



# SONIFICATION OF HEALTH AND ENVIRONMENTAL DATA

## SoniHED

### Introduction

Sonification uses sound to portray data and information. It is a relatively new sound design discipline in which standards and grammars have not been fully established yet.

Interest in this discipline has grown distinctly in the last few decades due to the power of sound to engage, its portability and potential to carry a lot of information in a very short amount of time. Whilst improvements in computer processing power and data storage have given researchers extra impetus to develop new tools and techniques for data analysis there is greater emphasis put upon multi-disciplinary research where issues are tackled from the science, arts and humanities perspectives.

The domains of health and environment are strongly related. In particular the environment can have a direct and strong effect on our health. Data in both domains are often intrinsically temporal and they are arguably the type of data we monitor the most in our everyday life (at a very simple level we check weather data - temperature, humidity, wind - and we monitor our health - temperature, blood pressure, etc.).

In our increasingly digital world, we produce data about ourselves and our environment at an incredible speed (e.g. in real-time) and in large volumes (e.g. cloud storage) but the tools we have to look at this information are often too complex to be used by non-experts.

Can sound help us understand, analyse and engage with this large amount of data? And, consequently, can sound help us engage with the way we relate to ourselves, our well-being, and our environment?

The SoniHED Conference is a gathering of experts in health science, environmental science, sound design, sonification and audio perception that aims to propose and discuss latest research in this area.

The Conference is funded by the Centre for Chronic Diseases and Disorders, supported by the Wellcome Trust and by the Department of Theatre, Film and TV and the Stockholm Environment Institute .

We are very pleased to be able to present a large variety of works both scientific and artistic during the Conference that promises to be highly interesting and inspiring.

These Conference proceedings include:

- The abstracts from our seven guest speakers who present work covering a review of sound to data mapping strategies for sonification, auditory perception of sonic interactions, sonification in pervasive medical computing, sonification of ground-level ozone data and sonification of biological cells.
- Nine peer-reviewed articles which were selected for presentation.

These cover acoustic sonification, interactive sonification of movement, interactive sonification of swimming, the use of sonification and music to portray health risk of alcohol to young people, an audiovisual installation of Amyotrophic lateral sclerosis (ALS) Pathophysiology, sonification display supporting a fuel-efficient driving, sonification of home electricity use and sonification of network environments.

On the day of the Conference five sonification-related creative works will be presented. These are:

Schmalenberg's *Four-Channel sonification of EEG-data* and Maronidis's *Brain Waves* are sonification works that were submitted in response to our Call for Sonification. These compositions are based on Electroencephalography (EEG) and emotion data measured while a person walked around a city. A short description is presented in these proceedings;

*Jane's story* is an audiovisual immersive installation that aims to stimulate a deeper engagement with the emotional, social and physical issues related to adolescents with chronic diseases;

Space F!ght's *Ozone* is an electroacoustic performance by Radek Rudnicki together with ensemble Space F!ght based on ground-level ozone data; and

*Sonic uncertainties, the multidimensional case* is an installation by artist Mark Fell in collaboration with Prof. Tim Croudace (Health Science) based on personality traits data.

We hope that the work presented in these proceedings will inspire and stimulate new research in the area of sonification of health and environmental data and more widely in the emerging sound design area of sonification.

*The Organising Committee:*

*Sandra Pauletto*

*Howard Cambridge*

*Radek Rudnicki*