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Master / Diploma / Student Thesis

Topic: Exploring Advancements and Trends: A Comprehensive Study on Future Directions in Deep Learning-Based Traffic Prediction

Description:

The rapid advancements in technology and access to big datasets have boosted progress in predicting traffic using advanced learning-based models. Traffic prediction is crucial as it serves as the backbone for intelligent transportation systems (ITS), playing a pivotal role in enhancing traffic management, reducing congestion, and improving road safety. In this context, deep learning provides sophisticated models capable of handling complex and large traffic data, enabling more accurate and reliable predictions

This thesis aims to explore the latest advancements and trends in this area, studying new technologies and methods, and evaluating their practicality and effectiveness. More precisely, the research seeks to identify current knowledge gaps, understand how various deep learning models can adapt to traffic prediction tasks, and explore future scopes.

Objectives and Research Questions:

The general objective is to answer the following research questions through this project work-

  I.   What are the latest trends in deep learning for traffic prediction?
 II.   How do current state-of-the-art methods perform in traffic prediction?
III.   Where are the knowledge gaps and future opportunities using deep learning for traffic forecasting?

Requirements:

 - Basic Proficient in Python and C++, with a good understanding of frameworks such as PyTorch and TensorFlow.
 - Familiarity with fundamental concepts of machine learning, with a particular focus on neural networks.

Language: English

Supervisor (s): Prof. Dr. Meng Wang, MSc. Jyotirmaya Ijaradar

Contact and Application: Interested students are encouraged to forward their CV and both past and current academic transcripts to MSc. Jyotirmaya Ijaradar at jyotirmaya.ijaradar@tu-dresden.de. For further details about the chair, please visit: https://tu-dresden.de/bu/verkehr/vis/vpa.