The Department of Computer Science & Software Engineering and the Computer Science Graduate Education Committee present an interdisciplinary lecture:

Computational Methods for the Analysis and Generation of Musical Rhythm Timelines

Godfried Toussaint

McGill University
School of Computer Science and
Centre for Interdisciplinary Research in Music Media and Technology

Musical rhythm timelines are considered from the symbolic input point of view. Several methods used to represent rhythms, as well as measure rhythmic similarity are reviewed. New measures of rhythm similarity are proposed, and algorithms for their efficient computation are discussed. Analysing the histograms of inter-onset duration intervals in rhythms yields interesting mathematical and computational problems, and suggests methods for the automatic generation of new rhythms that have specific properties. Viewing rhythms as sequences (or strings) of symbols, suggests using tools from bioinformatics to perform phylogenetic analyses of families of rhythms. Such tools allow us to reconstruct ancestral rhythms, which may be used in automatic music composition systems, or to test theories of the evolution of musical rhythms. These applications will be illustrated with examples from African, Latin -American, and Flamenco music. The Flamenco research has been discussed several times in the media recently. See for example articles in the McGill Reporter and in Cyber Sciences.
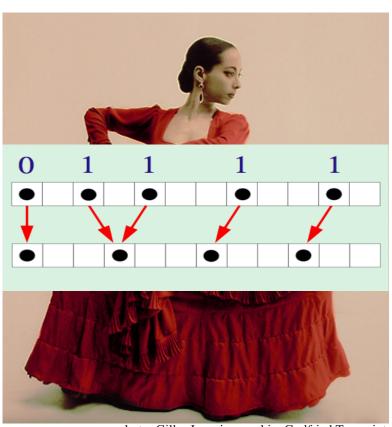
photo: Gilles Larrain; graphic: Godfried Toussaint

**Tuesday, 28 March
3:30PM – 4:30PM
EV–2.184 lecture hall
Free admission,
refreshments afterward**