

AI-based piano learning with real-time feedback and personalized progress tracking

Thursday 18 September 2025 11:40 (15 minutes)

This paper presents *Pianalyze*, an intelligent e-learning platform designed to support piano practice through real-time audio analysis and personalized feedback. By leveraging convolutional neural networks and in-browser audio capture, the system evaluates performance and provides explanatory insights to guide learners. Also, the platform enables manually curated learning paths and tracks individual progress over time. Our experimental evaluation shows that the system provides real-time visual and textual feedback, effectively bridging the gap between traditional instruction and self-guided learning through AI-driven support.

Keywords —Piano Learning Platform, Real-Time Audio Feedback, Music Note Recognition, AI in Music Education, CNN-based Audio Classification

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Session Classification: Networking in Education and Research

Track Classification: Networking in Education and Research