resources in the generated emails, enhancing the outreach process with tailored information.

Model Predictive Current Controller (MPC) for Inverter Grid-Connected Systems — C++, MATLAB

- Collaborated with a team to develop code for a Model Predictive Current Controller (MPC) implemented on the TMS320F28379D microcontroller board for real-time control in an inverter grid-connected system.
- Utilized MPC to predict future current values and optimize control actions, enabling dynamic response to grid conditions, constraint handling, and overall performance optimization for efficient energy management.

CNN Model Development for Tea Leaves Diseases Identification — Deep Learning

- Developed a Convolutional Neural Network (CNN) model to identify diseases in tea leaves, achieving an accuracy of 93% by experimenting with various activation functions (e.g. ReLU, Sigmoid, Softmax) and utilizing layer concatenation for improved results.
- Conducted thorough evaluations to assess the model's performance, optimizing hyperparameters for enhanced prediction reliability and robustness.

Zer01coded - Comprehensive Student Resource Website — Web Developement

- Led a team in developing a comprehensive website that provides students with access to information about clubs and coding resources, employing HTML, CSS, JavaScript, React JS for front-end development.
- Implemented a responsive design and user-friendly interface, utilizing Firebase for backend services to facilitate user authentication and data management.

Technical Skills and Courses

Programming	:	Python, C++, SQL, HTML, CSS, ReactJS.
Mathematics	:	Probability, Calculus, Statistics, Algebra, Matrices.
Soft Skills	:	Leadership, Event Management, Problem solving, Teamwork.
Interests	:	Machine Learning, Deep Learning, Neural Networks, Image analysis, Natural Language Processing, LLMs.

Positions of Responsibilities

Zer01coded	Co-Founder, Web Head
Leap	Tutor/Teaching Assistant
Le'Ciel Committee	Core Committee Member
Regalia	Event Organiser