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Abstract. This workshop aims at developing and discussing ideas how Human-Machine-Interaction can develop beyond the interaction mechanisms that are available today. Especially this workshop will focus on discussing interaction mechanisms with wearable and implantable devices as well as integrating Internet-of-Things technology with new interaction paradigms.

Keywords: Wearable devices · Implantable devices · Internet of things

1 Introduction

Considerable attention has been paid for years to the relationships between humans and computers. But, over the years, the computer chip migrated from the computer internal organs to many other devices - to things, wearables, and even onto the skin (skinnables) and into the human body (implantables). This workshop will focus on how this revolution may affect the way we look at the relationships between humans and among humans, human elements and computing devices and what should be done to improve these interactions and "entanglements" and to understand them better.

2 Objectives

In this workshop, we provide a platform for discussions about the relationships among humans, technology embedded in the environment (networked or not), and humans whose physical, physiological or/and mental capabilities are extended and/or modified by technology. Given these extended realities, the interface as we have known it and even the practical meaning of the word "interaction" have changed. This workshop is

intended to provide a platform for scholars, practitioners, and students to think together about how to frame the new interaction, engagement, and relationship between technology, humans, "modified" humans and the new reality.

We encourage researchers and practitioners to share their ideas and experience for these new realities of interaction, engagement, and interface mechanisms with the community. Researchers and practitioners from the areas of the Internet of things (IoT), wearables, implantables, skinnables, and embedded computing are in particular encouraged to participate.

3   Topics

Some of the issues to be discussed by the participants are:

- Commercial things, wearables, skinnables and implantables vs. medical grade devices. What is the value to non-medical grade devices?
- Possibilities of relationships among WHATs - e.g., interaction and symbiosis. Could we define a scale from minimal interaction to full symbiosis?
- Holistic views: When does a group of WHATs become a team, group of organisms, or agents?
- What makes a device smart? Are all smarts the same or are there varying degrees of smartness (e.g., a scale)?
- Could we develop a theory for SMART relationships?
- When does a wearable, an implantable, or a thing become part of the human?
- The interplay among various degrees of digital and analog.
- What is the role of system thinking and practice in dealing and managing arrays of WHATs?
- A broader view on experience: WHAT and the integration of senses (e.g., touch and smell).

4   Target Audience

The workshop aims at scholars and students from the domains of:

- Interaction Design
- Cognitive Science
- Visualization and Multimedia
- Artificial Intelligence and Robotics
- Developers and practitioners of wearables, implantables, skinnables and the Internet of Things
- Common sense practitioners

5 Expected Outcomes

Participants in the workshop will present their ideas in position papers and workshop talks. Position papers and talks are grouped according to specific topics like "wearables", "skinnables", or "implantables". For every topic we expect about four position papers or talks. After the presentations related to one topic there will be a specific block where all workshop participants openly discuss the position papers and talks. Thus we will have a view on multiple aspects of WHATs in several blocks consisting of papers/talks and subsequent discussion sessions. First discussions will even start previous to the workshop in the Facebook page: Wearables, Humans And Things - WHAT (https://www.facebook.com/WHAT2016/).

During the workshop, in each discussion block we want to summarize the discussions and present this summary to the main conference.

After the Workshop, we will continue the discussions in the Facebook page and will encourage the participants to send papers to the organizers for publishing e.g. in a Springer LNCS book or in a special issue of a suitable journal/magazine.