Vinu Sebastian Thomas

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Areas of Interest

Machine Learning, Data Structures and Algorithms, Deep Learning

Education

Indian Institute of Technology, Roorkee, B.Tech in Civil Engineering — Aug 2019 – May 2023

- GPA: 7.4/10.0
- **Coursework:** Structural Engineering, Geotechnical Engineering, Data Mining and Business Intelligence

Experience

Data Scientist (SDE-2), Calance – Guragon, Haryana — June 2005 – Aug 2007

- Designed and developed data-driven solutions for clinical trial data, focusing on patient risk assessment to enhance decision-making.
- Leveraged AWS cloud services like AWS Comprehend, Kendra and Bedrock along with Langchain to build POCs for Generative AI applications .
- Built interactive dashboards and visualizations using Plotly,Streamlit and Python to communicate insights effectively to stakeholders.
- Implemented generative AI and Retrieval-Augmented Generation (RAG) applications to streamline workflows and provide innovative solutions for complex data challenges.
- Applied advanced statistical and machine learning techniques to solve diverse analytical problems and extract actionable insights from large datasets.

Projects

Air Pollution Framework — IIT Roorkee

- Developed a framework for mapping and visualizing dynamic real-time air pollution data.
- Used Python libraries like folium, geopandas, matplotlib and performed IDW interpolation, time-series interpolation of the whole area by dividing it into several hexagons.
- Created a web based framework for visualizing it in real time.

Image colorization using conditional GANs — Vision and Language Group

- Created an end-to-end deep learning pipeline that can automate the task of image colorization by taking a black and white image as input and produces a colorized image as output.
- Used conditional GANs with U-net architecture and trained the model using the coco image dataset.

Rope Climbing Robot — Models and Robotics Section

- Worked on the mechanical aspect of building the robot which included the grip between robot and the rope and smoothness of the movement of robot.
- Used lead screw connected to a motor for the gripping and sliding rollers for the upward and downward movement.

Technologies

Languages: C++, Python

Technologies: AWS, Langchain, RAG, LLM Fine-tuning, Streamlit, Plotly