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DHANU: OMR based Plagiarism Detector for Western Sheet Music

A Dissertation by

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Abstract

Music plagiarism is a problem that occurs in the music industry which leads to serious legal and ethical issues causing disproval of published music. This problem is addressed in two ways, by checking plagiarism in audio and by music sheets. Audio plagiarism is currently being done to do copyright checks of music, but the work on music sheet plagiarism is less prevalent. There is existing work done on this matter that follows different approaches such as Music Information Retrieval (MIR) which does not directly contribute to music sheet plagiarism.

This work is based on detecting music plagiarism of music sheets through a Deep Learning (DL) based Optical Music Recognition (OMR) approach on sheet music following up by similarity identification. It addresses the research gap of using a treble-treble and bass-bass similarity matching system and provides a domain contribution to musicology in plagiarism checking for music sheets. This work also shows the significance of this approach comparing between existing similar systems and the proposed system.

A DL CNN-RNN model is used in OMR where the convolutional layers provide a feature extraction on the image and the Bidirectional Recurrent block addresses the sequential nature of the music data. Using this hybrid for classification in OMR, the similarity checking (plagiarism checking) of music sheets is done by a N-grams-Sequence Matching hybrid. This model is being tested and evaluated on plagiarized music sheets and the resultant scores and accuracies are recorded.

Keywords: Music sheet plagiarism, Music similarity identification, OMR based music sheet similarity, Optical Music Recognition, Music Plagiarism.

Subject Descriptor:

Computing Methodologies→Machine Learning→Machine learning approaches Computing Methodologies→Artificial Intelligence→Computer Vision