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ORIGINAL ARTICLE

The aesthetic turn in sonification towards a social and cultural medium

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Abstract The public release of datasets on the internet by government agencies, environmental scientists, political groups and many other organizations has fostered a social practice of data visualization. The audiences have expectations of production values commensurate with their daily experience of professional visual media. At the same time, access to this data has allowed visual designers and artists to apply their skills to what was previously a field dominated by scientists and engineers. The 'aesthetic turn' in data visualization has sparked debates between the new wave and older more scientifically grounded schools of thought on the topic. Sonification is not as well known or commonly practiced as visualization. But sound is a naturally affective, aesthetic and cultural medium. The extension of the aesthetic turn to sonification could transform this field from a scientific curiosity and engineering instrument into a popular mass medium. This paper proposes that a design approach can facilitate an aesthetic turn in sonification that integrates aesthetics and functionality by dissolving divisions between scientific and artistic methods. The first section applies the design perspective to the definition of sonification by replacing the linguistic concept of representation with non-verbal concept of functionality. The next section describes applications of the TaDa design method that raised aesthetic issues particular to sonification practice. The final section proposes a pragmatic aesthetics that distinguishes sonification from the auditory sciences and sonic arts. A design perspective may lead to a future where the general public tunes into pop sonifications for listening enjoyment as well as useful information about the world.

Keywords Sonification · Information design · Popular culture · Data aesthetics

1 Introduction

Computer music is composed from tide charts, seismic recordings, solar flares, DNA sequences, financial indexes, internet traffic, Flickr images, Facebook connections, Twitter messages and anything else in digital form. Generally, music composers are concerned with a musical experience, rather than the revelation of compositional materials. But when the source of the data is made explicit, it raises the question of whether some aspect of the source phenomenon can be understood by listening to the piece. When the primary intention of the composer shifts to the revelation of the source, the work crosses into the realm of sonification. With this crossing over comes a question of whether the listener can also understand the composer's intention to produce more than an experience of the music itself.

The invention of the Musical Instrument Digital Interface (MIDI) protocol made it possible to connect a computer to a pop music synthesizer. Scientists and engineers subverted this technology to listen to datasets from their experiments played as notes on musical instruments. These sonifications explored the sonic potential of listening to multivariate or time series datasets that are difficult to understand in visual forms. However, MIDI sonifications tended to sound similar, no matter what the source of the data is, and the non-musical structure of the data was not necessarily pleasant to listen to. The musical and sonic

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