

Looking for the soundscape of the future: preliminary results applying the design fiction method

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ABSTRACT

The work presented in this paper is a preliminary study in a larger project that aims to design the sound of the future through our understanding of the soundscapes of the present, and through methods of documentary filmmaking, sound computing and HCI. This work is part of a project that will complement and run parallel to Erik Gandini's research project "The Future through the Present", which explores how a documentary narrative can create a projection into the future, and develop a cinematic documentary aesthetics that releases documentary film from the constraints of dealing with the present or the past. The point of departure is our relationship to labour at a time when Robotics, VR/AR and AI applied to Big Data outweigh and augment our physical and cognitive capabilities, with automation expected to replace humans on a large scale within most professional fields. From an existential perspective this poses the question: what will we do when we don't have to work? And challenges us to formulate a new idea of work beyond its historical role. If the concept of work ethics changes, how would that redefine soundscapes? Will new sounds develop? Will sounds from the past resurface?

In the context of this paper we try to tackle these questions by first applying the Design Fiction method. In a workshop with twenty-three participants predicted both positive and negative future scenarios, including both lo-fi and hi-fi soundscapes, and in which people will be able to control and personalize soundscapes. Results are presented, summarized and discussed.

1. INTRODUCTION

The context of the work presented in this paper is that of an ongoing documentary project coordinated by one of the authors, Erik Gandini. The purpose of the project, with title "The future through the present", is to explore a documentary narrative that manages to create a projection into the future and to develop a cinematic documentary aesthetic that releases documentary film from the constraints of its traditional role of dealing either with the present or the past. One of the aims of the project is to experiment with an aesthetics that reflects existential issues that are

connected our near future. The project's thematic point of departure is our relation to labour in a time when applications based on technologies such as Artificial Intelligence, Robotics, Data Mining, outweigh our physical and cognitive properties and automation is expected to replace us on a large scale within most professional fields. From an existential perspective this poses the question: what will we do when we don't have to work? And challenges us to formulate a new idea about work. Beyond the role it had so far, especially in a Western context, as one of the most central, activity in our lives. Can documentary film contribute with material that offers a canvas for reflection about the meaning of labour in the near future?

We see possibilities in a greater use of the conditional tense in documentary representation, that is, a speculative and hypothetical approach to reality that aims to explore the 'potentially' real, and the 'what if' in the process of documenting the world.

In this context, we wonder how the soundscape of the future could sound. We ask if it is possible to design the sound of the future and, more specifically, the sound of work-places, cities and related environments starting from the *sound of the present*, i.e. from the sound that we already experience everyday.

From a Sound Design perspective this poses the question: what will the soundscape of the future sound like? Already in the late 1960s researchers started to wonder about the quality of soundscapes of the future as a relevant issue for improving the quality of sonic environments and assuring a higher quality of everyday life [1, 2]. If the concept of work ethics changes, how would that redefine soundscapes? Will new sounds develop? Will sounds from the past resurface?

In the context of this paper we try to tackle these questions by first applying the Design Fiction method presented in the next sections.

2. DESIGN FICTION METHOD

As a first method for investigating which could be the possible main characteristics of the soundscapes of the future we decided to make use of the "Design Fiction" method by designing and running a workshop on the soundscapes of the working society of the future.

Design Fiction is an approach for creating accessible visions of the future as if it was already here, expressed in familiar formats such as product catalogues, newspaper articles, manuals and so forth [3]. The format makes visions

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concrete through down to earth examples in the sense that they are not described as hypothetical research results but rather as products, services and other things that future people would encounter in their everyday life. The familiar format encourages readers to treat fictive technologies as real and thereby reach beyond questions of whether it would work or not. Instead it leaves room for engaging in questions of how such technologies fit into the overall narrative of the world they exist in. Usually such worlds are not expressly formulated, but rather emerge in the gaps and blank spaces left in the description. This puts a focus not only on possible developments but also the possible consequences for people’s lives, both positive and negative. An example of design fiction is the fictive IKEA catalogue produced by Brown and colleagues [4] which explores how digitalisation might affect the products and services provided by IKEA.

3. METHOD

We applied the design fiction method described in the previous section for investigating how possible future soundscapes could be. We did this by organizing a Design Fiction workshop with title “The Soundscape of the Future” as a satellite event of ISON 2019¹, at KTH Royal Institute of Technology. Our idea was that participants to ISON 2019 are usually experts in the field of sonification and sound design, and therefore their participation to the workshop could have provided relevant results.

3.1 Participants

Participants were the people who took part to the above mentioned workshop organized at KTH on November 18, 2019; 23 participants (6 F, 17 M) with different nationalities (Swedish, American, French, Spanish, Italian, Japanese, German). At the beginning there were 31 people registered to the workshop but on the day of the workshop only 23 showed up. Participants were divided into six groups from the beginning, but since we had only 23 participants, one of the groups (Group 5) had to be removed. This is the reason why in the following sections only five groups are considered in our analysis of results.

3.2 Material

The workshop was run in the laboratory spaces at the Department of Media Technology and Interaction Design (MIDDLA Interaction lab² and Multisensory Studio³). The print-out of a fictitious and empty first page of a well-known newspaper (The New York Times) was provided to each group of participants (see Figure 1). On a large table in the middle of one of the two workshop laboratories there was some material that could be used by participants (such as glue, tape, scissors, magazines, colored paper). Participants could also use any other bricolage material that they could find in the labs.

¹ Interactive Sonification workshop 2019

² MIDDLA Interaction lab

³ Multisensory Studio

3.3 Procedure

Participants were given an introduction to the context of the workshop (as described in the Introduction) and to the Design Fiction method through a presentation during which they could ask questions. They were also instructed to use the material presented in the previous section. After that they were presented with the schedule for the workshop. Each group of participants had to:

- Brainstorm about ideas for about 30 minutes (this session was unmoderated)
- Briefly present for all the other groups their best ideas (a maximum of 3) during 1 minute speed presentation and receive feedback from all other groups
- Continue working on their best idea for about 45 minutes (this session was unmoderated)
- Do a 5 minute final presentation for all the groups
- Participate in a joint discussion

Before starting to work on the ideas, participants were presented more in detail about the use of the fictitious newspaper. The main title of the newspaper was “Soundscapes of our Lives”, not pointing towards the future but it was meant to be already in the future. Therefore, participants were asked to imagine the following situations in order to write headlines (H1, H2, H3) on the first page of a future special edition of The New York Times about soundscapes:

H1 “What are you already DOING today that will cause headlines?” Explanation: You describe things that are already existing in the future, and are based both on the ideas that you have created and on the research that you are doing.

H2 “What do you WANT TO DO?” Explanation: What are you not doing right now but you would like to. Are there areas you would like to move in to, and what headlines would those create?

H3 “What DIDN’T YOU DO that caused the SCANDAL?” Explanation: Think about what didn’t you do that people in the future think you should have done and that will cause their reaction.

Participants had to write a few sentences describing the situation for each headline.

Presentations of each group and the final discussion were video recorded for documentation and for the further analysis presented in the next sessions.

4. RESULTS

In this section we present the content created by each of the five groups of participants for each of the headlines (H1, H2, H3) of the first page of a future special issue on soundscapes of the New York Times following the procedure described in the previous section (see also Figure 1). The original title and the corresponding text written by each



Figure 1. The original template of the New York Times first page used as starting point by the five groups of participants and the five versions presented at the end of the Design Fiction session (The numbering of the groups is that used at the workshop: groups 5 and 6 merged into group 6 in order to have similar number of participants in all groups).

group are reported in capital letters and in italics respectively. Additionally, we report the discussion during each group presentation (“From the group:”).

4.1 Group 1 (2F, 2M)

H1 PRESIDENT OF USA FOUND GUILTY OF MANIPULATING CLIMATE CRISIS SOUNDSCAPES
 From the group: “In this fictional scenario there’s a

mandatory soundscape climate crisis system that was determined by the World Climate Council and it’s mandatory for all countries to have public speakers in their parks or stores to inform the population through sound about the current climate crisis. Normally in 2029 there is still a big climate crisis so the sound in 2029 is something like a crunching noise (crunch of paper cup). But the US President took it into his own hands and made a soundscape, produced by his own company in the United

States, that is much nicer and musical. So the climate crisis soundscape system has been hijacked.”

H2 SOUND DESIGN OF ELECTRIC CARS USED IN MANHATTAN TO ATTRACT BEES AROUND CENTRAL PARK

20 percent more bees one year after the program was first implemented.

From the group: “If you read last year’s article it said that in the future we have scientists have discovered a sound that bees like, and that can repopulate bees. Colleges have implemented this in electric cars, because we can just decide the sound that electric cars produces, so people can use the sound liked by bees and drive the car in order to repopulate the bees: so, yes! It’s a good thing that bees have increased.”

H3 SONIC PROTEST!

Taxi drivers, who losing their job to self driving systems, hack the sound engine of the company’s cars. Loud, sudden and annoying sounds scare people away and cause panic and complaints.

4.2 Group 2 (1F, 3M)

H1 BIG NEWS: CONSTRUCTION OF LUXURY CONDOS NEAR LARGE COMPANY DATA CENTER

Thanks to wearable AR sound technology, the area surrounding the data centre (which is normally very noisy) has become a highly desirable location. Famous coffee shop opening expected later this year. For AR sound users: Listen to exclusive content here (image of QR code).

H2 WEARABLE AUGMENTED REALITY TECHNOLOGY LANDS THE HIGH-END CONSUMER MARKET

Choose what to ear for “999999 dollars”

From group: “One implication of this technology is that there are people who cannot afford it. So low income citizens are still tuned in to all those environmental and human noises that other people can easily avoid.”

H3 PRICES OF SOUND ARE STILL PROHIBITIVE

Low income citizens still tuned in. Inhabitants of suburban areas lament madness inducing levels of noise.

4.3 Group 3 (4M)

H1 GRETA T(H)UNES EUROPE

Newly elected European president, Greta T., helps tackling climate change and planetary wellness by sharing her individualised soundscape.

From group: “So we get her feelings and understanding.”

H2 SOCIAL NETWORKS BLOCKS

According to new guidelines, social networks now blocks the use of square waves in individualised soundscape sharing.

From group: “Not every group of people, not every person, can share their soundscapes. Regulations and

restrictions come with this new technology.”

H3 UNIVERSITY COEARCES RESEARCHERS

A University was found guilty of coearcng researchers to put in more work hours for less payment. Spokesperson for from the ARA Auditory Regulation Authority states: “We must revise the University’s permit for individualised soundscape manipulation.”

From group: “Organisations could manipulate shared soundscape and coerce people into doing something.”

4.4 Group 4 (2F, 4M)

H1 THE SONEGG

Personalising your soundscape has never been easier, researcher from Amazon states. A major breakthrough in sound spatialisation technology makes it possible to share sound with friends and colleagues to meet in a newborn world of intersecting sonic dreams.

H2 LET THE SOUND IN AND THE BAD WEATHER OUT!

The soundwindow is the technology of the future. A new material membrane allows to let the sound through while keeping the window closed. Soon you will be able to hear the soothing sound of the rain like you are really out there, while staying dry.

H3 ERIK: THE SONEGG HACKER STRIKES AGAIN!

Punk rocker Mary, 22, was found hiding in the forest. She escaped 6 months ago when she started to be assaulted by baroque music through her Sonegg.

From group: “So there are issues with personalised things. There can be hackers that can drive you crazy with things you don’t want. Plus nobody can hear you screaming because they are tuned out of the shared sounds.”

4.5 Group 6 (1F, 4F)

H1 SOUND DESIGNERS ARE SUPER FAMOUS, BUT SUPER LONELY

Quieter soundscapes led sound designers to become the most important people in our society. Unfortunately, human interactions are almost absent.

From group: “Sound designers are very important because they are the only people knowing how to re/create sounds for everybody else. But they are lonely maybe because they have to work a lot.”

H2 BIRDS AGAIN!

“I want a million plants and animals to come back from extinction” quote from famous author.

After destroying our planet, we now have the chance to listen to nature again as if it was 100 years ago. Birds again in Central Park, lions and zebras in the Savannah. New advances in physical modelling synthesis allow for precise recreation of animal sounds.

From group: “A special park is created where we can hear the sounds of animals recreated by sound synthesis by physical modelling.”

H3 WHY AREN'T YOU FARTING AND BURPING? DIDN'T TASTE GOOD?

People are filtering their own “eating noises” thanks to the advanced soundscape technology. Minimising sound pollution: daily life has become quieter. People are afraid of their own sounds!

From group: “Human society is not taking care of its own sounds. People filter sounds so they don't really care about the bad sounds they make when they eat, and in their daily life. This leads to a very noisy, polluted soundscape that everybody is filtering out. Or if you like farting sounds you can buy them from the lonely sound designer!”

4.6 Summary of the discussion after the presentations

In this section we present a summary of the general discussion that followed the presentation by the five groups.

Participants began the discussion reflecting on a common idea that seemed to emerge in the workshop: the possibility of hijacking or misusing a personalised audio system of the future. This was considered to be both interesting and depressing. Additionally, it was pointed out that highly personalised audio systems could also interfere with the natural function of the human auditory system: that of listening to alarms and signs of danger. It was also noted that there seemed to be a predominant assumption that the world would be quieter in the future. However a participant observed that the ubiquity of personal headsets had actually created an additional source of noise: nowadays we often hear unwanted personal conversations in public spaces or other people's music.

The group was surprised that robots and drones were not mentioned as sources of noise and sound in the future. The focus seemed to be on enhancing individual auditory perception, and environmental issues, such as for example the extinction of animals and their sounds, were often taken into consideration.

While personalisation, and the potential to focus on individual taste in sound, was overall considered an emerging and positive ideas, concerns were expressed on how it could also isolate people and reduce the ability to empathise. Like social networks can become echo chambers of marginal ideas, interconnected individualised audio systems could produce a similar effect with perhaps negative social consequences.

By emphasising the personal (individual taste) rather than the factual (the origin of the sound), the concept of *sound authenticity* could be reduced. Field recordings could become very valuable or highly meaningless.

Full auditory augmentation could also eliminate barriers between cultures. We imagined instant real-time translation of all languages directly to our ears as a person in a new country is talking to us.

Participants also reflected on the fact that we all imagined to be able to perceive a high-quality soundscape where we can recognise sources, where barriers such as windows can

become “immaterial” with respect to sound, and overall a soundscape highly intelligible. We considered that this could also bring new divisions in society between people able to access such high-quality personalised soundscapes and people who cannot, and who could instead perceive the increased sound “garbage” disregarded by others (for example bodily sounds).

Another negative aspect of having highly personalised auditory streams could be the fact that one might not be exposed to unexpected variations, and therefore their knowledge and taste in sound could diminish. An extreme case would be to only hear one's own brain.

Participants then reflected on how the soundscape of the future could, instead, point in the opposite direction, i.e. be shared. What could be the future of communal use of sound? A researcher mentioned the great feeling that being part of a choir provokes in people and how music has always been performed and listened to in shared spaces. However the use of record players, headphones and mobile devices has also pushed music into being a more private and isolated experience. They then shared their vision of communal sound of the future as something that could somehow acquire a shape (virtually or in other ways), and become material that can be sculpted together.

We also discussed how the soundscape of a working environment could become a matter of shared decision, with meetings and voting taking place to decide what the environment should sound like year on year.

Overall, some participants were concerned about the drive towards personalisation and uses of soundscapes as a new kind of social media, fearing that it could provoke isolation, inhibit direct communication while allowing only indirect/controlled communication. Others did not see this as a threat suggesting that human beings are and will remain social beings.

Finally, the group reflected on the experience of using the design fiction method to imagine the soundscape of the future and the overall opinion was that it had been a fun and interesting experience.

5. DISCUSSION

Results emerging from the Design Fiction workshop highlight both positive and negative future scenarios. Ethical perspectives on the use of sound and on the role of sound designer have been also brought forward. There is both the awareness that people in the future will have the possibility of and tools for controlling how a soundscape should be, including their personalization, and that this possibility to control soundscapes could be eventually misused or accessible only to the rich part of society. In positive scenarios, future soundscapes will re-discover sound sources that are easy to identify and often related to nature and natural settings, also of the past. Table 1 summarises the main results of the workshop.

We plan to continue our search for the soundscape of the future by applying a combination of research methods. We will use ethnographic studies for investigating current soundscapes in both heavily industrial settings (i.e. lo-fi soundscapes such as industrial robots used in industries)

Envisaged system ⇒	A personalized auditory system that can augment reality and is networked, which means that soundscapes can be shared
What it should do ⇒	Increase empathy; Reduce physical and cultural barriers; Help tackle global issues
Potential risks ⇒	Misuse and hijacking; Further social divisions; Isolation; Blurring of reality

Table 1. Summary of main results emerged from the workshop. How the envisaged system for creating and controlling the soundscapes of the future should be, what it should do and what are its potential risks.

and natural and human environments (i.e. hi-fi soundscapes such as those of rural areas, artisan workshops, market places, public offices when computers are turned off). Film post-production methods will be employed to construct high quality soundscape examples in collaboration with professional filmmakers. Finally we will use sonification to model and test the soundscapes of the future.

We believe that the research started in the current project will contribute to define a role for data sonification in a future world dominated by data mining and AI, and also for the representation of facts in a documentary production by creating soundscapes through a documentary approach that will try to avoid the established, but often cliched, vocabulary of Sci-Fi (see for example [5]).

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⁴ <http://www.kth.se/navet>