



Kora-Som: An interface that converts a player's beating heart into a real-time metronome

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Abstract

The heartbeat is a central timing reference in life and in music. Several composers and players along history have mentioned the heart rate as a measure for the musical pulse. On the other hand, it is known that listening and playing music affects the heartbeat frequency, besides other physiological signals. The purpose of this project consists of building a device that detects, measures and replicates a subject's heartbeat and makes it available in real-time for musical research and performance. The Kora-Som system employs a commercial heart rate sensor, widely used in sports. The data from this meter are received and decoded by a remote sensor, connected to an Arduino and a portable computer. A piece of software generates and plays sounds from wavetables, melodic sequences, midi files and other formats and protocols. A player may literally play with his/her own heart, which opens a large range of composing and improvising fields. A whole musical group is able to play to/with a certain listener, such as a hospital patient, in a very touching and stimulating situation. All timing and performing data is recorded and made available for eventual processing and evaluation.

Keywords: Heartbeat, Metronome, Music, Performance, Ensemble