Syntacts Workshop

Abstract:
Vibrotactile feedback has seen several exciting new developments in recent years as researchers have begun to explore more complex cue synthesis, higher density tactile arrays, and virtual and augmented reality applications. Traditional vibrotactor control methods, whether through commercial controllers or custom integrated circuit designs, present tradeoffs between cost, flexibility, and speed of implementation. In this workshop, we present a method of vibrotactor control based on digital audio interfaces that accommodates emerging research trends while striking a balance between these tradeoffs. We describe an open-source software and hardware package, Syntacts, that lowers the technical barrier to rendering vibrations with audio. The workshop includes tutorials for the Syntacts amplifier kit, programming APIs, and graphical user interface. We conclude with a real-world application of Syntacts, where we use the framework to deliver haptic feedback through a bracelet interface for hand interactions in virtual reality.