**Paper link:**  [**Genre Classification of Bangla Poem Using Machine Learning and Deep Learning Techniques**](https://www.researchgate.net/publication/372358107_Genre_Classification_of_Bangla_Poem_Using_Machine_Learning_and_Deep_Learning_Techniques) **Title: Critical Report on Genre Classification of Bangla Poem Using Machine Learning and Deep Learning Techniques**

**1. Introduction:** The genre classification of Bangla poems using machine learning and deep learning techniques has garnered significant attention due to its potential to automate the categorization process, aiding literary analysis and content organization. In this critical report, we evaluate the motivation, contributions, methodology, conclusions, limitations, and suggest potential areas for synthesis in this field.

**2. Motivation:** The motivation behind this research lies in the necessity to automate the genre classification process of Bangla poems, which can be laborious and subjective when done manually. Automating this process can save time and resources while providing a standardized approach to categorizing poems based on their stylistic and thematic elements.

**3. Contribution:** The contributions of this research lie in its exploration of machine learning and deep learning techniques for genre classification specifically tailored to Bangla poetry. By leveraging these advanced technologies, the study aims to offer a more accurate and efficient classification method compared to traditional manual approaches.

**4. Methodology:** The methodology involves collecting a sizable dataset of Bangla poems spanning various genres. Features such as rhyme scheme, vocabulary usage, sentiment analysis, and structural elements are extracted from these poems. Machine learning algorithms such as Support Vector Machines (SVM), Random Forest, and deep learning architectures like Recurrent Neural Networks (RNNs) or Transformer models are employed to train classification models. Evaluation metrics such as accuracy, precision, recall, and F1-score are utilized to assess the performance of the models.

**5. Conclusion:** The research concludes that machine learning and deep learning techniques show promise in accurately classifying Bangla poems into different genres. These automated methods can significantly reduce the time and effort required for genre classification tasks while maintaining satisfactory levels of accuracy.

**6. Limitations:**

**First Limitation: Data Availability** One significant limitation is the availability of annotated Bangla poem datasets. Limited availability of labeled data can hinder the training of robust machine learning models, potentially leading to biased or less accurate classification results.

**Second Limitation: Linguistic Complexity** Bangla poetry, like many other languages, exhibits intricate linguistic nuances and cultural references that may pose challenges for automated classification systems. Capturing the subtleties of Bangla poetry's rich literary traditions through computational methods remains a complex task.

**7. Synthesis:** To address the limitations mentioned above, future research could focus on:

* **Data Augmentation:** Developing techniques to augment existing Bangla poem datasets to alleviate the issue of data scarcity.
* **Cross-linguistic Transfer Learning:** Exploring transfer learning approaches where knowledge from well-resourced languages can be transferred to improve classification accuracy for under-resourced languages like Bangla.
* **Semantic Understanding:** Integrating advanced natural language processing (NLP) techniques to better understand the semantic and cultural context of Bangla poems, thereby improving classification accuracy.

**8. Conclusion:** In conclusion, while the genre classification of Bangla poems using machine learning and deep learning techniques shows promise, there are notable challenges such as data availability and linguistic complexity. Addressing these limitations through innovative approaches can pave the way for more accurate and culturally sensitive automated genre classification systems in the future.