

Force Feedback Multisensory Virtual Musical Instruments – Challenges & Perspectives

James Leonard
Grenoble, France

Using force-feedback systems, virtual reality concepts and physical modeling techniques, it is possible to design multisensory virtual musical instruments that generate tightly correlated visual, audio and haptic feedback, rendering playing akin to gestural interaction with a real instrument. When coupled to adequate modeling environments, users can craft their own virtual physical instruments, and then seamlessly experience them. In light of recent works on this topic, several aspects will be discussed: a) technological challenges in creating hardware/software platforms for multisensory virtual instruments, b) fundamental aspects and singularities when using physical modeling techniques to design these instruments, c) pedagogy and mediation to non-expert users, and d) challenges towards incorporating force-feedback musical instruments as artist-centered creative tools.