Wireless Communications and Mobile Computing

Special Issue on

# Interactions in Mobile Sound and Music Computing

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The Sound and Music Computing (SMC) discipline aims to design better sound objects and environments for promoting multidisciplinary research to understand, model, and improve human interaction in multimodal domains. Moreover, SMC supports core ICT technologies for the ongoing revolution in digital audio and music culture.

In particular, mobile and wireless technologies increasingly promote exciting future developments in SMC. Designing of ubiquitous and distributed interactive spaces defines new concepts and challenges of sound control and reproduction. Mobile and embedded input interfaces allow novel control paradigms. Distributed and wearable sensor systems enable the continuous connection and adaptation between mobile sensing technologies and user data (e.g., physiology, gestures, and location information).

This special issue focuses on interactivity in mobile auditory displays, allowing instantaneous sonic/musical feedback as part of action-perception interaction for users. In particular, the low-latency feedback loop between hardware and software is a key element for facing the complexity of spatiotemporal evolution of sound with relevant implications for mobile interfaces between humans and computers. Particular attention will be given to the growing maker communities around open embedded hardware platforms that allow the creation of new communication protocols for audio/multimedia data, musical instruments, and interactive audio systems.

Potential topics include but are not limited to the following:

- Analysis, synthesis, and modification of sound in mobile/embedded platforms
- Signal processing and sound reproduction in mobility scenarios
- Audio processing in sensor networks, embedded systems, and mobile computing platforms
- Multimodal sensing devices: interactive systems and new mobile interfaces/surfaces
- Interface protocols and data formats in mobile SMC
- Mobile musical instruments
- Sensor/actuator technologies and haptic and force feedback mobile devices
- Novel technologies for collaborative performance
- Sonic interaction design and action-sound mapping in mobile devices
- Spatial audio and auralization in mobile systems
- Mobile technologies for audio augmented and virtual reality
- Computer games, educational tools, and multimedia applications in mobile computing
- Industrial design and prototyping of mobile/embedded software and hardware (product design, ergonomics, and man-machine interfaces)

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**Lead Guest Editor**
Michele Geronazzo, Aalborg University, Aalborg, Denmark
*mge@create.aau.dk*

**Guest Editors**
Federico Avanzini, University of Padova, Padova, Italy
*federico.avanzini@di.unimi.it*

Federico Fontana, University of Udine, Udine, Italy
*federico.fontana@uniud.it*

Stefania Serafin, Aalborg University, Aalborg, Denmark
*sts@create.aau.dk*

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