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University of Jaén investigators developed a method to identify musical notes

A team of telecommunication engineers of the University of Jaén (UJA) has created a new method to detect and automatically identify music notes of any audio file and create the sheet music.

The system identifies the notes, no matter the type of instrument, artist, musical style or conditions of the recording room. The fact that the new system is "adaptive" means that it can operate in various environments not depending on the type of instrument, the musician, the style, the room or the position of the microphones. The system is "able to adapt to the music scene," states Julio José Carabias, co-author.

The researchers start with a 'wav' file, a common audio format for audio recordings, and after applying the method, they get a file 'midi', a communication musical instrument protocol that allows the visualization and listening to the sheet music.

According Carabias, "the automatic music transcription has many practical applications for musicological analysis, and is helpful in applications such as music content retrieval, the separation of sound sources, the encoding or conversion of audio files. "

Also, this new method has the advantage of requiring no prior training with a music database. "What do determines the technique is the timbre or 'spectral surrounding' of the musical notes of an instrument, ultimately producing a harmonics dictionary," he added.

With the help of this dictionary and a computer algorithm called 'Matching Pursuit', the musical notes' surrounding is more like the harmonics dictionary. Although currently the only method can be applied to a single instruments file, the researchers are already investigating how to extend it to files of multiple instruments.