

SUMMARY OF RESEARCH PROPOSAL as of May 2004

Thesis title (provisional)

Hybrid-cooperative systems for automatic composition and musical style perception modelling.

Preliminaries

Construct a corpus big enough to comprise several musical styles in MIDI format.
Define a set of musical descriptors suitable to classify musical pieces or fragments by style.

Phase I

Goal: Build a system capable of automatically describing and classifying musical pieces from their symbolic (score-like) representation.

How to do it:

Use well-known feature extraction and selection techniques (principal components, factor analysis, etc.) to analyze the musical descriptor set.

Use supervised and unsupervised pattern recognition techniques widely used in text information retrieval to implement the classification stage, like Bayesian classifiers, k-nearest neighbours, self-organising maps, support vector machines, etc...)

Phase II

Goal: Develop an automatic melody generation system.

How to do it:

Implement the composition system using genetic programming techniques.

Evaluate the use of the classification system from Phase I as an evaluation agent for the melody generation system.

Phase III

Goal: Integration of the classification/evaluation system with the melody generation system to obtain an automatic composition system capable of generating melodies according to a set of musical styles.

Current research state: Entering phase II