CS 451 Computational Intelligence

Project Proposal

Music Composition Using an Evolutionary Algorithm

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Motivation

Music composition involves innovation, creativity and sense of melody. Through this project, we hope to discover how music can be composed without the involvement of musicians. Taking motivation from the paper we presented for our first presentation, we will try to utilize our knowledge of evolutionary algorithms to compose melodies. According to the paper, a reference melody will be used by the program to generate new melodies that are pleasant to hear.

References to Research Papers We Will Go Through During the Project

- Matic, D. (2010). A genetic algorithm for composing music. *Yugoslav Journal Of Operations Research, 20*(1), 157-177. doi: 10.2298/yjor1001157m
- Geem, Z. W., & Choi, J.-Y. (2007). Music Composition Using Harmony Search Algorithm. In *Applications of Evolutionary Computing* (pp. 593–600). Berlin, Heidelberg: Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-71805-5_65
- Freitas, A. R. R., Guimarães, F. G., & Barbosa, R. V. (2012). Automatic Evaluation Methods in Evolutionary Music: An Example with Bossa Melodies (pp. 458–467). Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-32964-7_46

CI Techniques to be Applied

- Evolutionary Algorithm

Dataset to Be Used

- Reference melody (to be decided after reading other material and according to the performance of the melody)

Expected Outcome of the Project

We aim to make a program that can compose harmonious melodies by itself.

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