Tejas Sanjay Kakad

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Professional Profile:

As a Graduate Student in Computer Science at Texas A&M University, I specialize in data-driven research and analysis. With a robust foundation in Python, data analysis, and machine learning, I aim to leverage my skills in statistical modeling and experimental framework design to contribute to data science initiatives. I am keen on roles that require innovative data solutions and robust analysis systems.

Education:

Texas A&M University – College Station   *January 2024 – May 2024*

- **Major**: *Master of Science, Computer Science*

Texas A&M University – College Station   *August 2018 – December 2022*

- **Major**: *Bachelor of Science, Computer Science* | **Minor**: *Cybersecurity, Mathematics*

Certifications:

- **PCEP** – Certified Entry-Level Python Programmer   *April 2023*
- **Tableau** Desktop Specialist   *August 2024*

Professional Experience:

Urban Resilience.AI Lab – College Station   *August 2022 – December 2022*
Data Science Researcher –

- Developed advanced data collection frameworks in Python to systematically capture and analyze user-level recovery patterns in disaster recovery studies, increasing the resolution and accuracy of behavioral data analysis.
- Applied machine learning techniques and statistical models (including regression analysis and cluster analysis) to dissect large datasets, identifying patterns and trends to inform equitable recovery strategies.
- Utilized Python libraries such as Scikit-Learn, Pandas, and NumPy to perform exploratory data analysis and visualize disparate data sources, deriving actionable insights for urban resilience enhancement.
- Co-authored a journal publication focusing on the statistical analysis of homogeneity and entropy in post-disaster recovery, contributing to academic discourse on urban resilience.

Urban Resilience.AI Lab – College Station   *January 2024 – May 2024*
Data Science Researcher –

- Collaborated with a doctoral candidate to spearhead an in-depth analysis of traffic disruptions caused by Hurricane Harvey, leveraging Python in a *Jupyter Notebook* setting to manage and analyze sophisticated traffic datasets.
- Utilized Pandas for robust data structuring and manipulation, and NumPy for complex numerical computations to analyze pre- and post-disaster traffic flows across Houston.
- Integrated *NetworkX* to model and analyze the network of city junctions, enabling a detailed examination of traffic patterns and connectivity disruptions.
- Applied *GeoPandas* for advanced geospatial analysis, correlating junction-to-junction travel times with property damage assessments within a one-mile radius, providing a spatial dimension to the traffic data.
- Developed predictive models that combined temporal and spatial data analyses to yield comprehensive insights into the infrastructural impact of natural disasters, contributing significantly to urban planning and disaster resilience strategies.

Major Projects:

- **Speed Limit Sign Detector**: Designed and implemented a computer vision system using Support Vector Machines (SVM) and Convolutional Neural Networks (CNN) in Python to detect speed limit signs from real-time video feeds. The project included data pre-processing, model training with a custom dataset, and integration with ROS2 for vehicle control, significantly enhancing the autonomous vehicle's navigation systems.
- **Bayesian Personalized Ranking model:** Developed a sophisticated machine learning model using Bayesian inference techniques to analyze and predict user preferences with high accuracy. Employed Python's Jupyter Notebook for iterative testing and tuning, utilizing libraries such as Pandas and NumPy for data manipulation and Matplotlib for visualization. The model successfully improved the personalization of movie recommendations by learning from implicit user feedback and achieved significant improvement in AUC performance over multiple epochs.

Skills:

Python	*Scikit-Learn*	*Git/GitHub*
C/C++	*Linux/Unix*	*TensorFlow*
JavaScript	*Tableau*	*MySQL*