Vedansh Maheshwari

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EDUCATION

UNIVERSITY OF FLORIDA — GAINESVILLE, FL, USA
Master's in Computer Science [GPA : 3.85 / 4.00] — August 2023 – December 2024
- Relevant coursework : NLP, Mathematics for Intelligent Systems, Advanced Data Science, Data Engineering

UNIVERSITY OF FLORIDA — GAINESVILLE, FL, USA
CISE Senior Certificate Program [GPA : 4.00 / 4.00] — January 2023 – May 2023
- Distinguished coursework: Data Science, Advanced Data Structures, Human Computer Interaction, Computer Networks

SKILLS

Programming Languages and Tools: Python (Numpy, Pandas, Matplotlib, Scikit-Learn, NLTK), Java, JavaScript, HTML, CSS, SQL, TensorFlow, Keras, PyTorch, MLFlow, Pony, PostgreSQL, MongoDB, Git / GitHub, Grafana, Excel, Tableau.
Data and Machine Learning Skills: Data Wrangling, Data Visualization, Deep Learning, Predictive Modeling, Computer Vision, Natural Language Processing (NLP), Large Language Models (LLMs), Prompt Engineering, Statistics, Data Analysis, Research.
Software Development and Engineering: Data Structures, Algorithms, Object-Oriented Programming (OOP), Agile Development, React, Express, Full Stack Development, Software Design Principles.
Cloud, Big Data, and DevOps: Google Cloud Platform (GCP),Data Engineering, Astronomer, Apache Airflow, DVC, MLFlow, Data Engineering, Big Data Processing, Monitoring and Debugging (Grafana, Dagsub).
Languages: English, Hindi

TECHNICAL EXPERIENCE

TRUSTWORTHY ENGINEERED AUTONOMY LAB @ UNIVERSITY OF FLORIDA. — GAINESVILLE, FL, USA
MACHINE LEARNING RESEARCH ASSISTANT — August 2024 – Present
- Developed pipelines to collect and preprocess data, train Variational Autoencoders (VAEs) to transform image data into 8-dimensional latent vectors, and reconstruct images.
- Trained deep learning models, including MLPs, to predict physical attributes (positions, angles) from latent vectors, enhancing understanding of image representations.
- Built LSTM models to forecast future latent states and physical states, enabling precise predictive modeling of evolving real-world systems.

AFFEKTA LLC. — HOUSTON, TX, USA
Software Developer/ML Engineer Intern — May 2024 – August 2024
- Developed and deployed a web application using React, Express.js, and Azure, boosting user engagement on Affekta's e-learning platform, Marvin, by 28% through gamification with skill trees and story-driven assignments using LLMs via OpenAI API.
- Implemented PostgreSQL schema and crafted APIs for CRUD operations, dynamically syncing data with the React frontend while ensuring seamless data flow and real-time AI-driven interactions.
- Fine-tuned ML models for emotion detection, improving efficacy by 6%, and integrated these models into the application, enhancing data collection in real-time.

UNIVERSITY OF FLORIDA. — GAINESVILLE, FL, USA
Graduate Teaching Assistant, Software Engineering Enterprise — February 2024 – May 2024
- Spearheaded the grading process for assignments of 260 students over three semesters, leveraging Quartile-based benchmarks to drive fair grading standards and enhance student performance consistency by 10%.
- Revamped instructional materials, crafted assignment instructions, and FAQs, reducing student inquiries by 30%, and boosted course engagement and comprehension.

TO THE NEW PVT. LTD. — NOIDA, UP, INDIA
Data Science Intern — June 2022 – August 2022
- Employed data science libraries including Scikit-learn, Numpy, Pandas, NLTK, and TensorFlow to propel key projects, notably enhancing a sentiment analysis initiative through expert data scraping and analysis techniques.
- Collaborated in a team of 7 interns, ensuring the seamless flow of information and collaboration.

PROJECTS & PUBLICATIONS

NormanPD Incident Insight Visualizer(link) — April 2024 – July 2024
- Built a web platform that allows users to upload Norman PD daily incident reports in CSV, PDF, or URL formats, processes and augments data into a total of 9 fields, and visualizes the data.
- Implemented 7 visualizations analyzing trends, peak times, and high-incident areas. Users can download the augmented data in CSV format, including fields like Weather, Location Rank, and Side of Town.

Fine-tune Weak LLMs for Accurate Extraction of SDOH from EHR (link) — January 2024 – April 2024
- Fine-tuned a GPT-2 model to extract SDoH mentions from clinical records, achieving 85.56% accuracy for SDoH and 91.11% for adverse label detection, outperforming traditional approaches.
- Validated the model's superior performance on the SDoH dataset, outperforming GPT-3.5, GPT-4, and Gemma by 1.67%for SDoH label, and by 8.33% for Adverse label over the best of the state-of-the-art LLMs.

Design of Efficient Classification Model for Paramecium and Hydra (link) — June 2023 – August 2023
- Leveraged GANs to balance a Kaggle microorganism dataset, improving accuracy by 3.8%, and utilized deep learning techniques where the Inception model outperformed with a leading 96.49% accuracy.
- **Publication**: Showcased innovative results at the 3rd International Conference on 'Recent Advances in Material Science and Computational Techniques', 2023 and published in the "Proceedings of the Indian National Science Academy (PINSA)".