

# Generating melodies with RNN-LSTM

Valerio Velardo

# What you'll learn

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- Generate melody with NN
- Build and train LSTM network with Keras
- Handle time-series data
- Basic understanding of symbolic music representation
- Basic music theory concepts (e.g., pitch, duration, key)
- Preprocess symbolic music

# Prerequisites

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- Intermediate Python
- Familiar with TensorFlow/Keras [advisable but not necessary!]

# Tools and libraries

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- Keras/TensorFlow
- Music21
- MuseScore

# Melody

- Sequence of notes and rests



# Melody generation problem

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- Treat melody as a time series
- Time-series prediction problem
- Vocabulary of notes

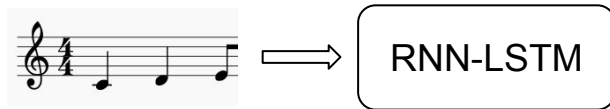
# The melody generator (training)

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# The melody generator (inference)

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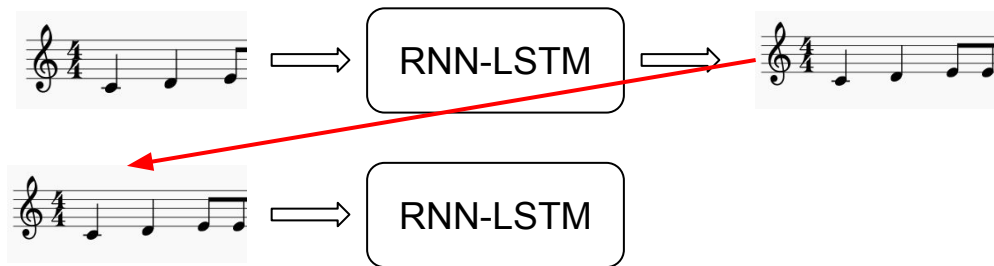
# The melody generator (inference)

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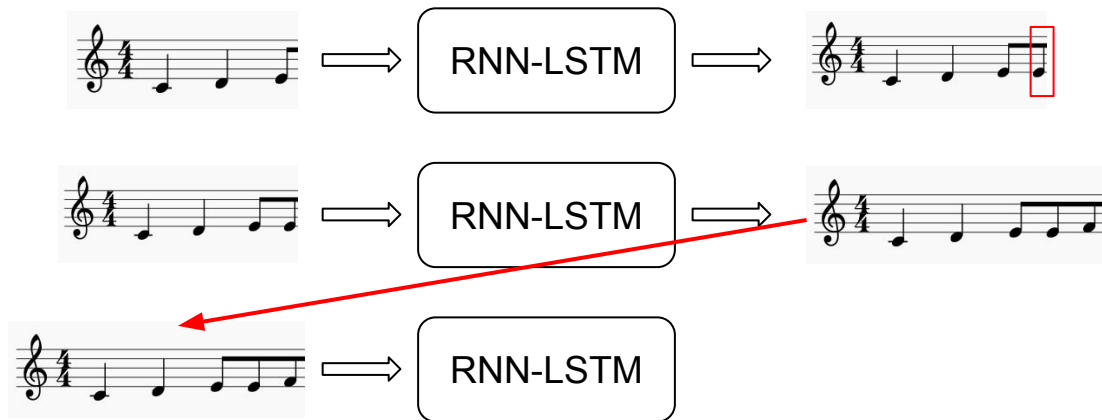
# The melody generator (inference)

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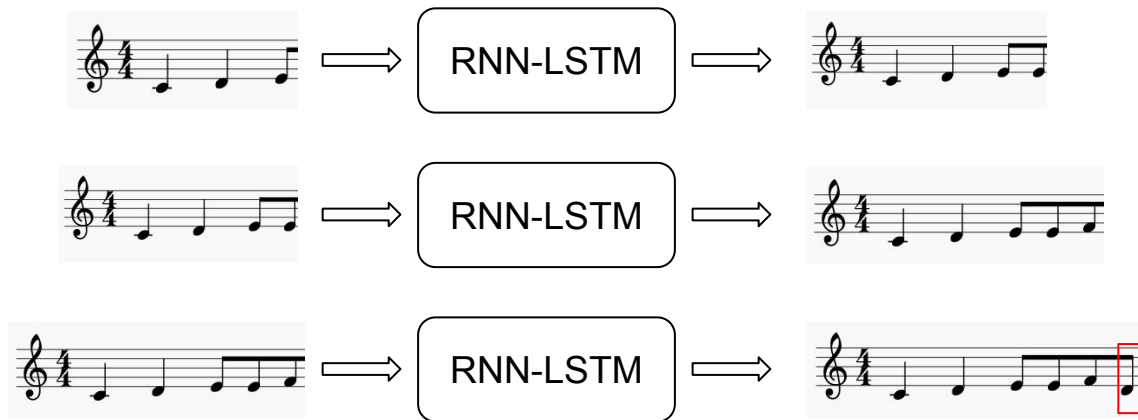
# The melody generator (inference)

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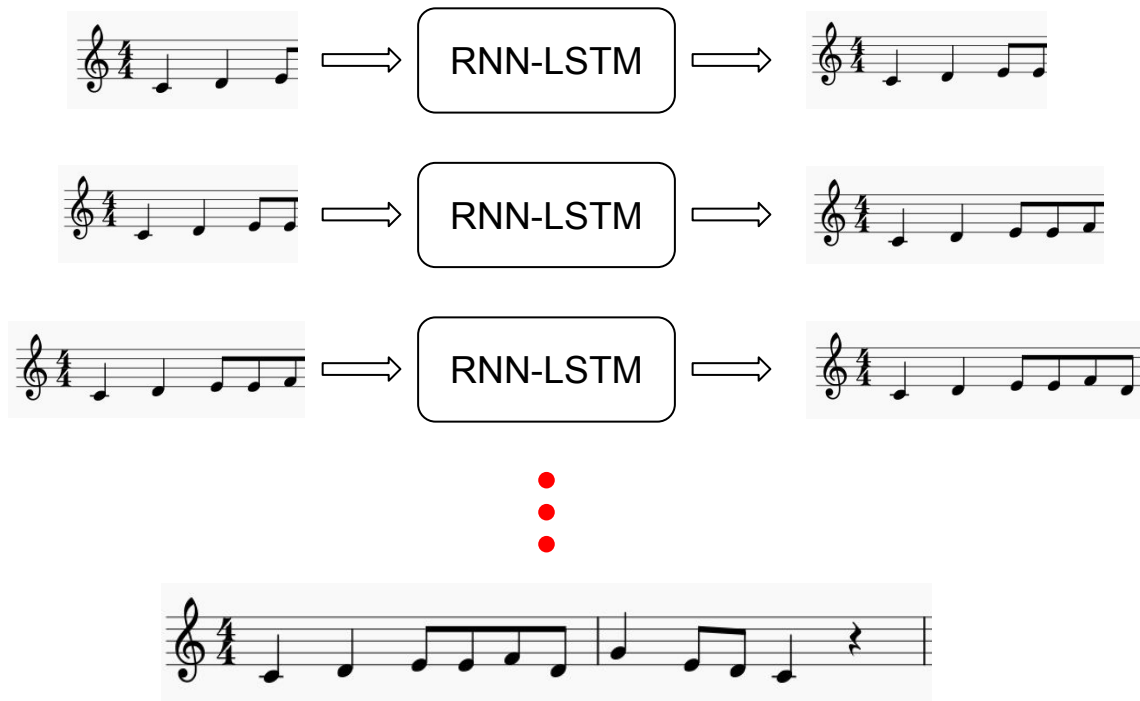
# The melody generator (inference)

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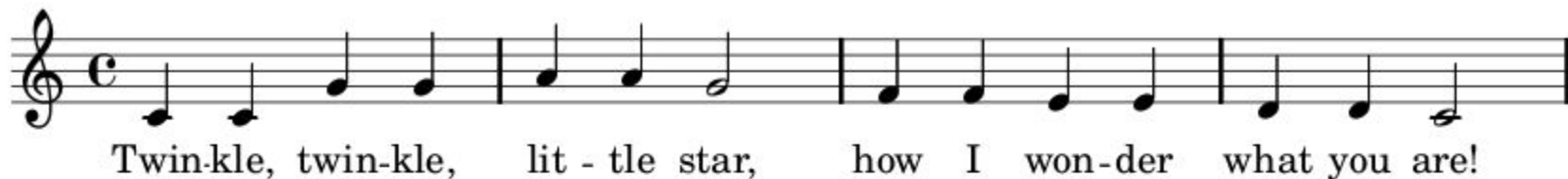
# Why do we use an RNN-LSTM?

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- Melodies have long-term structural patterns

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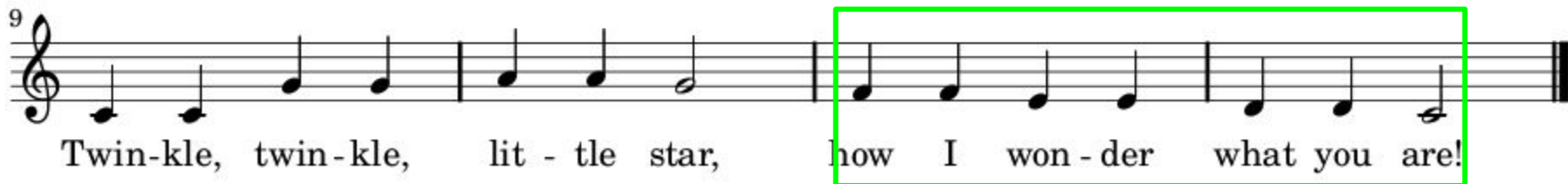
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- Melodies have long-term structural patterns
- LSTMs capture long-term temporal dependencies

# The melody dataset

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- Traditional folk melodies
- ESAC dataset 5K+ songs from all over the world

# What next?

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- Music concepts + symbolic music representation