

# SONIC INTERACTION DESIGN

## Exhibition Catalogue

*Norwegian Museum of Science, Technology and Medicine, 2011*

Natasha Barrett - Till Bovermann - Gerhard Eckel - Espen Sommer Eide - Christian Graupner  
Thomas Hermann - Risto Kõiva - Karen Mair - Michael Markert - Satoshi Morita - Joshue Ott - Morgan Packard  
Nils Peters - Scenocosme (Grégory Lasserre & Anaïs met den Ancxt) - Norbert Schnell  
Steve Symons - Jessica Thompson - René Tünnermann - Roberto Zappalà

BER

Bergen Center for Electronic Arts

Copyright © 2011 BEK - Bergen Center For Electronic Arts

ISBN 978-82-998680-0-6

All Rights Reserved. No part of this document may be reproduced without written consent from the authors.

BEK: Bergen Center for Electronic Arts

C. Sundtsgt. 55

N-5004 Bergen

Norway

<http://www.bek.no>

[bek@bek.no](mailto:bek@bek.no)

# SONIC INTERACTION DESIGN

Catalogue of an exhibition at Norwegian Museum of Science, Technology and Medicine, 2011

Curated by Trond Lossius and Frauke Behrendt

Edited by Frauke Behrendt and Trond Lossius

Produced by BEK: Bergen Center for Electronic Arts

in collaboration with:

Norwegian Museum of Science, Technology and Medicine

COST IC0601 Action on Sonic Interaction Design (SID)

NIME 2011: The International Conference on New Interfaces for Musical Expression

CoDE: The Cultures of the Digital Economy Research Institute

with generous support from:

Arts Council Norway

COST: European Cooperation in Science and Technology

Lydgalleriet

## Table of contents

## Introduction

by Frauke Behrendt and Trond Lossius

Boom...stroke...aaaaaeehhhh...swing...crash...push...beep! We struggle to put sonic interactions into words - and that is why an exhibition with real examples of sonic interaction design is the best way to experience this new field of research. It allows you to get your hands - and ears - on interactive works that showcase how sound can facilitate interaction in product design, mobile media, communicating scientific data, interactive art, and more.

"Sonic Interaction Design is the exploitation of sound as one of the principal channels conveying information, meaning, and aesthetic/emotional qualities in interactive contexts". That is the definition that has guided a four-year exploration of this innovative and interdisciplinary domain. The works in this exhibition aim to highlight that Sonic Interaction Design "has the potential of affecting everyday life through physical and virtual interactive objects, as today there is the possibility to design and actively control their acoustic response so that it conveys an intended aesthetic, informational, or emotional content" (<http://www.cost-sid.org>).

Sonic Interaction Design - or SID - is an especially pertinent example of how we are adjusting to the move from the screen-based era of desktop computing to the now ubiquitous world of mobile, networked media and the Internet of Things. While our eyes are busy in most everyday contexts where we use these devices (such as mobile phones, tablet computers or GPS navigation), the auditory channel is often under-utilised - and thus interaction with and via sound is highly relevant. But SID is a much wider field, and the focus on sound in interactions touches on all areas of our life and research, where a visual focus has been dominant for a long time.

This exhibition features works using sonic interaction within arts, music and design as well as examples of sonification for research and artistic purposes. The call for works was very successful with more than 100 submissions. Eleven works have been selected. In addition, a new work by the Norwegian musician and artist Espen Sommer Eide has been commissioned for the exhibition.

Some of the works illustrate the relevance of Sonic Interaction Design for our everyday environments, such as the office. In 'Auditory Augmentation at your Fingertips' (René Tünnermann, Till Bovermann & Thomas Hermann), the auditory characteristic of a computer keyboard is altered according to the weather situation outside, thus showing how a subtle soundscape can display relevant information, or serve as a discrete and ambient sonic embellishment of the environment. The 'SonicChair' (Thomas Hermann, Risto Kõiva) is an interactive office chair that gives auditory feedback that encourages users to be more dynamic on their chair to avoid back pain.

Sound can also be used to explore data in physical space in exciting ways. 'Crush-2' (Natasha Barrett & Karen Mair) is an interactive sound-art installation exploring the microscopic forces released during the process of crushing rock - the audience can move around the sample by using a sensor-enabled helmet (or alternatively a hand-held controller) and can then listen to the data, as interpreted by the artist. Using a hand-held device with speaker, the audience in 'Random Access Lattice' (Gerhard Eckel) interactively explores a virtual sonic sculpture constructed from speech recordings, arranged in a three-dimensional lattice structure.

The participants of 'Aura : The stuff that forms around you' (Steve Symons) are exploring physical space on a much larger scale: They walk around town with a GPS-enabled 'aura' backpack and headphones to experience a unique sound world - but they destroy the world as they listen to it, in fact they hear the degraded landscape created by other users' walks.

Playful interaction with and through sound is another aspect of Sonic Interaction design. The audience of 'MindBox' (Christian Graupner, Roberto Zappalà, Norbert Schnell & Nils Peters) operates the levers and buttons of a modified one-armed-bandit and thereby remixes the pre-recorded music-video of a beat-boxer that is displayed on large screens and by speakers above the machine. 'Swinging Suitcase' (Jessica Thompson) is a portable sound piece that generates and broadcasts the sound of a flock of house sparrows in response to the act of swinging.

The role of the voice in producing (largely non-speech) sound is also fascinating, for example, we can use our voice to sketch Sonic Interactions or to interact with and through sound. The close link between generating sounds and gestures is also a key aspect of SID. To interact with 'KII - Voicetopological Interface' (Michael Markert), the audiences' hands form specific gestures that imitate the opening of the mouth while speaking, and these are translated into a kind of voice. This is an example of gestural interaction without actually touching the object.

This is different in some other works in the exhibition where the audience is invited to touch or stroke objects, thus exploring the close link between sonic and haptic perception. The interactive installation 'Akousmaflore' (Scenocosme: Grégory Lasserre & Anaïs met den Ancxt) is a small garden composed of living musical plants, which react individually to human gestures and to gentle contact by producing a specific sound. Other works get even closer than asking the audience to touch them - the audience actually need to wear them to experience them. Wearing the 'Sonic Helmet / Klanghelm' (Satoshi Morita) allows the audience to experience 3-D sound in two ways at once: by listening to the sounds with their ears, and by feeling vibrotactile stimulations that are mediated through their skull.

The role of Sonic Interaction design for mobile media such as tablet computers is also illustrated in the exhibition. The touch screens of these devices allow for new ways of sonic interaction in relation to gestural and haptic interfaces. The audio-visual iPad app 'The Movement I-X' (Espen Sommer Eide) is a commissioned work for this exhibition that focuses on gestural interaction. Thicket (Joshue Ott, Morgan Packard) runs on the iPad: by drawing on the touch screen with your fingers, you create dense sonic and visual patterns within a space of warm, bright, rhythmic sound design and constantly evolving, bending, elegant scrawls.

All these chosen works illustrate the emerging field of sonic interaction design, and especially how it can be made accessible to the wider public in an exhibition. In organising this exhibition we were faced with a multi-layered challenge: we wanted to show works that are interactive, focus on sound, and communicate science, art and design to the wider public. The public is invited to interact with all these works, to touch and wear them, to push, put on headphones, or even talk a loudspeaker for a walk. The works therefore need to be very robust - while at the same time illustrating cutting edge technologies. Sound is at the heart of all these works, challenging the traditional visual environment of the museum where all the different works have to co-exist while showcasing the role of sound without overwhelming the space. Sonic Interaction design is an interdisciplinary, cutting-edge field of science - yet the works on display need to communicate the field in an accessible way, engaging the public in art and research. This catalogue accompanies this exhibition, together with an online exhibition (<http://sid.bek.no/>) where an even wider public can experience and learn about Sonic Interaction Design by exploring interesting examples.

This exhibition on Sonic Interaction Design is curated in collaboration with the EU COST IC0601 Action on Sonic Interaction Design (SID) and in connection with NIME 2011 (New Interfaces for Musical Expression).

We would like to express our gratitude to the Norwegian Museum of Science, Technology and Medicine for generously hosting this exhibition, as well as the funding partners and everyone that has assisted towards the making of the exhibition (see Acknowledgements). The Sonic Interaction Design Exhibition will be open to the public from 29th May to 21st August 2011.