

MUSIC GENERATION WITH LSTM AND .WAV FILES

In the recent years we have seen many different deep learning models that were able to generate music (for instance Jukebox or DeepJ). The problem with these models is that they are either very complex or they require a very specific format of the files (which is sometimes impossible to get).

We wonder if we could create a simple model that could be trained on a popular format of music and as a result be able to generate sensible music.

We think that by using a recurrent neural network we could create a simple model that would be able to generate music.

We decided to build a model based on figure 3 from this paper: <https://arxiv.org/abs/1612.04928>. For our music we decided to use .wav files because of their accessibility and library support in Python.

During evaluation we found out that our model didn't perform well on advanced examples (classical music played by orchestra). Music generated by the model was unpleasant to ears and didn't resemble any of the training examples. When we trained the model on simple examples (piano sounds) we discovered that it achieved better results compared to when it was trained on advanced examples. It could produce a piano sound and a rhythm, yet it failed to make a sensible connection between the two and as a result produce sensible music.

Thus we can conclude that although our model was able to recognize simple sounds and rhythm, it failed to produce any sensible music.

In our future research we would like to consider the usage of better hardware in our training. Because of hardware limitations, we were forced to train on a much smaller number of examples and epochs that we originally anticipated. We believe that the usage of better hardware could drastically change the results of our research.