

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

## Notice for the PhD Viva Voce Examination

Ms Garima Anand, Registration Number: 2090201, PhD Scholar at the School of Sciences, CHRIST (Deemed to be University) will defend her PhD thesis at the public viva-voce examination on Thursday, 25 June 2026 at 10:30 am in Conference Hall, 1st Floor, B Block, CHRIST (Deemed to be University), Delhi NCR Off-Campus, Ghaziabad - 201003, Uttar Pradesh, India.

**Title of the Thesis** : **Predicting the Popularity of Social Media Content Using Machine Learning Techniques**

**Discipline** : **Computer Science**

**External Examiner - I** : **Dr Manoj Thakur**  
Professor  
Department of Soft Computing, Machine Learning and Computational Finance  
IIT Mandi, North Campus  
Mandi - 175075  
Himachal Pradesh

**External Examiner - II** : **Dr Shikha Mehta**  
Professor and HOD  
Department of Computer Science and Engineering  
Jaypee Institute of Information Technology  
Sector-128, Wish Town, Noida - 201301  
Uttar Pradesh

**Supervisor** : **Dr Shilpa Srivastava**  
Associate Professor  
School of Sciences  
CHRIST (Deemed to be University)  
Delhi NCR Off-Campus  
Ghaziabad - 201003  
Uttar Pradesh

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.

**Place:** Bengaluru  
**Date:** 22 June 2026

**Registrar (Academics)**

## ABSTRACT

Social media platforms like Facebook, Twitter, Reddit, LinkedIn, Instagram, Google+ etc. allow their users to share their views, ideas and opinions about the content published on them. In recent years, social media has emerged as a significant platform for attracting new customers. The rapid growth of these social media platforms has created an urgent need for accurate methods to predict the popularity of social media content. The prediction of high consumer engagement through sharing posts about new offers or products can be enhanced by categorizing users according to their past interactions. Earlier approaches have largely focused either on modelling population-level models, which often overlook heterogeneity within user groups, or user-level models, that suffers from sparsity and noise due to limited activity data. To address these challenges, this study proposes Tri-GBO, a three-stage framework that integrates Hierarchical Recursive Graph Partitioning, Dynamic Bayesian PARAFAC tensor decomposition, and Adam optimization for robust popularity prediction. In the first stage, a Popularity Augmented Social Graph (PASG) is constructed to capture the user-content interactions. This graph is then partitioned into balanced clusters that reflect similar behavioral patterns. In the second stage, the grouped data is organized into a three-dimensional tensor. The tensor is decomposed and analyzed using Bayesian PARAFAC decomposition, which extracts latent relationships across users, content, and temporal dynamics while managing data sparsity and noise. In the final stage, the reconstructed values are refined through Adam optimization, leading to more stable and accurate predictions. Experimental validation is performed on the Behance dataset, comprising over 85,000 users and 1326 projects across 60-time stamps. It demonstrates that the proposed model Tri-GBO achieves significant improvements in the Mean Relative Error (%), Mean Absolute Error (MAE) and Root Mean Square Error (RMSE) in comparison to the base model. The proposed model also shows similar prediction values as the ground truth values. The novelty of the proposed model lies in its combination of graph partitioning and tensor factorization for multidimensional social media data.

**Keywords:** Graph Partitioning, Dynamic Bayesian Tensor, Social Media Analytics, Prediction, Optimization, User-Content Interaction, Online Social Networks.

### Publications:

1. **G. Anand**, S. Srivastava, A. Shandilya, and V. Gupta, "Recurrent neural networks in predicting the popularity of online social networks content: a review," *ECS Transactions*, vol. 107, no. 1, pp. 19991–20003, Apr. 2022, doi: 10.1149/10701.19991ecst.
2. **G. Anand**, S. Srivastava, A. Shandilya, and A. Tripathi, "Popularity Prediction of Online Social Media Content: A Bibliometric analysis," in *Lecture notes in networks and systems*, 2024, pp. 311–325. doi: 10.1007/978-981-97-3180-0\_20.
3. **G. Anand**, S. Srivastava, A. Shandilya, G. Singh, and A. Tripathi, "Particle swarm optimization-based support vector regression for predictions," in *Nature-inspired Metaheuristic Algorithms*, 2025, pp. 343–359. doi: 10.1201/9781003612858-14.
4. **G. Anand**, S. Srivastava and R. Agarwal, "Modeling Popularity Evolution with Popularity-Augmented Graphs and Dynamic Bayesian PARAFAC," 2025 5th International Conference on Advancement in Electronics & Communication Engineering (AECE), Ghaziabad, India, 2025, pp. 679-684, doi: 10.1109/AECE67531.2025.11386527.