Project Proposal

Advanced Functional Programming

Joris ten Tusscher, Cas van der Rest, Orestis Melkonian

1 Domain

1.1 Algorithmic Music Composition

1.2 Generation Techniques

1.3 Motivation

[1]

2 Problem

2.1 Music-Representation DSL

2.1.1 Euterpea

Euterpea[1]

2.1.2 Export to MIDI

Midi[2]

2.1.3 Render to music scores

Lilypond[3]

2.2 Generation DSL

2.2.1 Chaos Functions

[2]

2.2.2 L-Systems

[3]

[1] https://hackage.haskell.org/package/Euterpea
[2] http://hackage.haskell.org/package/midi
[3] https://hackage.haskell.org/package/lilypond

2.2.3 QuickCheck

2.3 Constraints DSL

2.3.1 Restrict Generation DSL

2.3.2 Constraint Specification

2.3.3 Efficiency & Proactive Filtering

2.4 Application

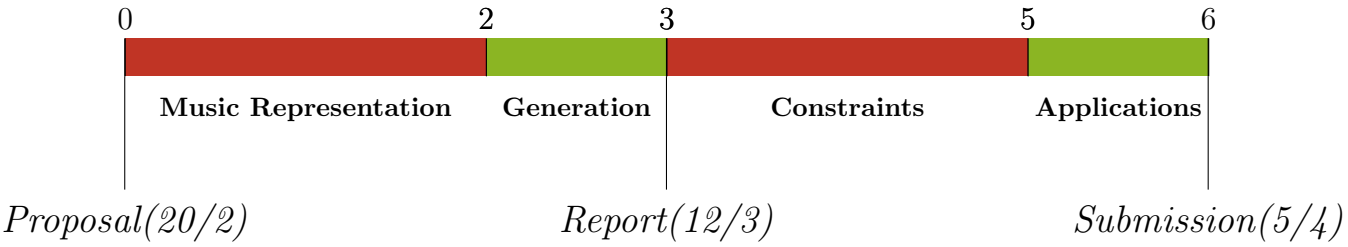
2.4.1 Example Applications

2.4.2 Built-in Utilities

2.4.3 Simple...

3 Planning

Below we give the estimated schedule across the six weeks available:



References

[1] H. Young, "A categorial grammar for music and its use in automatic melody generation," in *Proceedings of the 5th ACM SIGPLAN International Workshop on Functional Art, Music, Modeling, and Design*, pp. 1–9, ACM, 2017.

[2] R. Bidlack, "Chaotic systems as simple (but complex) compositional algorithms," *Computer Music Journal*, vol. 16, no. 3, pp. 33–47, 1992.

[3] J. McCormack, "Grammar based music composition," *Complex systems*, vol. 96, pp. 321–336, 1996.