Scorewriter application with features aimed at Byzantine music processing

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Abstract

Byzantine music is an old and complex musical tradition which precedes contemporary Western music. Nowadays, its popularity has dwindled, with its use being mostly within Eastern Christian churches, even though the need to educate new singers as well as the creative enthusiasm still persists. Few computer software applications deal with Byzantine music and the imperfect command of Byzantine music theory among singers often requires parallel classical and Byzantine notation staves in modern books.

A software application aimed at composers, singers and learners of Byzantine music was written in the C++ programming language. It enables the user to write simple musical composition using either the standard notation or the Byzantine notation using a subset of the neumatic Byzantine notation. The application can be used to produce an approximate transcription of Byzantine compositions into their classical notation counterparts using an algorithm with quadratic complexity and play the resulting compositions using digital musical instrument synthesis. The third-party libraries used include wxWidgets for the user interface and Fluidsynth for musical synthesis and are all free and open-source. Although it was developed and tested on the Linux operating system, the application features great portability, as all the libraries it uses are also cross-platform, offering support for the Windows, Linux and MacOS X operating systems alike.

Extensive data structures and algorithms for containing and manipulating the data, as well as interacting with the computer user, have been developed. Additionally, the application offers serialization capabilities for the compositions created using it, as well as support for pitch-tracking. Both the internal data structures and the user interface components feature great modularity and can easily be re-utilised in code in order to add new functionality to the application.

The resulting application, called *Synodia*, demonstrates the usage of the devised components, integrating them into a stand-alone product. It is not meant to be exhaustive but represents a working proof-of-concept for computer-aided Byzantine musical scorewriting and Byzantine-to-linear notation transcription, an example of the ways modern technology can help preserve and promote cultural heritage.