Swetha Malaivaiyavur Elayavalli

4361 Dominion Forest Circle, Glen Allen, VA 23060, USA

Education

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- **University of Texas at Dallas** *GPA: 3.64 / 4.00* — Richardson, Dallas
  Master of Science - Computer Science — Dec2024
- **SRM Institute of Science and Technology** *GPA: 9.5 / 10.00* — Chennai, India
  Bachelor of Technology - Computer Science and Engineering — June 2022

Skills Summary

- **Languages**: Python, R, C/C++, MySQL, HTML, CSS, JavaScript, PHP, Bootstrap, PySpark, Scala, PostgreSQL.
- **Libraries**: SkLearn, Pandas, Matplotlib, SciPy, TensorFlow, NLTK, Spacy, TKinter, Tensorflow, Keras, PyTorch, HuggingFace.
- **Frameworks**: React.js, Node.js, Flask, Spark, Databricks, Microsoft Azure, BigQuery, MongoDB, MySQL, PostgreSQL, Hadoop.
- **Tools**: Tableau, Power BI, SSRS, Looker, Visual Studio, Anaconda, Github, Figma, R studio, MS Office.

Work Experience

- **Prompt Engineer - Community Dreams Foundation** , Remote — **Feb 2025 - Current**
  - **Prompt Engineering & LLM Integration**: Created and tuned prompts for ChatGPT/GPT-4 using few-shot learning, system message design, and prompt chaining to improve accuracy across summarizing, Q&A, and classifying tasks. LangChain for modular integration.
  - **Performance Tuning:**: Evaluated prompt outputs using token usage, semantic similarity, and human feedback; applied RAG and context filtering to reduce hallucinations and boost relevance across use cases.
  - **Tooling & Research**: Built prompt workflows using HuggingFace, OpenAI API, and SpaCy; explored trends in zero-shot prompting, multi-turn interactions, and contributed internal docs for team reuse.
- **Research Assistant -AI/ML4SE Lab at UTD**, Richardson, TX — **May 2024 - Dec 2024**
  - **Research**: Conducting research under Dr. Tien Nguyen to create ML and AI solutions for Software Engineering processes, resulting in multiple conference papers in topics of Vulnerability Detection, Code testing automation script verification using LLMs.
  - **Prompt Engineering**: Extract data from sources like Github, papers, and Kaggle, and curate a custom dataset, use prompt engineering and Langchain to achieve result with most accuracy and efficiency.
  - **MultiModal AI**: Worked with different AI models and explored multimodal capabilities to enhance performance by providing contextual images of source code and also savings costs by reducing tokens.
- **Software Developer Intern - DCM Datalabs**, Chennai, TN, India **[Project Link]** — **Apr 2021 - Apr 2022**
  - **Designing**: Designed wireframes in Figma, applying UX strategies such as A/B testing and user flow analysis, which led to a user-friendly interface and increased user engagement by 25%.
  - **Developing**: Led frontend development of a web application for identifying faults in industrial pipelines, utilizing React.js to optimize code and reduce loading times by 30%, enhancing user satisfaction by 20%.
  - **Team Management**: Managed cross-functional teams of backend with SQL stored procedures, API, and machine learning groups, enhancing communication and project efficiency by 40% through agile methodologies and regular sync-ups.

Academic Experience

- **Real-time Analysis of Reddit Stream Data** — May 2024
  - Developed an ETL pipeline leveraging Kafka and Elasticsearch to create consumer streams that gathered real-time data from the Reddit API (PRAW), enabling sentiment analysis and text summarization on selected topics.
  - Sentiment analysis was done using SparkStream, MapReduce, NLP and ML techniques. Text summarization was done using ChatGPT API connected directly to the stream.
  - Designed Power BI dashboard to track sentiments and graphs for better visualization of the topic chosen.
  Skills Used: Python, NLP, Kafka, PySpark, ML, Big Data Analysis, Generative AI, Large Language Models, LangChain, AWS.
- **Automatic Chatbot using Webscraped Data** — February 2024
  - Developed a webcrawler and webscraper to gather data for gathering data based on any topic provided as input.
  - Used Natural Language Processing methods such as sentiment analysis, cosine similarity, tf-idf and parsing to generate relevant responses from the created dataset resulting in an 85% efficient and interactive chatbot using Tkinter GUI.
  Skills Used: Python, NLP, Generative AI, Large Language Models, BeautifulSoup, Webcrawling, Webscraping, Deep Learning.
- **Movie Recommendation System Using Collaborative Filtering from Netflix Database** — November 2023
  - Developed python program to recommend movies to users based on the given Netflix training and testing datasets.It uses a weighted average of ratings from similar users in the training data.The performance was extremely accurate with an RMSE score of 1.1796 and MAE score of 1.0419
  Skills Used: Python, Machine Learning, Unsupervised Learning, Data Visualization
- **Novel Ensembled Boosting Model for Fall Prediction** — May 2022
  - Developed Machine learning algorithms and Convolutional Neural Network that detects and predict it a fall based on gyroscope, elevation and acceleration data from an Inertial Measurement Unit.
  - Detection component produced promising accuracy with F1 score of 95%, and prediction component performed well with an accuracy of 85%. This project was done as part of Major Project during undergraduate education papers were published along with it.
  Skills Used: Python, Convolutional Neural Networks, Machine Learning, Journal Paper Writing

Publications and Leadership

- **Development of Novel Ensembled Boosting Model (EBM) for Fall Detection**: Presented at International Conference on Advances in Parallel Computing Technologies and Applications-2022 and published in IOS Press. Link to publication
- **Student Assistant at Student Union@UTD**: Role involved Customer service, providing guidance to potential and new students, building maintanence, etc. Promoted to manager in record short time (4 weeks).
- **President of Vaalmeengal Tamil Sangam**: Conducted leisure events and mentored new international students and provided resources.