Review of: "Songs Classification Problem Research by Genre Based on Neural Network"

Muhammad Hammad Memon[1]

1 Southwest University of Science and Technology

Potential competing interests: No potential competing interests to declare.

The research paper titled "**SONGS CLASSIFICATION PROBLEM RESEARCH BY GENRE BASED ON NEURAL NETWORK**" presents some detailed suggestions:

1. Originality and Relevance:

•The paper addresses a relevant topic in the field of music information retrieval—classifying songs by genre using neural networks, a topic that has practical implications for music streaming platforms.

•It might be beneficial to highlight how this research differs from or builds upon existing studies, such as those by Tzanetakis and Cook (2002), or the use of deep learning techniques as cited by LeCun et al. (2015). A comparison with these foundational studies could further validate the uniqueness of the approach taken in this paper.

2. Methodology:

•The use of Mel-Frequency Cepstral Coefficients (MFCC) for feature extraction is well-justified; however, it would be informative to have a deeper discussion on the choice of neural network architecture. The paper mentions a basic structure (input layer, hidden layer, output layer) but lacks a detailed rationale for choosing this configuration over more complex or different architectures.

•More details on the dataset used for training and validation (size, diversity, source) would enhance the reader's understanding of the experiment's robustness. Additionally, explaining how the data was split between training and testing could help in assessing the method's efficacy.

3. Technical Depth and Clarity:

•While the paper describes the general operation of neural networks, it could benefit from a more detailed explanation of the specific network parameters like learning rate, number of epochs, and error metrics used.

•The mathematical representation of the MFCC extraction and the neural network's error calculation is beneficial, but these sections could be improved by adding more context on why specific formulas were chosen and how they impact the overall classification accuracy.

4. Results and Discussion:

•The paper reports a classification accuracy and visualizes results, which is good. However, a deeper statistical analysis of the results, including confusion matrices or error analysis, would provide a clearer picture of the model's performance across different genres.

•Discussing the misclassifications or challenges in distinguishing between similar genres could add valuable insights into the limitations and potential improvements for the system.

5. Implications and Future Work:

•The conclusion effectively summarizes the potential applications of the research. However, it could be expanded to discuss potential real-world implementations more concretely, such as integration with existing music streaming services.
•Suggestions for future research, such as exploring different neural network architectures (e.g., convolutional neural networks), incorporating other features beyond MFCC (like spectral contrast or harmonic content), or applying the model to a broader range of genres, would be beneficial.

6. References and Citations:

•Ensure all references are up-to-date and relevant. Adding more recent studies could provide a broader context and showcase ongoing developments in this field.
•Check for consistency in citation style throughout the document to meet academic standards.

Overall, the paper presents a promising approach to song genre classification using neural networks. Enhancing the depth of technical descriptions and expanding on the implications of the findings could make the paper more robust and impactful in the field of music information retrieval.