

Real-time score tracking for personalization of live orchestral performances

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Abstract

Humans with musical training are easily able to follow a musical score in progress. A computer that can similarly align a musical performance to a known reference recording has potential as a tool for music education. We have designed a system that responds to live musical performance by displaying relevant musicological and historical annotations. This system is intended for use by the Philadelphia Orchestra in their Internet2 multicast performances. After tagging a reference recording with musical commentary, we use dynamic time warping to align live audio to the known reference structure. We then display the relevant information to mobile handheld devices (specifically, the iPhone or iPod Touch) for each member of the audience. Thus, we can enhance the listening experience by providing lyrics, translations, and musical highlights. In addition to being useful for music education, this system also provides the audience with a personalized listening experience, allowing them to choose what information is displayed on their handheld device. This way, an audience member can specify their level of musical knowledge or the language of the lyrics that are provided to them.