International Conference on New Interfaces for Musical Expression

Action-Reaction

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PROJECT DESCRIPTION

Action-Reaction explores the sonic relationship between the performer and the two GameTrak controllers. The sound producing algorithms are programmed to synthesize and resynthesizes sounds based on physical models, and different data streams are mapped to the modals' parameters, eventually routed to control musical parameters in real time.

For example, one sound producing algorithm is designed based on Kyma's "SlipStick" - the algorithm synthesizes sound based on a physical model of a mass being dragged across a surface by a control point at the end of a spring. By changing the "friction" between surfaces, "stiffness" of the spring, "control position" in relationship with the "gravity" parameters, sounds are generated and manipulated, emulating the physical experience and producing new musical expression.

PROGRAM NOTES

Action-Reaction is a real-time interactive composition of approximately eight minutes in duration for two GameTrak controllers, Max/MSP, and Kyma.

In classical mechanics, Newton's third law of motion states that for every action, there is an equal and opposite reaction. The action and reaction form a single interaction, they are simultaneous and neither force exists without the other. The GameTrak's retractable tethers interact with the performer's push, pull, release and free movements, causing the tethers deviating from and aligning with the rest state. The performer sometimes makes subtle and sparse push movements while sometimes pull and drag the tethers dramatically. However, after releasing the tethers, they are retracted back to the rest state, creating predictable yet unique realignment path each time. The data measured from the physical movements are mapped to various parameters in the sound producing algorithms, creating musical expressions that are both superimposed and nuanced.

PERFORMANCE REQUIREMENTS

The composer will provide the performer, controllers, and the computer system needed to perform the composition. The presentation ready performance video can be provided for online presentation form if NIME 2021 will be hosted virtual.

If NIME 2021 will be hosted in person:

- equipment: two speakers, mixing console.
- space: the composition can be adapted for a variety of venues
- performers: the composer will provide their own performer
- feasibility: the composer has their related compositions performed at high-profile, international computer music conferences/festivals including:
 - New Interface for Musical Expression International Conference,
 - International Computer Music Conference,
 - Society for Electro-Acoustic Music in the United States,
 - New York City Electroacoustic Music Festival,
 - Musicacoustica-Beijing,
 - Kyma International Sound Symposium,
 - International Confederation of ElectroAcoustic Music,
 - International Workshop on Computer Music and Audio Technology.

MEDIA

Action-Reaction

Action-Reaction Performance Video
Composer and Performer: Chi Wang