INTRODUCTION

The project centers on DISSCO (Digital Instrument for Sound Synthesis and Composition), software for composition, sound design, and music notation/printing developed at Illinois and Argonne National Laboratory. Written in C++, it includes a graphical user interface using gtkmm, a parallel version is being developed at the San Diego Supercomputer Center.

AIM

Develop DISSCO, a software for composition, sound design, and music notation printing for musicians; contribute to new paradigm for composing computer music.

METHOD

- Refining a system for the notation of music as well as to the realization of an evolving entity, a composition whose aspects change when computed recursively over long periods of time thus mirroring the way living organisms are transformed in time (artificial life).

- Handling the automatic notation of complex rhythms: Sounds may be generated in a random sequence but the notation component needs to handle them according to the time order; The start time and duration of a sound are randomly picked within a given range, but the end time could have a value incompatible with Western music symbols...... Improve performance when the input is very complicated.

- Solve problems in automatic generated notation for complex rhythms by coding and testing around 3,000 lines of codes in C++; manage branching and merging code in GitHub for this project’s code.

RESULTS

Achieve a “black box”: once the data is fed into DISSCO, the user does not intervene during the computations, and the output does not require post-processing.

IMPACT

This project contributes to a new paradigm for composing computer music. This DISSCO project helps human composers create new music or to have computers independently create music, such as with algorithmic composition programs.

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