

Title: Automatic recognition of musical notation from audio data

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Abstract: The goal of this thesis is the design and implementation of an application using convolutional neural networks to generate musical notation from audio data. The application is able to train a neural network using input files in the MIDI (Musical Instrument Digital Interface) format and pair all sections of the music with their audio form. The training of the neural network can be performed on a user-specified collection of MIDI files or on randomly generated music. Each instrument in the MIDI standard can be assigned a network whose output are the notes playing in the given time section. Continuously iterating over the audio data, the network generates sections of active notes which are then concatenated into the output file. The application is also capable of recognizing words from audio using an external service.

Keywords: musical notation, neural network, deep learning, audio recognition, MIDI