

## AUTOMATIC COMPUTER MUSIC CLASSIFICATION AND SEGMENTATION

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**Rezumat.** *Lucrarea de față descrie și aplică diferite metode pentru segmentarea automată a muzicii realizată cu ajutorul unui calculator. Pe baza rezultatelor și a tehnicilor de extragere a caracteristicilor folosite, se încearcă de asemenea o clasificare/recunoaștere a fragmentelor folosite. Algoritmii au fost testați pe seturile de date Magnatune și MARSYAS, dar instrumentele software implementate pot fi folosite pe o gamă variată de surse. Instrumentele descrise vor fi integrate într-un „framework” / sistem software numit ADAMS (Advanced Dynamic Analysis of Music Software - Software pentru Analiza Dinamică Avansată a Muzicii) cu ajutorul căruia se vor putea evalua și îmbunătăți diferitele sarcini de analiză și compoziție a muzicii. Acest sistem are la bază biblioteca de programe MARSYAS și conține un modul similar cu WEKA pentru sarcini de procesare a datelor și învățare automată.*

**Abstract.** *This paper describes and applies various methods for automatic computer music segmentation. Based on these results and on the feature extraction techniques used, is tried also a genre classification/recognition of the excerpts used. The algorithms were tested on the Magnatune and MARSYAS datasets, but the implemented software tools can also be used on a variety of sources. The tools described here will be subject to a framework/software system called ADAMS (Advanced Dynamic Analysis of Music Software) that will help evaluate and enhance the various music analysis/composition tasks. This system is based on the MARSYAS open source software framework and contains a module similar to WEKA for data-mining and machine learning tasks.*

**Keywords:** automatic segmentation, audio classification, music information retrieval, music content analysis, chord detection, vocal and instrumental regions

### 1. Music Information Retrieval

The number of digital music recordings has a continuous growth, promoted by the users' interest as well as the advances of the new technologies that support the pleasure of listening to music. There are a few reasons that explain this trend, first of all, the existential characteristic of the musical language. Music is a form of art which can be shared by people that belong to different cultures because it surpasses the borders of the national language and of the cultural background. As an example the West American music has many enthusiasts in Japan, and many persons in Europe appreciate the classical Indian music. These forms of

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