

Research on Neural Networks and Application in the Enrollment Forecasting Problem at Le Quy Don High School

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Abstract: This study investigates the application of neural networks to forecast student enrollment at Le Quy Don High School. Traditional forecasting methods often struggle with the non-linear and complex patterns inherent in educational data. To address this, we developed and evaluated several neural network models, including Multilayer Perceptrons (MLP) and Long Short-Term Memory (LSTM) networks, trained on historical enrollment data, demographic trends, and academic performance metrics. The models were assessed using Mean Absolute Error (MAE) and Root Mean Square Error (RMSE). Experimental results demonstrate that the LSTM network significantly outperforms both traditional statistical methods and the MLP model, achieving a 15% reduction in prediction error. The findings confirm that neural networks can effectively capture temporal dependencies and complex interactions within enrollment data, providing a robust tool for strategic planning. This research offers a practical framework for educational institutions to optimize resource allocation and improve admission management through data-driven forecasting.

Keywords: neural network, enrollment forecasting, Le Quy Don High School, application