Traffic Prediction for Intelligent Transportation System using Deep Learning

Bergi Veeresha Gowda[1], Asif Ali[2], D Sreepada Reddy[3], Lokesh K[4], K Siddartha[5],
Assistant Professor, Department of Computer Science and Engineering[1]
Students, Department of Computer Science and Engineering[2,3,4,5]
Rao Bahadur Y Mahabaleshwarappa Engineering College, Ballari, Karnataka, India

Abstract: *The most important challenge to sustainable mobility is persistent congestions of differing strength and duration in the dense transport networks. The standard Adaptive Traffic Signal Control cannot properly address this kind of congestion. Deep learning-based mechanisms have proved their significance to anticipate in adjective outcomes to improve the decision making on the predictions of traffic length. The deep learning models have long been used in many application domains which needed the identification and prioritization of adverse factors for a simplifying human life. Several methods are being popularly used to handle real time problems occurring from traffic congestion. This study demonstrates the capability of DL models to overcome the traffic congestion by simply allowing the vehicles through a signal depending on the length of vehicles. Our proposed method integrates a numeral of approach, intended to advance the cooperativeness of the explore operation. In this work, we implement the application to detect the number of vehicles in the images from the user and gives vehicles counts. To detect the vehicles count here we are using the YOLO pretrained weights.*

Keywords: Traffic, YOLO, Deep Learning, CNN (Convolution neural network)

REFERENCES

[1]. Urban Traffic Prediction Based on Graph Convolutional Networks and Multitask Learning" by He et al. (2021).

[2]. Mehul Mahrishi and Sudha Morwal. Index point detection and semantic indexing of videos - a comparative review. Advances in Intelligent Systems and Computing, Springer, 2020

[3]. C. Zhang, P. Patras, and H. Haddadi. Deep learning in mobile and wireless networking: A survey. IEEE Communications Surveys Tutorials, 21(3):2224–2287, third quarter 2019

[4]. A Deep Learning Framework for Traffic Forecasting Based on Graph Convolutional Networks" by Yu et al. (2019)

[5]. Deep Learning for Traffic Prediction and Customized Route Planning in Intelligent Transportation Systems" by Li et al. (2018)

[6]. Short-term Traffic Flow Forecasting Using Deep Residual Networks" by Xie et al. (2018)

[7]. Traffic Flow Prediction with Spatial-Temporal Correlation in Big Data" by Ma et al. (2017)

[8]. Deep Spatio-Temporal Residual Networks for Citywide Crowd Flows Prediction" by Zhang et al. (2017)

[9]. Traffic Flow Prediction with Big Data: A Deep Learning Approach" by Lv et al. (2015)

[10]. Rutger Claes, Tom Holvoet, and Danny Weyns. A decentralized approach for anticipatory vehicle routing using delegate multiagent systems. IEEE Transactions on Intelligent Transportation Systems, 12(2):364–373, 2011