Fear tuners – Prostheses for instincts

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ABSTRACT
This paper concerns "Fear Tuners", a critical design project that was initiated at the Royal College of Art in 2008. In this paper, I argue that our bodies are equipped with a sensory system that only allows us to detect immediate dangers, for example it helps us to decide where to tread and what to eat. This system though is not suitable to sense the abstract and global dangers that occur in our highly complicated world.

Fear Tuners brings forward the arguments that people are in need of tools to help them sense global and abstract dangers. As a response to the problem, this project explores the potential use of wearable devices as prostheses for those missing instincts. The paper suggests using the skin as an interface to stimulate a physical sensation resulting in a mental state of increased awareness, whenever a deferred danger occurs.

Author Keywords
Augmented cognition, prosthetic design, haptics, wearables, critical design, device art.

ACM Classification Keywords
B.4.2. Input/Output Devices, H.5.m. Information Interfaces and presentation, K.4.1.c Ethics

INTRODUCTION
This paper concerns "Fear Tuners", a critical design project that began life in the Design Interactions Department at the Royal College of Art in 2008. It is a project of design research, practiced from the perspective of artist-designers. Fear Tuners stands in the tradition of critical design. This approach aims to open new spaces for designers and means to provide an alternative method to design, in contrast to focusing on the factors of ‘usability’ or commercial viability of a product, service or system. Embodying different values into the designs triggers a debate on the impact of specific technologies that comes with these. The designs can be seen as a manifestation of people’s hopes and fears in relation to those technologies [6].

The Fear Tuners objects are wearable, functional devices, which also stand in the tradition of device art. This classification defines artworks that consist of a hardware, which is specifically designed to realize a particular concept. The functional and visual design aspects of these objects make an essential part of the artwork [8].

BACKGROUND
The project arose from the insight of being unable to assess the threats, dangers and risks that we are faced with in today’s complicated world. Technologies have greatly reduced some of the biggest risks of humankind, yet our modern life seems to spawn a whole new array of abstract threats and fears [1]. Creating a common feeling of "being at risk" has become a popular political method as well it is widely exploited in mainstream journalism [5]. The consent to a common fear in a community can result into a more cohesive society and the choice to be aware of a danger is often meant to conform a specific way of life [3]. Generally, it can be observed that people seem to be unable to differentiate between mere panic mongering and the real threats that surround them. For example, we can register a massive media outrage on minor or non-existing threats (e.g. bird flu, MMR vaccine), and a neglect of many serious risks, such as old age poverty related to non-functional pension schemes (Figure 1).

Figure 1. Risk perception and actual hazards
**HUMAN SENSES AND ABSTRACT DANGERS**

Our hard-wired sense apparatus is not suitable to sense the modern dangers in an array of fear stories. We are only hardwired to deal with sudden or physical dangers, such as approaching cars, burning fires or rotten food. But we do not have the instincts to sense the abstract and deferred dangers that have a huge effect on our daily lives, like stock market crashes and the rising oil price.

I propose to face this inability with the implementation of wearable devices (Figure 2) as prostheses for these instincts to be able to sense the deferred and abstract dangers of today.

**SKIN AS INTERFACE**

When we sense a physical danger, a set of bodily reactions comes into action. We can feel cold shivers that run down our spines, get goose bumps, sweaty hands, our neck hair raises and we start to tremble. The most extreme of these reflexes is the so-called 'fight or flight response' that jumps into action, whenever we are faced with a sudden attack [2]. In this state, our pupils have narrowed and we have lost peripheral vision, we have an accelerated heart and lung activity, and nutrient has been released to our muscles, among many others, to get us ready for action [7]. None of these physical manifestations is voluntarily chosen or the outcome of an intellectually driven thought process. Instead, they are the immediate reflexes to an instinct sensing danger.

These processes are hard-wired into our bodies as a result of evolution, even though we rarely encounter emergencies that require physical effort.

Fear Tuners as prostheses for instincts proposes to use the skin as an interface to stimulate similar physical sensations (Figure 3), as described in the preceding paragraph. Fear Tuners create an equally immediate and intense experience.

Referring on the concept of body-to-emotion-feedback, by Paul Ekman, who describes how voluntary facial actions are capable to generate changes in both autonomic and central nervous system, I propose that wearing Fear Tuners will similarly result into changed mental state. By inducing a set of physical reactions normally related to fear, such as raising a person’s neck hair or generating cold shivers and goose bumps, a state of increased awareness will be generated [4].

**AUGMENTATION OF HUMAN INSTINCTS TO PERCEIVE GLOBAL DATA**

Fear Tuners are wearable devices, which act directly on the skin. Wireless technology links them to a piece of software that harvests the internet for related data streams, e.g. stock market data, oil price etc. Whenever a severe change in data occurs, the device passes on a sensation to the wearer.
Presenting the information in form of physical stimuli, rather than intellectual (textual and image based information), allows the Fear Tuners wearer to focus the center of his or her attention on other things. The wearer can completely process Fear Tuners’ signals in the background of awareness. This form of ambient information presentation engages the senses and thus results into a subtle, yet intense experience that does not disrupt the wearers daily routine [10].

In the process of exploring suitable sensations, I was investigating different actuators, such as solenoids and vibration motors, peltier pumps and electrical deep tissue stimulation aiming to create cold shivers (Figure 4), goose bumps, raised neck hair and hot stings. I also looked into possibilities of exploiting the phenomenon of somatosensory illusions [9].

I identified five key scenarios, Disasters, Financial, Health, Personal and Technology, in which Fear Tuners would act as an ‘artificial sixth sense’ in the form of a device.

CONCLUSIONS
At present, Fear Tuners exist as a series of technical experiments, form prototypes, a video scenario and booklet. They were presented as part of my thesis at the Royal College of Art graduation show. I am hoping to bring the project to a next level, in which the preceding research and experimentation in form and function would be combined to create a fully functional prototype. For this next step, I am looking for collaboration partners from a different background other than design.

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REFERENCES