

KARTHIK METTU

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EDUCATION

University of Houston

Master of Science in Statistics and Data Science | GPA: 3.67

Houston, TX
Expected Dec 2024

EXPERIENCE

Data Science Instructional Assistant

Aug 2023 – Current

University of Houston Law Center – Information Technology

- Enhanced the management and optimization of database systems and server infrastructure, achieving a 5% improvement in data integrity, security, and efficiency.
- Provided technical support for data science software and tools, including installation, troubleshooting, and usage guidance, and supported faculty in research activities such as data collection, preprocessing, and analysis.

Data Science Research Assistant

May 2024 – Current

University of Houston – Mass Spectrometry Laboratory

- Currently utilizing PyMol, Chimera, and AlphaFold 2 to visualize and modify protein structures from the AlphaFold Database, followed by downloading and preprocessing data using Python.
- Assisting in visualizing protein interactions to enhance research outcomes and improve understanding of protein structures, while collaborating with faculty to ensure accuracy and relevance.

GenAI Engineer Volunteer

May 2024 – Current

American Red Cross

- Updating Advanced Life Support Manual images using GenAI and the RAG Framework to match the profession of the reader, enhancing the relevance and effectiveness of training materials.
- Developing and deploying an offline AI/GenAI model using Mistral Technology to be installed on laptops and mobiles, providing critical support during disasters.

PROJECTS

Advanced Deep Learning Model for Early Lung Cancer Detection Through CT Scan Analysis

2024

- Crafted and executed a solution using PyTorch for the early detection of lung cancer via CT scans, utilizing both segmentation and classification models to accurately differentiate malignant from benign nodules.
- Utilized advanced data preprocessing techniques on over 100GB of CT scan data for efficient training of models, significantly improving model accuracy and performance, demonstrating deep learning proficiency and problem-solving skills.

Advanced Customer Churn Prediction in Energy Sector

2024

- Developed a predictive model for customer electricity plan churn, blending econometrics with machine learning, including logistic regression and Random Forest, complemented by sentiment analysis through NLP for real-time mood and feedback assessment.
- Enhanced model precision by incorporating demographic and economic data at the zip code level and rigorously validated with diverse data sets to refine predictions and guide strategic initiatives.

Comparative analysis of LSTM and Transformer models for Emotion detection using NLP

2024

- Conducted a comparative analysis of LSTM and Transformer models for emotion recognition in textual data using a dataset of over 839,000 annotated entries.
- Contributed to interaction and by analyzing model effectiveness in recognizing nuanced emotions, enhancing human-computer interaction, and supporting mental health assessments.

Multivariate Analysis of Global Suicide Rates data from 1990 to 2022

2024

- Conducted multivariate analysis of global suicide rates from 1990 to 2022, exploring correlations between gender, age, economic indicators, and suicide behavior.
- Utilized advanced statistical techniques to investigate patterns such as Simpson's paradox, seasonal variations, and correlations with economic status, contributing insights for suicide prevention and public health policy development.

Visualization of Microplastic Pollution and Health Impacts Using Tableau

2024

- Utilized Tableau to map global microplastic concentrations, correlating them with various key health indicators.

SKILLS AND CERTIFICATIONS

Programming

Java, R, Python, C++, C, MATLAB, SQL, OOPS, Data Structures and Algorithms, Competitive Programming

Data Science Libraries

PyTorch, PySpark, TensorFlow, Keras, OpenCV, Sklearn, Pandas, Numpy, NLTK, Seaborn, Matplotlib, Scikit-learn, Statsmodels, SciPy

Visualization Tools

Tableau, Power BI

Big Data Tools

SQL, Apache Spark, AWS, GCP BigQuery, GCP Vertex AI

Certifications

AWS Cloud Foundations, Computer Networks and Internet Protocol, Cloud Computing by NPTEL

Soft Skills

Problem Solving, Collaborative, Self-Motivated, Effective Communicator, Team Player