

CISTalks

Time: **2024-06-25T11:00**

Location: **BBBF-311, Yeditepe University**

Open to the public. All are invited.

Computational Music Theory [1]

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Lecturer

Abstract

Music theory examines the structure of music at the neutral level through its dimensions: melody, harmony, rhythm, meter, timbre, texture and form. Computational music theory uses the language of mathematics, algorithms and computational power to examine music. This examination includes both static modeling of musical structures and dynamic modeling of musical processes. The use of computational methods in music theory —not at the sound level, but at the symbolic level, i.e., at the level of notes and higher abstractions— is relatively new. MIDI, MusicXML and similar formats have become popular forms of musical information exchange for music at symbolic level. Mathematical and computational models for music include the Rubato line of research, i.e., *mathematical music theory* which has been in continuous development since 1980's. The example we will examine in detail is both a mathematical and a computational model for analysis of harmony and meter and associated software implementations on Rubato, a Java-based music composition and analysis framework. Results show that detailed experiments on musical information is possible for testing various theses about music theory through mathematical and computational modeling of musical information.

[1] Full article: <https://dergipark.org.tr/en/download/article-file/2193072>

Biography

Ruhan Alpaydın holds a B.S. in Computer Engineering from Boğaziçi University, an M.S. in Computer Science from Stanford University, and a Ph.D. from İTÜ MİAM (Center for Advanced Studies in Music). Her research focuses on understanding structures and processes in music as mathematical structures and processes.