Ahmedabad University

CSE523 : Machine Learning

Section No.: 1, Group No.: 5

"Identifying hard stop & momentary stop detection"

Weekly Report-2

Submitted to**:** *Prof.* Mehul Raval

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Weekly Report: Week 2

Summary:

In Week 2, our team focused on finalizing the approach for stop detection in trajectory data analysis. We delved into refining the methodology based on the insights gathered from the research paper and internal discussions.

Finalization of Approach:

1. **Approach Refinement**:
   - Through in-depth discussions and analysis, we finalized the approach of integrating the Mobility Context Cube (MCC) model with a Support Vector Machine (SVM) classifier for accurate stop detection.
   - The refined approach aims to leverage dynamic spatiotemporal features surrounding stop points to enhance the accuracy of stop identification.

Finalized Features:

1. **Key Features Selection**:
   - The team concluded on the key features essential for stop detection, including POI types, road network characteristics, temporal attributes, and environmental contexts projected into the MCC.
   - These features were selected based on their significance in capturing the nuances of stop behaviors in trajectory data.

Insights Gained:

1. **Enhanced Accuracy**:
   - Understanding the importance of incorporating diverse features to improve the precision and recall of stop detection algorithms.
   - Recognizing the impact of dynamic spatiotemporal features on the performance of the SVM classifier in identifying stop points accurately.

Next Steps:

1. **Dataset Acquisition**:
   - Initiate the process of sourcing relevant trajectory datasets that align with the finalized features and the requirements of the SVM classifier.
   - Ensure the datasets encompass a wide range of spatiotemporal contexts to facilitate comprehensive model training.

2. **Feature Engineering**:
   - Begin the feature engineering process to preprocess and transform the selected features for compatibility with the MCC model and SVM classifier.
   - Explore techniques to enhance the discriminatory power of the features for improved stop detection performance.

References to Credible Research Papers:

1. Gong L. et al. (Year). Title of the Paper. Journal/Conference.

2. Author, A., Author, B. (Year). Title of the Paper. Journal/Conference.

This Week 2 report highlights the finalization of the approach and key features for stop detection, providing a solid foundation for the subsequent stages of dataset acquisition and feature engineering. The insights gained from refining the methodology will guide our team towards developing a robust stop detection model.

Github Repository Link:

Hard-Stop-and-Momentary-Stop-Detection-System