

Augmented Piano Tutor

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1. Description

In this project virtual objects are superimposed on top of a real MIDI keyboard. The input and output channels of the keyboard are connected to a computer via a MIDI interface. The application serves as a piano teacher that teaches about basic chords, scales, etc. The keys pressed by the "student" user, the order and the timing of the piano key presses are all captured by the computer with the help of the MIDI interface, therefore the teacher can immediately "check" whether the student has correctly followed the instructions and may give instant visual feedback over the real keyboard (e.g. marking wrongly pressed or missed keys with different colors).

2. Setup

The application is based on a "fishtank" AR setup (PC+monitor+webcam), where the physical MIDI keyboard is tracked with the help of an optical marker. A MIDI keyboard is available for the test setup.

3. Concept images



Left figure: The application shows visually which keys to hit to play a certain chord and plays the chord on the keyboard at the same time.

Right figure: The application gives visual and audio feedback whether the most recently played chord was correct or not.