Cadenza: An Effective, Data-Driven Practice Tool for Musicians

Chatterjee, Aritro (School: Paradise Valley High School)
Udhayasankar, Aariya (School: Paradise Valley High School)
Whelan, Liam (School: Paradise Valley High School)

Cadenza is a music practice app that's designed to help musicians improve by providing immediate, accurate feedback on intonation, rhythm, tone, and harmony. Developed to bridge the gap for those with limited access to private lessons, Cadenza utilizes real-time Digital Signal Processing (DSP) and machine learning to process audio from various instruments and vocalists. It offers sheet music analysis, play-along features, and performance monitoring, giving users visual and auditory feedback on pitch through intonation with equal temperament, rhythm, chord detection, and tone color for both Android and iOS users. This cross-platform architecture was made possible through React Native and Rust featuring an Audio Pipeline that impressively offers pitch detection down to an accuracy within ± 5 cents with less than 50 ms of latency. Ultimately, Cadenza provides musicians with actionable feedback for an efficient and enjoyable practice.

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