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Hand-Controlled Digital Audio Synthesizer

We propose to build a multimedia digital synthesizer. Using additive synthesis coupled with physical modeling, the synthesizer will be capable of producing notes that sound similar to a real instrument's. We will implement two methods of controlling this synthesizer: a computer keyboard interface and video monitoring interface. The video monitoring interface will track hand movements using a video camera. These hand movements will control pitch, volume, and/or duration. All movements will be displayed to the computer monitor as feedback to the user.