

**CHRIST**(DEEMED TO BE UNIVERSITY)
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Notice for the PhD Viva Voce Examination

Mr Abraham Rajan, Registration Number: 2072401, PhD Scholar at the School of Engineering and Technology, CHRIST (Deemed to be University), will defend his PhD thesis at the public viva-voce examination on Tuesday, 25 August 2026 at 11.15 am in the CDI Conference Room, Block V, Bangalore Kengeri Campus, CHRIST (Deemed to be University), Bengaluru - 560074, Karnataka, India

Title of the Thesis	:	Sentiment Analysis for Market Segmentation of Customer Review Groups
Discipline	:	Computer Science and Engineering
External Examiner - I	:	Dr Hemavathy R Professor Department of Computer Science and Engineering R V College of Engineering Bengaluru - 560059 Karnataka
External Examiner - II	:	Dr Sanjeev Kumar Professor and Dean Department of Computer Science and Engineering ICFAI University Dehradun - 248011 Uttarakhand
Supervisor	:	Dr Manohar M Associate Professor Department of Computer Science and Engineering School of Engineering and Technology Bangalore Kengeri Campus CHRIST (Deemed to be University) Bengaluru - 560074 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: 19 August 2026

ABSTRACT

In the field of NLP, Aspect-Based Sentiment Analysis is advancing rapidly in Sentiment Classification by integrating BERT (Bidirectional Encoder Representations from Transformers). While BERT exhibits a bidirectional nature, it is very good at interpreting the implications of a word predicted on the surrounding words, including nuanced language, long-distance dependencies, and sarcasm, but it lacks deep domain understanding. This study investigates domain-specific fine-tuning, ABSA, and Sarcasm Detection (SD). The approach follows a three-stage modeling structure. Firstly, Deep Contextual-BERT(DC-BERT) was developed to inculcate the fine-grained polarity detection for specific “aspects” or “targets” within the review comments to enhance ABSA. The DC-BERT showcased superior performance and accomplished an accuracy of 84.48% and 92.86% when tested against the SemEval laptop and restaurant datasets, respectively. This optimized BERT became the foundation for the second model, the Ensemble Deep Network - ABSA, which incorporated optimized BERT with a Graph Neural Network using convolutions. The EDN-ABSA was evaluated with existing state-of-the-art models on the ACL Twitter dataset and attained an accuracy of 78.56%. Further, my work investigates SD, which is undoubtedly one of the most difficult tasks among NLP models because of the contradictory nature of sarcasm in text. So, the Linguistic Information-Aware Integrated Graph Classification Network (LIA-IGCN) was introduced, a novel SD model formulated to better understand and detect sarcasm in text. The LIA-IGCN has two specialized encoders: one that emphasizes on context-aware information and the second that is rooted in Graph Neural Networks (GNNs) to record the complex linguistic relationships.

Keywords: *Sentiment polarity, Aspect-Based Sentiment Analysis, Natural Language Processing, Deep Contextual-BERT, Ensemble Deep Network, Graph Neural Network, Sarcasm Detection.*

Publications:

1. **Rajan, A., & Manur, M. (2024).** Aspect-based sentiment analysis using a fine-tuned BERT model with deep context features. *IAES International Journal of Artificial Intelligence*, 13(2), pp. 1250-1261.
2. **Rajan, A., & Manur, M. (2024).** Aspect based sentiment analysis using a novel ensemble deep network. *IAES International Journal of Artificial Intelligence*, 13(2), pp. 1668-1678.
3. **Rajan, A., & Manur, M. (2025).** Fine-Tuned Deep Contextual BERT for Enhanced Aspect-based Sentiment Analysis: A Comparative Study on Laptop Reviews, 2025 7th International Conference on Intelligent Sustainable Systems (ICISS), India, 2025, pp. 938-943.