



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Special Issue 1, April 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.118

 9940 572 462

 6381 907 438

 ijirset@gmail.com

 www.ijirset.com

International Journal of Innovative Research in Science, Engineering and Technology
An ISO 3297: 2007 Certified Organization *Volume 11, Special Issue 1, April 2022*
9th National Conference on Frontiers in Communication and Signal Processing Systems (NCFCSPS '22)
28th -29th April 2022

Organized by

Department of ECE, Adhiyamaan College of Engineering, Hosur, Tamilnadu, India

Metro Passenger Flow Prediction Via Probabilistic Neural Network

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ABSTRACT: This Project proposes a railroad soul Flow Prediction Model Exploitation Probabilistic Neural Network. railroad soul flow prediction plays a necessary role in railroad operation system. because of the characteristics of railroad operation system, the station operation state is hard to be delineate by the soul flow at one station. Thus, a singular deep learning approach specifically, Probabilistic Neural Network (PNN) is presented to predict the incoming and outgoing soul flow to reinforce divinatory impact. Moreover, the PNN extracts abstraction and temporal choices to achieve node-level prediction. This project is implemented exploitation MATLAB simulation package.

KEYWORDS: railway system rider, Flow prediction, PNN, MATLAB, Node level prediction.

I.INTRODUCTION

In the past decades, rider flow prediction has been a stock in railway system operation system, and lots of results were obtained. In railway system operation system, system management like train operation set up is developed by history flow information and foreseen rider flow information. Thus, the flow prediction model that gives a strong and correct result plays an important role within the railway system operation system. though some improved strategies ar applied to get higher performance, the results ar restricted in observe thanks to the nonlinear traffic information. so as to unravel the matter mentioned higher than, varied deep learning approaches ar applied in prediction rider flow to handle non-linear issues.

II.RELATED WORK

Metro rider Flow Prediction Model Mistreatment Attention-Based Neural Network, Attention mechanism primarily based end-to-end neural network is employed. incoming flow enhanced average fourteen.41% RMSE, 6.83% MAE, departing flow enhanced average half dozen.55% RMSE.

Short-Term rider Flow Prediction for Urban Rail Stations mistreatment Learning Network supported optimum rider Flow info Input rule. optimum rider flow input info rule (MTFLN) technique is employed. The coaching potency and also the prediction accuracy of ancient foreseen model is improved with success.

A Spatio-Temporal Loyalty-based Model for Subway rider Flow Prediction, Spatio-Temporal Loyalty-based model (STLoyal) is employed.STLoyal yields superior prediction accuracy on weekdays and weekends in terms of loyalty, time, location, and weather metrics.

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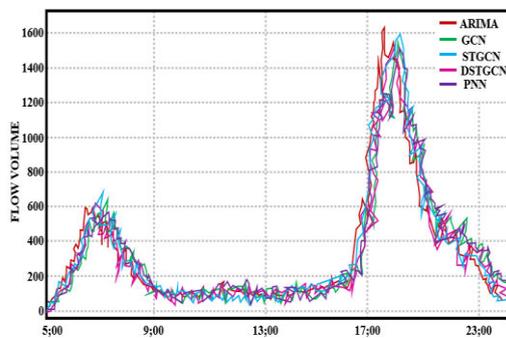
Intelligent Transportation and management Systems mistreatment data processing and Machine Learning Techniques: A Comprehensive Study, data processing and Machine Learning Techniques arused.The traffic system has been improved with success by mistreatment the planned traffic management technologies.

III. METHODOLOGY

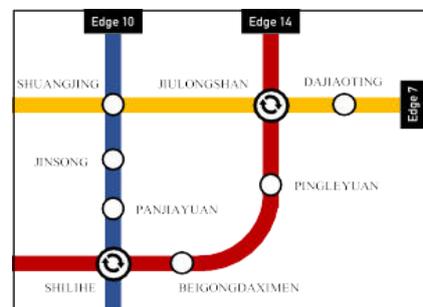
The basic idea of the proposed method is to first model the metro flow prediction problem through hypergraph representation. The data collected over previous periods from certain observation locations are stored in metro flow data. The hypergraph spectral construction is derived from the hypergraph learning theory that provides the hyper graphs for hour, day and week time spans. The Probabilistic Neural Network framework is then designed with the dynamic mechanism, that combines data obtained for three-time spans. Finally, the node-level passenger flow is predicted through the fusion of data by PNN.

IV. EXPERIMENTAL RESULTS

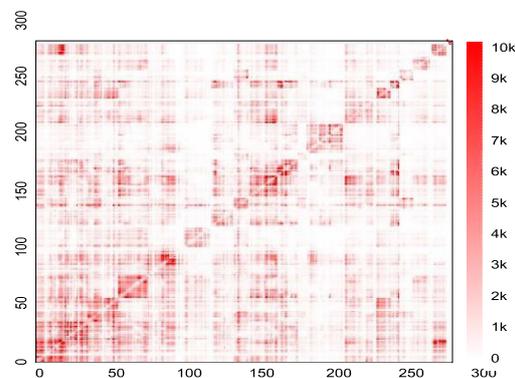
Figures shows the result of Prediction value of entry flow on station in a single day (A), The hypergraph in metro structure representation (B), Day level Heatmap of metro station The x-axis and y-axis denote the code of the station where passengers entered and exited, respectively (C), Morning peak passenger flow Heatmap of metro station The x-axis denotes the code of subway stations where passengers entered, and the y-axis denotes the code of subway stations where passengers exited. The travel OD of passengers shows a specific aggregation, which supports constructing advanced hyperedges(D).



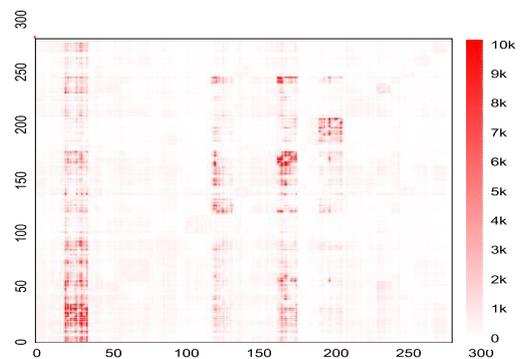
(A)



(B)



(C)



(D)

V.CONCLUSION

This paper has addressed the metro flow prediction problem via dynamic hypergraph representation and probabilistic neural network. The proposed method takes advantage of the unique structure of the subway and the spatial correlation between passenger flow and traveling OD to achieve more accurate metro flow prediction. Experiments have been conducted on factual datasets. Results show that our model outperforms other non-graph and graph-based state-of-the-art methods. In the future, we will optimize the framework of the proposed method. We also would like to explore the hypergraph theory and applications in transportation system more comprehensively.

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