

Workshop 1: Fifth International Workshop on Behavior Change Support Systems (BCSS 2017)

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This workshop aims at connecting multidisciplinary researchers, practitioners and experts from a variety of scientific domains, such as information sciences, psychology, human-computer interaction, industrial design and medicine. This interactive workshop will act as a forum where experts from multiple disciplines can present their work, and can discuss and debate the pillars for persuasive technology. Topics for submissions include the design & development and evaluation of behaviour change support systems. For more information see: <https://bcssworkshop.wordpress.com/>

This workshop is the result of the merger of two proposals, to be found below.

Proposal 1a: Fifth International Workshop on Behavior Change Support Systems (BCSS 2017)

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Introduction

Our everyday life is impossible to imagine without modern technology. Humanizing technology is embedded in our daily environment, measuring our activities 24/7 via smart sensors, activity trackers, and various wearable devices [1,2]. Checking health status, tracking and managing our stocks, and controlling the temperature of our house via a mobile app has become a daily routine.

Persuasive technology reveals an interdisciplinary research and education area transcending the traditional use of technology as helpful to merely improve the accessibility, affordability, and efficiency of services within the institutional contexts. Technology has the capacity to create smart (virtual) persuasive environments that provide simultaneously multimodal cues and psycho-physiological feedback for personal change by strengthening emotional, social, and physical presence. Besides, smart environments collect and analyze sensor data by self-tracking behaviors, emotions, and thoughts; presenting a quantified holistic self-concept that will shed new lights on how technology integrates in our lives, and how people engage each other and their environments using unobtrusive and pervasive technologies. An array of persuasive applications has been developed over the past decade with an aim to induce desirable behavior change. Persuasive applications have shown promising results in motivating and supporting people to change or adopt new behaviors and attitudes, in various domains such as health and wellbeing, sustainable energy, education, and marketing.

This workshop aims at connecting multidisciplinary researchers, practitioners and experts from a variety of scientific domains, such as information sciences, psychology, human-computer interaction, industrial design and medicine. This interactive workshop will act as a forum where experts from multiple disciplines can present their work, and can discuss and debate the pillars for persuasive technology. Also, we like to introduce a new holistic concept: EPIC for Change.

In the next sections, we present our vision and discuss challenges, as well as new research directions within the field of engaging persuasive technologies and BCSSs. A BCSS can be defined as “a socio-technical information system with psychological and behavioral outcomes designed to form, alter or reinforce attitudes, behaviors or an act of complying without using coercion or deception” [3].

Background

New technologies allow us to gather larger amounts of data from multiple sources, e.g., multi-sensor data and self-tracking data, that can be used for customization and personalization purposes. Where the focus was on small, exact datasets and causal connections in the past (i.e. knowing “why”); advances in big data cause a paradigm shift towards the gathering or linkage of large amounts of (noisy) data to demonstrate the presence of (unexpected) correlational connections (i.e. knowing “what”) [4]. Though this opens new exciting frontiers of research, important concerns have been raised as well concerning issues like safety, profiling, purpose limitation, liability, data ownership, and (above all) privacy [4,5,6]. Such issues should be dealt with appropriately, to enhance the public’s trust in technological advancements.

The persuasive technology field is becoming a linking pin connecting natural and social sciences, requiring a holistic view on persuasive technologies, as well as multidisciplinary approach for design, implementation, and evaluation. So far, the capacities of technologies to change behaviors and to continuously monitor the progress and effects of interventions are not being used to its full potential. Specific aspects of the intervention (its content or the system) contributing to the results and user adherence often remain unknown, known as the ‘black box’ phenomenon [7].

The use of technologies as persuaders may shed a new light on the interaction process of persuasion, influencing attitudes and behaviors. Yet although human-computer interactions are social in nature and people often do see computers as social actors, it is still unknown how these interactions re-shape attitude, beliefs, and emotions, or how they change behavior, and what the drawbacks are for persuasion via technologies. Humans re-shape technology, changing their goals during usage. This means that persuasion is not a static ad-hoc event but an ongoing process.

Validated and suitable evaluation methods are needed, as well as mixed-methods approaches to measure engagement, emotions, and social influence of persuasive technologies in smart environments. BCSSs pose a number of specific challenges, such as personal goal-setting, personalized feedback, support for computer-mediated communication, 24/7 availability, feasible business models, as well as suitable methods and processes to develop scalable software platforms and architectures for these systems.

Topics

Topics for submissions include, but are not limited to:

Design & Development

- Engagement, Personalization, Integration, Connectivity, and Changes in Persuasive Technology.
- Smart communication and information systems.
- Interactive visualizations for personalization and social support.
- High tech, human touch / humanizing technology.
- Persuasive prompts to create engagement and involvement: Virtual environments, ambient visualizations, etc.
- Developing just-in-time persuasive feedback to support activities real-time and offline (e.g., triggers and alerts), using data generated by smart sensors, self-tracking devices, wearable's, etc.
- Connectivity designs for social support, e.g. for lifestyle change & wellbeing.
- Persuasive profiling to personalize interventions.
- Ethical issues of persuasive technology, big data and BCSSs.
- Value proposition design to create BCSSs that have value in practice for all stakeholders, implementation issues.
- Persuasive strategies related to different outcomes (engagement/resilience/attitudes/compliance/behaviors) and levels (individual/community/society) of change.

Evaluation

- Measuring the impact of BCSSs and smart persuasive environments on individuals, community, and society.
- Evaluation methods for measuring various aspects of BCSSs; process and products measurements.
- Advanced big data analytics for measuring and interpreting self-tracking data from wearables, multi-sensor data, etc.
- Adequate design for measuring the effect of persuasive strategies on task adherence during usage and long-term effects (fractional factorial designs).
- Frameworks and methodologies to measure A/B/C-Changes (attitude, behavior or compliance).
- Profiling personalities and matching them with persuasive strategies.
- Multimodal cues and the effects on adherence and outcomes.
- Advanced analytics to predict adherence, and to identify usage patterns and its effects on adherence.
- Evaluation of persuasiveness of different BCSSs (mobile, ubiquitous, ambient technologies, virtual environments, sensor-based, etc.).
- Design guidelines for practice, based on evaluation studies.

Methods

This interactive workshop will provide a platform where students, researchers, experts and practitioners will: A) present their work, B) discuss and pitch ideas on how to develop a mutual and broader understanding of Behavior Change models using the BCSSs, and C) set the first stage in defining the pillars for persuasive technology.

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Proposal 1b: Challenges of Designing and Evaluating Persuasive Coaching Strategies for Technologies Supporting Health and Well-being

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General theme: All the challenges that we run into in the domain of health and well-being while trying to ‘successfully coach people through the use of technology’.

Background

Persuasive coaching strategies incorporated in technological products can have enormous societal impact on health and well-being. Technology is becoming ever more ubiquitous and this gives us the opportunity to coach people towards ‘better’ and healthy lifestyles.

However, current research has not been able yet to tackle some of the challenges that come with the design and evaluation of effective technologies. For example, it is still a challenge to effectively design for long-term adherence (e.g., [3,8,10]), to personalize or tailor effectively (e.g., [1,6,11]), to implement theoretical knowledge into technology (e.g., [3,5,10]), to evaluate constructs, strategies or methods in-the-wild in various contexts (e.g., [4,8,12]), to effectively make use of new possibilities in sensing and monitoring people in daily life (e.g., [1,7,9]), possibly even across platforms, and to link back whatever findings we have to a deeper understanding of our users, people, theories, methods and even our strategies (e.g., [2,5,11]).

When designing and evaluating coaching strategies that make use of technologies, it is common to run into several challenges, be it design, methodological, theoretical, contextual, technological or even ecological. These challenges cannot be tackled by researchers from one discipline alone, and require a collaborative, interdisciplinary perspective. Stakeholders range from doctors and therapists, to psychologists and eHealth professionals, designers and programmers, and often end-users as well. The importance of creating synergies between these stakeholders and researchers, empowering the interdisciplinary aspect, is also