

The Heart of Charani Poetry: An AI Interpretation of Emotional Resonance

Bhavin Mehta^{1*}, Hirenkumar Thakor²

Abstract

Poetry has long been a means of expressing emotions and ideas, yet understanding the emotional depth within poems can be challenging using traditional computer-based tools. This study explores the emotions embedded in Charani poems, an important genre in Indian literature, through the lens of their distinctive poetic style. The primary objective is to develop a novel method of analyzing emotions in Charani poetry, contributing to the broader field of emotion analysis in literature. Drawing inspiration from the Indian concept of "Navarasa", which categorizes nine core emotions, the study applies this framework to classify over 300 Charani poems. By grouping the poems according to the nine emotions, rasas, such as love, anger, sorrow, and joy, the study aims to provide a structured approach to understanding the emotional significance in these works. This classification not only offers deeper insights into the poetic expressions of Charani poems but also presents a more accessible method for studying emotional content across poetry genres. By connecting ancient cultural concepts with modern computational analysis, this research provides a fresh perspective on emotional content in literature.

Keywords: Charani poems, *navarasa*, emotion detection, artificial intelligence, natural language processing

INTRODUCTION

Charani literature is deeply connected to emotions, and Charani poetry is appreciated worldwide, even being used in official settings. Poems in Charani literature are rooted in strong emotions, serving as a powerful medium to convey feelings like joy, sorrow, frustration, love, suffering, and faith. Poets use vivid imagery, carefully chosen words, rhyme, and rhythm to express these emotions, allowing readers to experience a wide range of feelings. To make understanding easier, emotions need to be identified and poems categorized based on the emotions they evoke.

Our proposed method, based on the Indian concept of "Navarasa" from the *Natyashastra*, takes poetry as input and identifies the emotions expressed using deep learning techniques. The concept of "Navarasa", as described in Sage Bharata's Rasa Theory, outlines nine fundamental emotions that form the essence of all art and literature.

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This study's key contributions include compiling a collection of over 300 Charani poems and utilizing deep learning to automate emotion recognition. Several poets, such as Zaverchand Meghani, have made significant contributions to Charani literature, highlighting its rich emotional depth. Building a comprehensive Charani poetry collection is essential for developing an emotion detection system.

The "Charan" collection, with its 300+ poems, is likely the first of its kind and provides a foundation for identifying emotions in poetry. One of the nine primary emotions from the "Navarasa" framework is associated with each poem. Using the names of these emotions, the algorithm can be trained to classify the emotional category of test poems.

LITERATURE REVIEW

There has been no dedicated work on identifying emotions specifically in Charani speech. Efforts have been observed in recognizing emotions in poetry from both Indian and foreign languages. However, most studies, as reviewed, have focused on emotional analysis in non-poetic texts or other literary forms rather than poetry.

Mehta and Rajyagor introduced a method for classifying Gujarati poetry based on emotions using deep learning techniques, achieving an accuracy of approximately 87.62% [1].

Similarly, Saini and Kaur applied Support Vector Machine (SVM) and Naive Bayes (NB) algorithms to identify emotions in Punjabi poetry, obtaining a 72.02% accuracy rate [2]. They also developed an annotated collection of Punjabi poetry titled Kavi, based on the Indian concept of "Navarasa". Furthermore, they suggested refining the system by addressing and improving misclassified poetry.

Bafna and Saini employed two different approaches and utilized two distinct corpora to extract tokens and make comparisons [3]. Their study involved evaluating the effectiveness of both the "BaSa" method and Zipf's law as methodologies, allowing for a detailed comparison of the results obtained from each.

Tiple and Thomas examined how to identify emotions and mood in traditional North Indian music [4]. They utilized features such as *Raga*, *Rasa*, and *Taal* to extract emotions and connect them to different moods. They introduced a technique that applies the *Navarasa* Model to Indian classical music, using classifiers like Support Vector Regression, Support Vector Machine, and Gaussian Mixture Model to map musical elements to emotions. Over 90% accuracy was acquired with this method.

Josan and Bawa created a method to automatically identify different types of poetry based on mood [5]. They focused on three moods: happy/joy, sad, and hopeful. With accuracy rates of 67.85 and 73.3%, respectively, they used the Maximum Entropy and Naive Bayes Classification algorithm to categorize the mood of poems from the same dataset.

Ahmad *et al.* developed a method for categorizing emotional states in poetry using their own collection of poems and an interest-based model. This approach had an 88% accuracy rate [6].

In their presentation of poetry classification, Bafna and Saini attempted to recognize categories like "Bal Geet", "Updesh Geet", or "Bhajan", with an 83.33% accuracy [7]. With the typical speech technique used with "Alankaar" in Hindi poetry, Audichya and Saini have worked on "Alankaar" and have built a structured hierarchical arrangement of Hindi "Alankaar" forms and sub forms [8]. They have then worked to recognize a select few forms. With a mean performance time of 0.002 s, they were able to cover the initial outcome with 97% efficacy.

A method to identify sentiments from their collection of poems was described by Haider *et al.*, who employed a pre-trained BERT model for processing [9]. When Kaur and Saini used the 10 greatest machine learning algorithms to classify Punjabi poems, they discovered that four of the methods: HP, NB, KNN, and SVM, produced the best results, with varying percentages of accuracy [10]. The verse form identification system created by Audichya and Saini uses a systematic categorization technique to recognize "Chhand" in Hindi poetry [11]. The overall accuracy rate of the system is 95.02%, and it covers 53 "Chhand". The total failure rate was 4.98%.

Ahmed *et al.* have suggested classifying contemporary Arabic poetry using ML into four categories: lover poetry, Islamic poetry, common poetry, and biased poetry [12]. To categorize the poems, the study uses NB, SVM, and LSV techniques. They received accuracy results of 64, 17.75, and 72%, respectively.

METHODOLOGY

In accordance with our suggested technique, the initial step is data gathering and the building of a corpus of Charani poetry drawn from the works of various Charani poets. As indicated in the dataset, this has been completed. The Charani poetry corpus has several identical tokens.

'Charan' is the name of the authors' own dataset. More than 300 poems by well-known poets of Charani literature are included in this dataset. The writers of this "Charan" corpus of Charani poetry have gathered poets who have used various "Rasa" in their poetry. The most appropriate word for the corpus of Charani poetry is "Charan", which is used to portray emotions in poetries in Charani literature as shown in Figure 1.

Tokenization, labeling, and other NLP operations are carried out using the "Python" programming language and NLTK as shown in Figure 2 and Table 1.

The suggested system automatically receives poems from the "Charan" Charani poetry corpus one at a time as input. The system searches the specified path for the poets' names folders, and then poetries are extracted as distinct text files from each folder. To separate each line of that poetry, each individual text file will now be run through text processing one at a time. Words are taken from each line of these lines by processing. By doing this, we have the poetry file's words extracted.

To determine the "Rasa" of poetry according to the notion of "Navarasa", each word in the metadata will then be compared to words manually filled according to "Rasa". This information file is obtained into a data-frame and then transformed to an array for improved comparison functionality. When a method is used to compare each word, it will return a number between 0 and 8. The final word in the list will be used in this procedure.

One increment is added to a counter in accordance with the value returned by the procedure. This counter value is processed for the highest value in the counter after the procedure for each poem is complete and will once more have a value between 0 and 8 (*Rasa* Counter). Our last counter is the one with the greatest value. Now, we will contrast this counter value with the "ras" dictionary, which intern will return the name of the "Rasa" based on value, and our poetry will be categorized in accordance with the idea of "Navarasa".

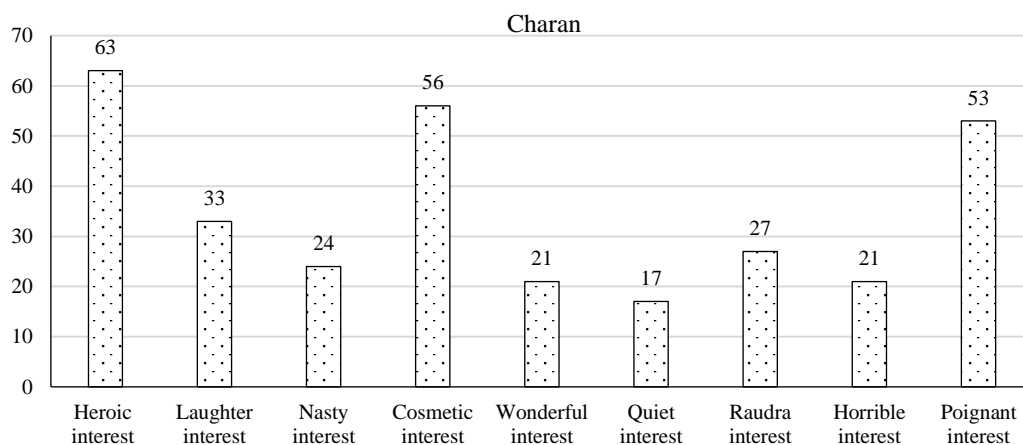


Figure 1. 'Charan' Dataset.

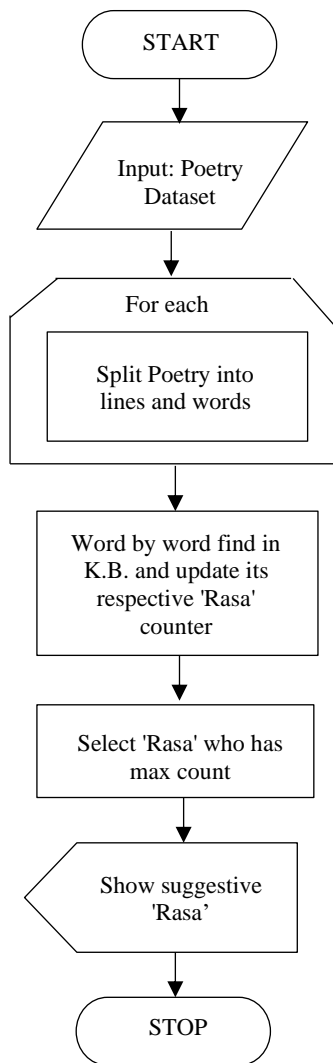


Figure 2. Emotion classification workflow.

Table 1. Emotion Classification Workflow table.

Algorithm: Poetry emotional classification. (Word frequency)	
Input:	Poetry Dataset
Step 1:	Take Input of single poetry text from Dataset
Step 2:	For each poetry split into lines and words
Step 3:	Find the occurrence of particular word by comparing it with Knowledge base and update ‘Rasa’ counter accordingly
Step 4:	Find max count among the counter and select ‘Rasa’
Step 5:	Display suggestive ‘Rasa’
Output:	(‘શૃંગારરસ’, ‘વીરરસ’, ‘હાસ્યરસ’, ‘અદભુતરસ’, ‘રુદ્રરસ’, ‘ભયાનકરસ’, ‘બીભસ્તરસ’, ‘શાંતરસ’, ‘કરુણરસ’)

RESULT

Poets in Charani can write poetry using any "Rasa" to convey their personal feelings. By including the different types of "Navarasa", the approach is sufficiently comprehensive to satisfy the criteria in the extraction of the metadata from Charani poetry corpus. Extracted data includes the number of words in the poetry that perfectly match the terms in the metadata to categorize the "Rasa". We processed 300+ poems from the "Charan" Charani poetry corpus and obtained an accuracy of 70.62%, as shown in Figure 3.

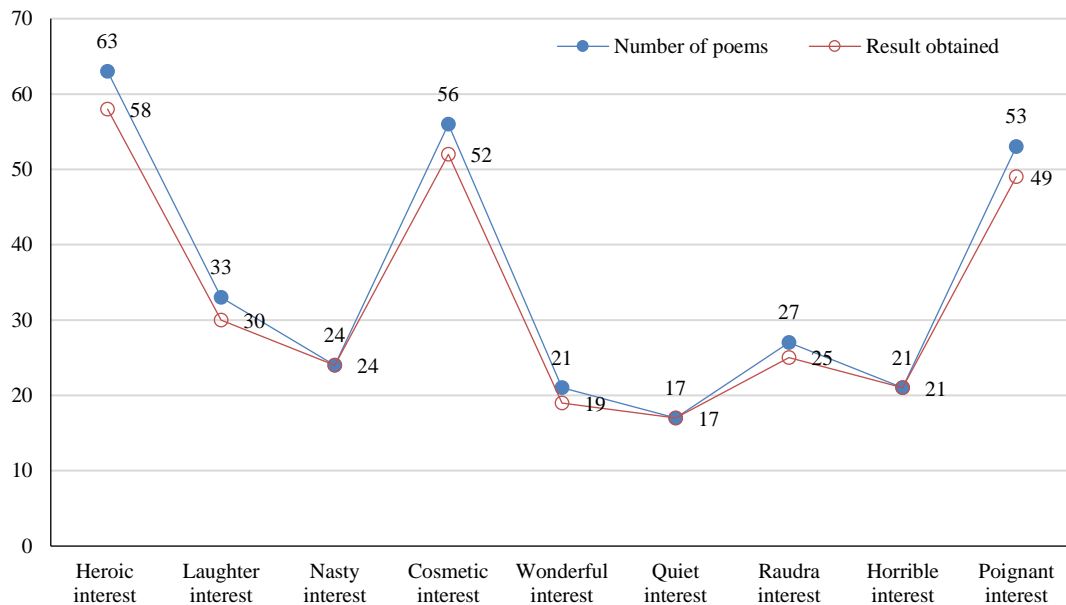


Figure 3. Derived Results.

A collection of poems is automatically accepted as input by the process. The poem's "Rasa" will next be determined by processing the data to compare terms in the poem with words in the metadata. The following result will be shown after processing and identifying the poetry's "Rasa" based on the Indian idea of "Navarasa".

CONCLUSION

According to our analysis of the literature, there has not been much research done on classifying Charani poetry according to the idea of "Navarasa". Poets have written poetry with a variety of feelings, and those emotions have a close link to the poem. Authors of this study have explored to develop an autonomous method for categorizing poems based on the emotions they contain using the Indian idea of "Navarasa". The authors themselves have produced a corpus of Charani poetry named "Charan" that has more than 300 poems. Based on the results, it can be said that our system did a remarkable job of classifying and detecting emotions in Charani poetry.

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