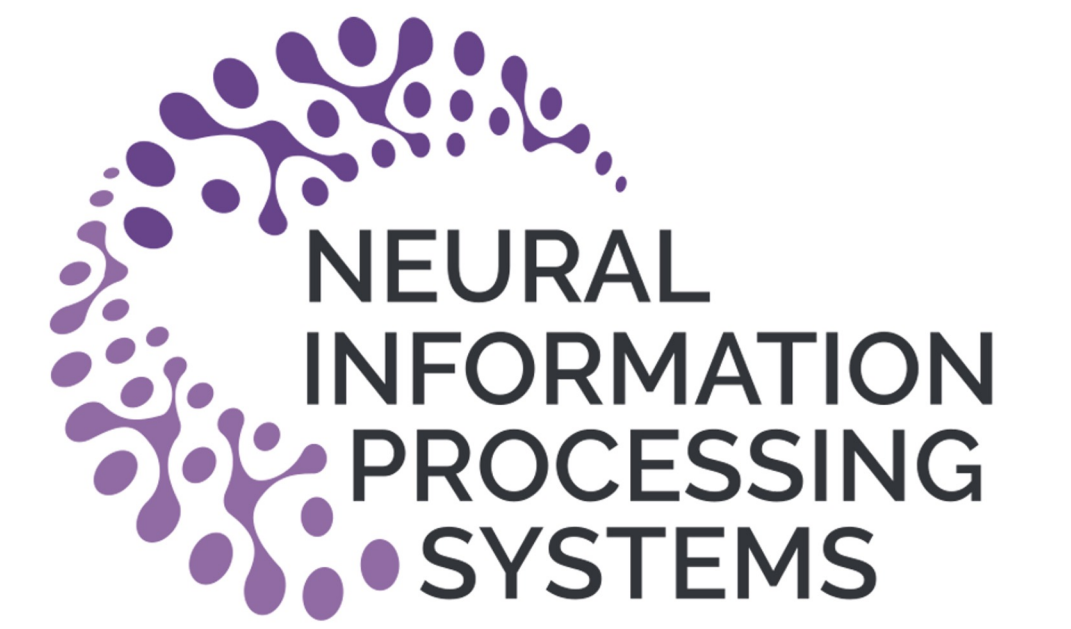


Tuning Music Education AI-Powered Personalization in Learning Music

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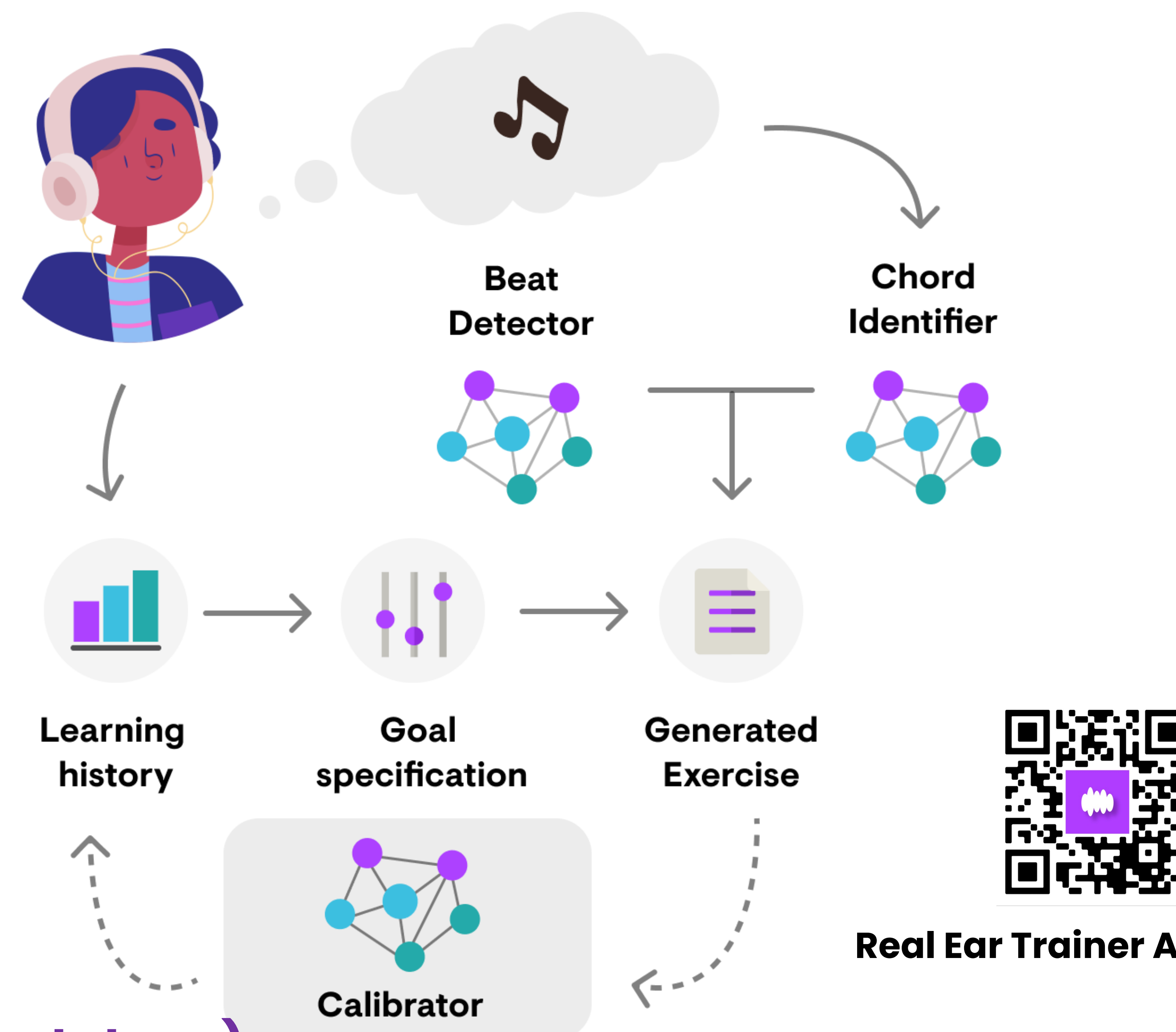


Abstract

Recent AI-driven step-function advances in several longstanding problems in music technology are opening up new avenues to create the next generation of music education tools. Creating personalized, engaging, and effective learning experiences is a continuously evolving challenge in music education. Here we present two case studies using such advances in music technology to address these challenges. In our first case study we showcase an application that uses **Automatic Chord Recognition** to generate personalized exercises from audio tracks, connecting traditional **ear training with real-world musical contexts**. In the second case study we prototype **adaptive piano method books** that use **Automatic Music Transcription** to generate exercises at different skill levels while retaining a close connection to musical interests. These applications demonstrate how recent AI developments can democratize access to high-quality music education and promote rich interaction with music in the age of generative AI. We hope this work inspires other efforts in the community, aimed at removing barriers to access to high-quality music education and fostering human participation in musical expression.

Case study I. Ear training app (available, iOS)

Train your ear using personalized quizzes based on songs you love



Case study II. Personalized Piano Method Books (prototype)

Learn piano better using adaptive exercises generated from the music you enjoy



Future directions

[1] Better transcription of individual elements will enable ear training quizzes to include melodies, basslines, sections etc.

[2] Better transcription will also enable interactive music textbooks that explain music theory concepts with personalized examples from music you listen to

App References

