DL LAB2: An aplication with RNN

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1 Introduction

- talk about RNN and LSTM
- Talk about how RNN is useful for music
- Introduce our project -¿ RNN on Chopin Nocturnes
- Something else?...

In the field of machine learning we try create computational models to find solutions for a wide set of tasks. One of the more popular problems to solve are the classification of instances and function approximation with regression. Techniques from the deep learning (DL) sub-field of machine learning have proven their usability when tackling on data with high dimensionality. Deep learning's ability to scale better with these kinds of data makes it useful in many application domains like machine control and decision support systems. A lot of different types of DL models exists to be

One DL architecture we'll focus on in this lab report is

2 Preprocess the data

One of the first questions we were opposed to was how to encode music in order to train the Neural Network. Our source files are midi files. They are an useful way to encode the music where we can extract the notes and their duration from the file.
To simplify the problem we decided to abstract the notes duration and just use the notes pitch.

2.1 Enumerating the notes

Our first attempt was done inspired by some code found on the internet to produce video games music. **add reference**
To extract the notes the notes from midi file we used a library called *Music21*. It provided us with the notes names or chord names that were played. From there we have a sequence of notes names. Then we just assign the notes a number. For the prediction we used a vector of all the notes and a with a 0 for the next note that follows the sequence.