

# Tutorial 6

## Automatic Music Transcription

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### Abstract

Automatic Music Transcription (AMT) is a fundamental problem in music information retrieval. Roughly speaking, transcription refers to extracting a symbolic representation—a list of notes (pitches and rhythms)—from an audio signal. Music transcription is a fascinating but challenging task, even for humans: in undergraduate music education it is usually called dictation, and achieving a high level of proficiency requires years of practice and training. Empowering machines with this ability is an even more challenging problem, especially for automatically transcribing polyphonic music. To that end, the AMT problem has drawn great interest of researchers from several areas including signal processing, machine learning, acoustics, music theory, and music cognition. In terms of applications, a successful AMT system would be helpful for solving many MIR research problems, including music source separation, structure analysis, content-based music retrieval, and musicological study of non-notated music, just to name a few. This tutorial will give an overview of the AMT problem, including current approaches, datasets and evaluation methodologies. It will also explore connections with other related problems (i.e. audio-score alignment, source separation) as well as applications to related fields, such as content-based music retrieval and computational musicology. The tutorial is designed for students and researchers who have general knowledge of music information retrieval and/or computational musicology and are interested in getting into the field of AMT. A substantial amount of time will be spent in discussing challenges and research directions; we hope that this discussion will help move this field forward, and influence related fields in MIR and computational musicology to exploit AMT technologies. The tutorial will also include hands-on sessions on using AMT code and plugins - participants will be encouraged to bring their laptops and gain access to transcription datasets, as well as work on AMT examples.