Khulna University of Engineering & Technology
Department of Industrial Engineering and Management

Proposal for Thesis Research in Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Science in Industrial and Production Engineering

Course no. IPE 4000

Title: A Comprehensive Study of Deep Learning Techniques for Demand Forecasting

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A Comprehensive Study of Deep Learning Techniques for Demand Forecasting

1 Overview of the Problem

Demand forecast has always been a vital part of supply chain. A forecasting model with adequate accuracy can increase the profit margin of the company. In a broader sense it can make the supply chain of the organization more responsive and resilient to failure. Traditional forecasting methods have been in practice for long time. These methods are based on simple arithmetic and of low accuracy. But seasonal variability, special days, e-commerce etc. have increased the complexity of demand forecasting now-a-days. To meet this requirement researchers have applied sophisticated time series and machine learning models. These models performed better to some extent than traditional regression models. Deep learning has emerged in recent time with great potential in almost every field. The research aims to study the performance and reliability of deep learning techniques in supply chain demand forecasting.

2 Objectives

3 Literature Review

[1] applied deep learning to forecast multi-channel retail demand. Punia et al. applied deep learning to forecast multi-channel retail demand.

4 Methodology

5 Expected Results

References

References

[1] Sushil Punia, Konstantinos Nikolopoulos, Surya Prakash Singh, Jitendra K. Madaan, and Konstantia Litsiou. “Deep learning with long short-term memory networks and

random forests for demand forecasting in multi-channel retail". In: *International Journal of Production Research* 58.16 (2020). Publisher: Taylor and Francis Ltd., pages 4964–4979.