

Press release - 15 July, 2013: Instrumented bodies: digital prostheses for music and dance performance

Researchers at the Input Devices and Music Interaction Lab at McGill University recently released a video documentary on the design and fabrication of "prosthetic digital instruments" for music and dance. These instruments are the culmination of a three-year long project in which the designers worked closely with dancers, musicians, composers and a choreographer. The goal of the project was to develop instruments that are visually striking, utilize advanced sensing technologies, and are rugged enough for extensive use in performance.

The complex, transparent shapes are lit from within, and include articulated spines, curved visors and ribcages. Unlike most computer music control interfaces, they function both as hand-held, manipulable controllers and as wearable, movement-tracking extensions to the body. Further, since the performers can smoothly attach and detach the objects, these new instruments deliberately blur the line between the performers' bodies and the instrument being played.

The prosthetic instruments were designed and developed by Ph.D. researchers Joseph Malloch and Ian Hattwick under the supervision of IDMIL director Marcelo Wanderley. Starting with sketches and rough foam prototypes for exploring shape and movement, they progressed through many iterations of the design before arriving at the current versions. The researchers made heavy use of digital fabrication technologies such as laser-cutters and 3D printers, which they accessed through the McGill University School of Architecture and the Centre for Interdisciplinary Research in Music Media and Technology, also hosted by McGill.

Each of the nearly thirty working instruments produced for the project has embedded sensors, power supplies and wireless data transceivers, allowing a performer to control the parameters of music synthesis and processing in real time through touch, movement, and orientation. The signals produced by the instruments are routed through an open-source peer-to-peer software system the IDMIL team has developed for designing the connections between sensor signals and sound synthesis parameters.

Although evolution of the new instrument designs has not ceased, the current versions were featured in recent productions of the piece "Les Gestes" for two dancers and two musicians. The piece was developed in collaboration with the IDMIL researchers, and toured parts of Canada and Europe this spring.

The 15 minute documentary video explains the development process and shows the instruments in action:
link to documentary: http://youtu.be/jX-PXGagp_A
link to short teaser version: <https://vimeo.com/68576466>

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High-resolution photographs are available at <http://idmil.org/pubfiles/photos/prostheses/>



Photo: Michael Slobodian



Photo: Vanessa Yaremchuk