Music Composition
Home Exercise

Description:

A recurrent neural network is a class of artificial neural networks that make use of sequential information. They are called recurrent because they perform the same function for every single element of a sequence, with the result being dependent on previous computations. Whereas outputs are independent of previous computations in traditional neural networks.

In this home exercise, we will be using an LSTM model to generate music. The base code can be found in this link (https://towardsdatascience.com/how-to-generate-music-using-a-lstm-neural-network-in-keras-68786834d4c5) But submit an improved version of this code.

Source of Data:

https://github.com/Skuldur/Classical-Piano-Composer/tree/master/midi_songs

Music21:

Music21 is a Python toolkit used for computer-aided musicology. It allows us to teach the fundamentals of music theory, generate music examples and study music. The toolkit provides a simple interface to acquire the musical notation of MIDI files. Additionally, it allows us to create Note and Chord objects so that we can make our own MIDI files easily.

In this tutorial we will use Music21 to extract the contents of our dataset and to take the output of the neural network and translate it to musical notation.

Keras:

Keras is a high-level neural networks API that simplifies interactions with Tensorflow. It was developed with a focus on enabling fast experimentation.

In this tutorial we will use the Keras library to create and train the LSTM model. Once the model is trained we will use it to generate the musical notation for our music.

Training:

In this section we will cover how we gathered data for our model, how we prepared it so that it could be used in a LSTM model and the architecture of our model.