CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE | DELHI NCR | PUNE

# Notice for the PhD Viva Voce Examination

Mr John Ranjith R, Registration Number: 2070124, PhD Scholar at the School of Business and Management, CHRIST (Deemed to be University) will defend his PhD thesis at the public viva-voce examination on Thursday, 11 December 2025 at 11.00 am in Room No. 044, Ground Floor, R&D Block, CHRIST (Deemed to be University), Bengaluru - 560029, Karnataka, India.

| | | |
|---|---|---|
| **Title of the Thesis** | : | **Enhancing Stock Price Movement Prediction with Explainable Artificial Intelligence and Multisource Data Fusion** |
| **Discipline** | : | **Management** |
| **External Examiner - I** | : | **Dr A Lakshmana Rao**<br>Associate Professor & HOD<br>Department of Commerce<br>SRM University - AP<br>Guntur District - 522240<br>Andhra Pradesh |
| **External Examiner - II** | : | **Dr Muthumeenakshi M**<br>Associate Professor<br>Department of Commerce<br>Vellore Institute of Technology<br>Vellore - 632014<br>Tamil Nadu |
| **Supervisor** | : | **Dr Kumar Chandar S**<br>Professor<br>School of Business and Management<br>CHRIST (Deemed to be University)<br>Bengaluru - 560029<br>Karnataka |

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva – voce examination.

**Registrar (Academics)**

**Place:** Bengaluru
**Date:** 02 December 2025

## ABSTRACT

Forecasting stock price movements is a challenging task due to numerous factors influencing the market. There has been a surge in utilization of large language models (LLMs) in predicting stock trends in various stock markets across the globe. Using large language models (LLMs) in the prediction of stock price movement is an emerging area in quantitative finance and financial machine learning. While traditional models rely heavily on numerical data (e.g., historical prices, volume, indicators), LLMs bring a new capability: understanding and extracting insights from textual data, such as financial news, earnings reports, and social media. Despite these advancements, challenges still exist regarding the transparency of the model and reliability of its results.

This research aims to build prediction models for anticipating future stock price movements using Deep Learning (DL) models and proposes the following approaches for stock price trends prediction:

- A robust model using Support Vector Machine (SVM) integrated with XAI (eXplainable AI) that uses multiple data sources such as trading data, technical indicators, financial news, and twitter data for predicting stock price trends and provide transparent explanations of the prediction results.
- An innovative model using Graph Convolutional Neural Network (GCNN) to predict future stock price trends by integrating fused multisource data into graphs.
- A Bidirectional Long Short Term Memory-XAI (BiLSTM-XAI) framework that leverages multisource data for stock price movement prediction and offers transparent explanations of the predictions.

Performance of all three models was evaluated using 5 banking stocks listed in Indian stock market, and the findings reveal that BiLSTM-XAI model produced highest prediction, accuracy and F1-score among the models presented. The models integrated with XAI also showed the importance of certain features in determining the stock price movements providing explainability and transparency to the model.



**Keywords:** *XAI, SVM, GCNN, BiLSTM, stock price movement, language model, neural network, AI explainability.*


**Publications:**


1. **John Ranjith**, S. Kumar Chandar, "Enhancing Stock Market Trend Prediction Using Explainable Artificial Intelligence and Multi-source Data." Fusion: Practice & Applications 16.2 (2024).
   DOI: 10.54216/FPA.160211
2. **John Ranjith**, S. Kumar Chandar, "Predicting Stock Market Movements Through Multi-source Data Fusion Graphs: An Approach Employing Graph Convolutional Neural Network," International Journal of Engineering Trends and Technology, vol. 72, no. 6, pp. 8-18, 2024.
   DOI: 10.14445/22315381/IJETT-V72I6P102