

# Traffic Perdition for Intelligent Transport System by Using Deep Learning

Bandla Pavankumar<sup>1</sup>, Duvuru Praveen<sup>2</sup>, Thatha Arjun<sup>3</sup>  
Mrs. S. Vallabhy<sup>4</sup>

Students, Department of Civil Engineering<sup>1,2,3</sup>

Guide, Department of Civil Engineering<sup>4</sup>

Prathyusha Engineering College, Thiruvallur, India

**Abstract:** *This project aims to develop an intelligent transport system for predicting traffic flow using deep learning algorithms. Traffic prediction is a challenging task due to the complex and dynamic nature of traffic patterns. However, deep learning techniques have shown promising results in modeling complex data and making accurate predictions. In this project, we propose a deep learning-based approach for predicting traffic flow by processing real-time data from various sources, such as traffic cameras and sensors. Our approach utilizes a convolutional neural network (CNN) for feature extraction and a long short-term memory (LSTM) network for sequence modeling. We evaluate our model on a real-world traffic dataset and achieve significant improvements in prediction accuracy compared to traditional methods. The proposed system can provide accurate traffic predictions that can be used for optimizing traffic management and improving travel time for commuters. 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

## REFERENCES

- [1] 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.
- [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] Chun-Hsin Wu, Jan-Ming Ho, and D. T. Lee. Travel-time prediction with support vector regression. *IEEE Transactions on Intelligent Transportation Systems*, 5(4):276–281, Dec 2004.
- [5] Zhang, Y., Ma, Y., & Gao, Y. (2019). Urban traffic flow prediction using deep learning: A survey. *IEEE Transactions on Intelligent Transportation Systems*, 20(3), 913-933.
- [6] Lv, Y., Duan, Y., Kang, W., Kang, X., & Zhang, Y. (2015). Traffic flow prediction with big data: A deep learning approach. *IEEE Transactions on Intelligent Transportation Systems*, 16(2), 865-873.
- [7] Ma, Y., Zhang, Y., Gao, Y., & Chen, L. (2020). Deep learning for traffic prediction: A review and future directions. *Transportation Research Part C: Emerging Technologies*, 110, 473-491.
- [8] Zhao, X., Zhang, H., & Cheng, J. (2017). Traffic flow prediction with spatial-temporal correlation using convolutional neural network. *Procedia Computer Science*, 122, 999-1004.
- [9] Zhang, H., Liu, J., Li, X., & Zhang, Y. (2021). Traffic prediction using deep learning: A comprehensive review. *Transportation Research Part C: Emerging Technologies*, 125, 103151.
- [10] Guo, Y., Liu, H., Li, Y., & Hu, X. (2019). Traffic flow prediction using a convolutional neural network with a spatio-temporal attention mechanism. *Transportation Research Part C: Emerging Technologies*, 106, 345-365.

- [11]Yang, W., Li, X., Liu, G., Zhang, Y., & Li, J. (2020). Traffic flow prediction with spatial-temporal graph convolutional network. *Transportation Research Part C: Emerging Technologies*, 113, 420-436.
- [12]Cui, Z., Wang, Y., & Ma, L. (2019). A novel hybrid deep learning model for traffic flow prediction. *IEEE Transactions on Intelligent Transportation Systems*, 20(11), 4005-4017.
- [13]Li, Y., Chen, J., Zhang, Y., & Zhang, H. (2020). Urban traffic prediction using deep learning methods with multi-source data. *IEEE Access*, 8, 76463-76472.