

Abstract

Gestural control respecting musical systems is a vast area of study that encompasses many different techniques and platforms for implementation. There are a plethora of possibilities to initiate control functions as well as variables that can be controlled, whether it be compositional controls, sound synthesis controls, control of sound timbre, or even control over multimedia components. This paper will present a broad amount of information regarding gestural controllers; from performance enhancing controllers through controllers designed to manipulate synthesis algorithms and variables. Chronologically, we will introduce a history of these technologies and present a number of different types of well noted controllers. Second, there will be a discussion with respect to the different physical interactions that can be used to establish control (human-computer interaction, physical computing, etc). After this, there will be an introduction to the general components and systems available to build/construct a controller as well as the rudiments of communication between these controllers and the systems they manage. Lastly, we will elucidate a controller built by our group that communicates with a MAX/MSP patch to control certain aspects of a performance. This particular patch will control the movement of a performers fingers on the neck of his/her guitar, and the MAX/MSP patch will evaluate the input data and respond by effecting the performance. There will be other aspects of control (touch, and light) present to manipulate the patch during performance. After our short oral presentation, we will then perform a short piece for the class as an overall example of the beautiful possibilities that these technological solutions provide.

Members

Russell Silber will begin the paper with some brief history about gestural controllers, interesting designs that have been utilized through the present, and also an introduction to the types of gestural control and human-computer interaction to us as musicians.

Tae Min Cho will conclude the paper by discussing of the common components contained in various systems, design process of the gestural music controller, certain ways of communication between our control devices and our host system, and a description of our controller and patch. We will include a brief description of our intentions for our performance, and the basic functions of our patch.

Bibilography

Wanderly, Marcelo M. *"Gestural Control of Music"*
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Miranda, Eduardo R. *"New Digital Musical Instruments: Control and Interaction Beyond the Keyboard"*
A-R Editions Inc., 2006

Bahn, Curtis; Hahn, Tomie; Trueman, Dan *"Physicality and Feedback: A Focus on the Body in the Performance of Electronic Music"*

Sapir, Sylviane *"Gestural Control of Digital Audio Environments"*
Journal of New Music Research, 2002

Goto, Suguru; Suzuki, Takahiko *"The Case Study of Application of Advanced Gesture Interface and Mapping Interface"*
Proceedings of the 2004 Conference on New Interfaces for Musical Expression (NIME04), Hamamatsu, Japan