

## ABSTRACT

*The growing significance of Sustainable Development Goal (SDG) 12 underscores the need to understand public discourse on sustainable consumption, production, and the emotional traits associated with these issues. This understanding is essential for assessing public engagement and the emotional drivers toward sustainability. This study addresses the challenge of analyzing complex textual data from digital platforms by employing a fine-tuned BERT language model for multi-label classification. The methodology involves collecting data from X and YouTube, followed by preprocessing, annotation, and fine-tuning BERT using an optimal configuration of batch size 16 and a learning rate of  $2e-5$ . The findings demonstrate that the model achieves strong performance, with macro-average F1-scores of 0.85 classifying sustainable practices and 0.93 for identifying emotional traits such as hopefulness and frustration. The results highlight BERT's effectiveness in capturing nuanced public discourse, facilitated by robust data augmentation and balanced evaluation metrics. Future research could explore the integration of more diverse data sources along with advanced pre-trained models to improve classification accuracy and scalability. This study concludes that fine-tuned BERT models provide a reliable framework for exploring public engagement with SDG 12 and offer insights for advancing sustainable development analytics.*

*Keywords: Sustainable Practices, Emotional Traits, SDG 12, BERT, Fine-tuning, Multi-label Classification, Data Mining, Natural Language Processing (NLP)*