



**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**COMPUTER SCIENCE AND ENGINEERING DEPARTMENT**

**CRITICAL EVALUATION OF JOURNAL PAPER**

This activity is an individual activity. Each student has to refer FIVE research papers related to their project title and each paper is to be reviewed as per below. Student need to prepare word file for each paper evaluation and submit it.

**1. Student Details**

<b>Student Name:</b>	<b>Sane Harsh Balkrishna</b>		
<b>Enrollment No</b>	<b>2203031250084</b>		
<b>Title of Journal Paper</b>	<b>Customer Churn Prediction in Telecom Using Machine Learning in Big Data Platform</b>	<b>Branch:</b>	<b>CSE-BDA</b>
<b>Authors</b>	Abdelrahim Kasem Ahmad, Assef Jafar, Kadan Aljoumaa		
<b>Journal / Conference:</b>	Journal of Big Data		
<b>Volume / Issue</b>	6:28	<b>Pages:</b>	1-24

**2. Dissection of Paper**

**Section 01: Abstract / Introduction** (Read the abstract and answer the following questions)

1 What is the objective of the Paper?

Ans: The paper aims to develop a churn prediction model that helps telecom operators predict customers likely to churn.

2 What are the main results mentioned in the abstract?

Ans: 1. The model achieved an AUC of 93.3% using XGBOOST.

2. Incorporating Social Network Analysis (SNA) features improved accuracy.

3 What rational is given by the authors, attributing importance to the research problem?

Ans: 1. Customer retention is more cost-effective than acquiring new customers.

2. The telecom industry faces high customer churn rates.

4 How many earlier works are cited by the authors, and what are the perceived drawbacks of these earlier works?

Ans: Several machine learning techniques were analyzed, with previous models lacking real-time analysis and high accuracy.

**Section 02: Methodology**

1 Describe the methodology is used by author(s) to address the research problem?

Ans: 1. The study employed Decision Tree, Random Forest, Gradient Boosted Machine, and XGBOOST algorithms.

2. the dataset included nine months of customer data from SyriaTel.

- 2 In what way the methodology used by the authors is relevant to the methodology you proposed to adopt?

Ans: Uses machine learning on large-scale telecom data, relevant for real-time prediction.

### **Section 03:Results and conclusions**

- 1 What are the variables used for the analysis

Ans: Customer demographics, network activity, social connections, call records.

- 2 List the results obtained by the authors.

Ans: 1. XGBOOST outperformed other algorithms with 93.3% AUC.

2.The use of social network analysis improved model performance.

- 3 What are the conclusions drawn by the authors from the study.

Ans: 1. Real-time churn prediction is feasible with machine learning and big data.

### **Write a critical analysis of the paper( about 200 words)**

Customer churn prediction is essential for telecom companies to retain customers and reduce financial losses. This paper presents a robust machine learning approach utilizing big data and social network analysis to improve churn prediction accuracy. The study employs various tree-based algorithms and finds that XGBOOST provides the best performance with an AUC of 93.3%. The integration of SNA features significantly enhances the model's predictive ability, highlighting the importance of considering customer interactions and relationships. The research effectively demonstrates the potential of machine learning in churn prediction but lacks real-world deployment considerations such as interpretability and cost-benefit analysis. Future work could explore hybrid models combining deep learning and explainable AI techniques for more transparent decision-making.