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Guest Editorial

Music has a long and rich tradition within machine learning. Some of the first applications of early computing machinery were statistical models of melody learned through the analysis of examples. Today machine learning is applied to highly complex music textures and used routinely for music classification, generation and improvisation, music analysis, and performance analysis, to name just a few key applications. Due to the steady increase in available data, most music processing applications can now be supported by some machine learning component.

Methods for machine learning in music can be described in terms of their application task, the representation and characteristics of the input data, and the machine learning algorithm used. Though detailed musicological studies will always require clean symbolic data, the classical boundary of audio versus symbolic input is now starting to dissipate as many methods now translate audio data to the symbolic domain where learning takes place, then back again where learned results are applied to the audio signal.

For this Special Issue of Intelligent Data Analysis we are pleased to present five articles that cover a wide range of application tasks and music data types. Submission to this Special Issue was solicited by the Editors and each submission was given three reviews by experts in the field, with a second round if necessary, followed by a check of revised submissions by the guest editors.

The articles of Pérez-Sancho et al. and Conklin are both concerned with music classification tasks. Pérez-Sancho considers the processing of audio data to create chord sequences, in the broad genres of pop, jazz, and classical, which are used as input to a symbolic language modelling technique. Conklin develops a pattern discovery method that uses purely symbolic data, including diatonic spellings, applied to the task of distinctive pattern discovery in pieces labelled with classes.

The articles of Molina-Solana et al., Ramirez et al., and Maestre and Ramirez are all concerned with modelling solo violin performance. Molina-Solana et al. use purely audio input to the analysis of performances of the Bach partitas for solo violin, with the goal of performer identification. Ramirez et al. consider the learning of transformations to Celtic jigs by analysis of audio performances translated to the symbolic domain for input to an inductive logic programming method. Maestre and Ramirez consider the problem of predicting bowing parameters from a score, using principal component analysis and inductive logic programming.

Machine learning and music is a growing field, and we intend to continue organising an annual international workshop on Machine Learning and Music (MML), following up on the successful MML08 (Helsinki, Finland), MML09 (Bled, Slovenia), and MML10 (Florence, Italy).

Finally, we wish to thank our colleagues working in the area of machine learning and music, inspiring this Special Issue of Intelligent Data Analysis, and we wish to give special thanks to the other manuscript reviewers who have made this Special Issue possible: Fabien Gouyon, José Manuel Iñesta, Søren Madsen, Carlos Pérez-Sancho, Aggelos Pikrakis, Pedro Ponce de León, and Hendrik Purwins.

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