AUTOMATIC EXTRACTION OF HARMONIC RHYTHM FROM MELODIES

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Abstract

In this thesis, I tried to extract the harmonic rhythm from a given melody. Alongside the melody, information on cadence placement and the bar boundaries are given. The system learned style-specific patterns from an annotated corpus of pieces in different styles, with the same information as above and additionally the original harmonisation in a reduction of medium depth. With this, I wanted to answer the question whether or not it may be possible to define one of the two elements necessary for a harmonisation (the harmonies and their locations) independently of the other. Achieving this would mean a step forward towards an autonomous harmonisation tool that is most importantly independent of its user's expert knowledge. Thus, such a system could also be used by musical beginners or completely musically inept users.

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Contents

1 Theoretical Background

In the last years, scientific progress on computational creativity has accelerated more and more in all aspects of creativity. In the fine arts, this progress is mainly driven by neural networks, allowing for new techniques such as style overlaying or style blending and recombination of different aspects of an image (such as form and texture) [citation needed]. In music, neural networks are also beginning to make their mark, one example being "DeepBach", a neural network able to copy Bach's chorale style (or any other, provided the correct input) and already fooling even musical experts from time to time[HP16]. Examples for systems: Flow Machines (Sony France), Watson Beat (IBM), Jukedeck (London Startup), CHAMELEON, Songsmith (Google), Magenta (Google)

2 The CHAMELEON Harmonising System

Bibliography

[HP16] Gaëtan Hadjeres and François Pachet. Deepbach: a steerable model for bach chorales generation. *arXiv preprint arXiv:1612.01010*, 2016.

Hereby I confirm that I wrote this thesis independently and that I have not made use of any other resources or means than those indicated.

Hiermit bestätige ich, dass ich die vorliegende Arbeit selbstständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel verwendet habe.

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