Tópicos avançados em Informática

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1 Context

In order to fully analyze the impact of technologies on humans and society, four questions are essential. The most important step towards answering these questions is research of the studied area, which allows the modelling of the human component from a psychological, economical, historical, philosophical, ethical and transition perspective.

- How past technologies have fundamentally changed human existence?
- How future technologies may impact human beings and their society?
- What can we learn from past failures in technology adoption?
- How did prior technological choices affect our current societal challenges?

2 Human Computer Interaction

Despite the increasing reliance in technology in our society, they key to designing a different future is to focus on technology and engineering, and far more on the humanities and the design arts. The deep issues holding back progress are more social and behavioural than technological, so we need to realize the mutual relationship between technology and need, between user and social context, between rationality and affection, towards investing in design as a key part of the market strategy.

New technologies must be easy to use, elegant and fun, due to consumer's desire for design, concluding that technology market needs more design, the market needs interaction design. Technology needs to be constructed for human interaction, accounting for usability and user experience. Usability is the effectiveness, efficiency and satisfaction with which specific users achieve specific goals. User experience describes the user's behaviours, preferences, emotions, beliefs, perceptions and comfort that result from the use or anticipated use of a product, system or service.

Creativity is one of the most import components in the development of products and allows the transformation of that initial idea in a full working viable product. The process of creation is composed by the design thinking phases, which focuses on problems and solutions simultaneously. This approach allows

for a variety of skills and techniques with particular technologies, making the developers able to understand the reasons why and whose digital technologies might be appropriate, for particular tasks and situations. The meaningful interactions between developers and digital products are seen as a means of asking questions through design, which means that they considered how to use technologies to facilitate the design process or how to apply technologies as a means to allow other kind of interactions.

Aforementioned design thinking phases include: (i) Searching to get the idea and to be inspired; (ii)Debating data results to understand and find relationships; (iii)Collaborating with colleagues and teacher for support of their knowledge; (iv)Thinking to get combination of ideas and argument to explain the chosen option; (v)Exploring solutions either making use of technology as a tool or developing its own tools; (vi) Developing artifacts step by step; and (vii) Presenting the results in engaged way.

3 HCI towards Health and Wellbeing

Issues and Specifications on a Prescription System for Controlling Patient Takes and Drugs Usage is a system built towards an easy and fast access to information, by connecting health professionals, families, and users simultaneously with the purpose of controlling medication and facilitate mobility.

User Centered Healthcare Design that provides guidelines for designing a clinical tool to support user-centered services is drafted based on information gathered, personal opinions and case studies, with the purpose of understanding people behaviors, and how people work together using information systems and technologies to achieve better patient outcomes and sector efficiencies, through the Grounded Theory Methods.

Express Yourself – an application tool for psychologists and patients that will facilitate the interaction among psychologists and patients by obtaining a preliminary analysis of the patient's condition. All features on the system, makes it a system for medical appointments and patient management, and allows the use of therapeutic writing and text mining technology to treat the patient narratives with an annotation query system.

DeafLearn – Aplication for Digital Inclusion for blind people and people with hearing difficulties, where the communication is made through a chat with text to voice translation, voice to text and also text to sign language.

A Gestural Recognition Interface for Intelligent Wheelchair is a new system that exploits novel human-machine interfaces based on the recognition of static gestures of human hands, with the objective of aiding the occupant of a wheelchair to have access to certain objects and facilitate his or her daily life. This system permits to facilitate the life of differently-able users: (i) New models of interaction; (ii) Natural and intuitive way.

Mobile Interface for Blind Users, using Near Field Communication (NFC) technology, to help visually impaired and blind people contribute to their independence in a shopping activity, both at home or public places.