INTRODUCTION TO MUSIC INFORMATION RETRIEVAL

UNIVERSITY OF ALICANTE

ALICANTE, 9-10TH MAY 2023

About the workshop

As one of the main means of human expression, music undoubtedly plays an important role in our life. From the earliest music efforts achieved by elements such as bone flutes, stones, and claps to the current digital production tools, this art has evolved together with our society to address the cultural needs and concerns of the society. It is hence no strange that the demand of tools that facilitate different music activities such as its creation, production, or consumption, is remarkably increasing, not only by professionals but also by amateur practitioners.

Based on this, a large number of technological developments in the current Information Society focus on musical data with the objective of improving the end user experience through several applications. When computer technologies are used, this is known as Music Information Retrieval (MIR) and, besides representing a creative and multidisciplinary research field, it also stands for one of the main market niches in the music field with companies such as Spotify or ByteDance as one of the main successful examples.

This workshop aims to make the MIR field known both to the general public and to those interested in a possible career path, whether research or industrial. We will cover many aspects, both from conceptual and technical points of views, related to the field in general but also on specific tasks (music classification, audio transcription, automatic composition, etc.). We will naturally integrate in the lectures the tools typically considered for building MIR systems, such as artificial intelligence and signal processing.

The workshop is addressed to any student interested in the intersection between music and technology. Some background in the technological aspect (audio processing, programming, artificial intelligence, etc.) is recommended but not required.

Learning outcomes

At the end of the workshop, students:

- will have a broad knowledge of the MIR field.
- will acquire skills to understand the fundamentals of audio signal processing applied to music data.
- will acquire skills to understand the fundamentals of artificial intelligence applied to music data.
- will understand the different challenges associated with this field in a simple way.
- will have references and tools to understand how MIR systems work.

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- will know the possibilities that the MIR field offers at a scientific, technical and business level.

Duration

30 hours. 16 hours of individual work online. 14 hours of face-to-face lessons.
Literature Review: students will be provided with relevant papers to read before attending to the workshop.
Final report: students should write a report of a particular section of the workshop that will be assigned.

Workshop teachers

Jorge Calvo Zaragoza, José Javier Valero Mas, María Alfaro Contreras, Juan Carlos Martínez Sevilla, University of Alicante

Workshop Schedule

Day 1

Time	Content
09:00 – 09:30	Course introduction
09:30– 10:30	Fundamentals of Music Information Retrieval
10:30 – 13:00	Audio music categorization, search, and retrieval
13:00 – 14:00	Lunch break
14:00 – 17:00	Generative models for music: composition and synthesis

Day 2

Time	Content
09:00 – 10:00	Source separation in music
10:00 – 11:00	Automatic music transcription
11:00 – 12:00	Optical music recognition
12:00 – 13:00	Automatic score following
13:00 – 14:00	Lunch break
14:00 – 15:30	Symbolic music categorization, search, and retrieval
15:30 - 16:30	Follow-up material and opportunities
16:30 – 17:00	Workshop closing

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