

Designing Smart for Sustainable Communities: Reflecting on the Role of HCI for Addressing the Sustainable Development Goals

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ABSTRACT

This workshop reflects on the role of the HCI community in addressing sustainable development in cities, regional centres and rural communities. The workshop will bring together academics, researchers and practitioners to share their experiences, expertise and visions for: (1) evolving HCI design approaches to move beyond the individual; (2) re-engaging with institutions in order to repoliticise HCI practices, projects and methods; and (3) counteracting depoliticisation in large parts of the design field. We are specifically interested in ways of 'designing smart' by engaging communities throughout the process of addressing complex challenges, such as social inequality, economic disparity and environmental degradation.

CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**.

KEYWORDS

Designing smart, HCI, sustainable development, augmented communities

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1 INTRODUCTION

Today, cities, regional centres and rural communities are faced with various social, cultural, political and environmental complexities.

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Through increasing demands, such as population growth and rapid urbanisation, local communities are placed under considerable pressure to carefully manage existing public assets and space, as well as designing and developing public infrastructure that is required to service a variety of urban dwellers' needs. In response to this, a variety of smart cities initiatives have been introduced throughout the last decade to create efficiency within cities and regional centres with the intention to foster a smart economy, smart mobility, a smart environment, smart people, smart living and smart governance [3]. The objective of these smart approaches is to advance regional competitiveness, improve transport networks, boost ICT economics, streamline public services, monitor environmental situations, and enhance human and social capital. While these smart cities initiatives have contributed to progressive improvements of city governance and public infrastructure they are predominately driven by techno-centric, top-down approaches [2, 22] that often overlook a variety of social, economic and environmental factors. However, modern information and communication technologies do create opportunities to engage people in more innovative and meaningful ways. This can be facilitated through a collaborative approach that aims to 'design smart' to engage stakeholders in the early design stages, bringing everyone along as changes take place, creating a sense of shared ownership, responsibility and investment in the success of evolving cities.

To address the issues of social inequality, economic disparity and environmental degradation, the United Nations created the 2030 agenda for sustainable development focusing on people, planet and prosperity [29]. A total of 17 sustainable development goals were created in order to address poverty, protect the planet, foster peace and encourage collaborative partnerships between countries and stakeholders. Positioning sustainable development within the framework of designing smart provides opportunities for researchers, educators, governments, NGOs, private enterprise and others to investigate many social, economic and environmental issues faced by communities on a global scale. While some of these projects around the world are incorporating dimensions beyond smart technology, there is little evidence to suggest that sustainable development targets are achieved within communities that claim to be 'smart', in order to reach their goal of being sustainable [37].

Participatory and co-design approaches have been adopted within the smart cities arena to increase collaboration with diverse and often marginalised communities in the design and use of networked

sensing technologies. This aside, ideals of activism, community engagement and democratisation through the co-design of networked technologies have largely been focused on the individual user as opposed to larger institutions or organisations as a whole.

This workshop aims to build a consensus for how to evolve HCI design approaches to address these challenges, in particular within the context of the sustainable development goals.

2 AUDIENCE AND THEMES

Building on the notion of designing smart and this years OzCHI theme of Experience Design, our workshop will continue the debate on sustainable development goals across disciplinary boundaries within the field of HCI research, including interaction design, urban planning, architecture, environmental humanities and others. The main objective of our workshop is to bring academic, researchers and practitioners together to explore and debate new approaches for co-designing communities, cities, regional centres, services and experiences of the future by engaging a variety of people in the design process.



Figure 1: UN Sustainable Development Goals. Source: sustainabledevelopment.un.org

Submissions to this workshop should take the concept of designing smart to the next level by exploring strategies, mechanisms, stakeholders (and their roles), technologies, design approaches, and methodologies that look at "scaling-up" efforts to go beyond sustainable development on an individual level and push and scale up to the broader community, city, state, national or planetary level. Specifically, submissions should either address systemic issues pertinent across different layers, or align with one or more of the UN sustainable development goals¹ (see figure 1).

Topics of interest for this workshop include but are not limited to the following areas of HCI scholarship and inquiry:

- HCI, interaction design, participatory design that explore political issues, such as designing for existential crises, institutioning, re-politicising HCI [7, 8, 17, 18, 21, 24, 26];
- HCI for civic design, community activism, community engagement [5, 12, 15, 16, 19];
- HCI for smart engagement and smart city planning and design [3, 28, 30, 32];
- HCI and post-anthropocentric design, post-humanist design, more-than-human futures [4, 10, 11, 13, 20, 27, 34, 36];
- HCI and sustainability [6, 7, 14, 31];
- HCI and new economic paradigms such as circular economy, doughnut economics, degrowth, voluntary simplicity, prosperous decent, cooperativism [1, 9, 23, 25, 33, 35].

2.1 Submission Process

Submissions to this workshop will take the form of a short abstract of approximately 200-500 words. Abstracts must present original materials and will be reviewed by expert reviewers, based on their contribution to the field. Submissions must use the CHI Extended Abstract template. Ultimately, the length is based on the weight of the contribution. Shorter, more focused papers are highly encouraged.

Accepted position abstracts will be made available on the website prior to the workshop. The workshop will be supported by a dedicated website: www.designingsmart.com.au

3 WORKSHOP STRUCTURE

Based on the selected abstracts, we will divide the workshop into themes aligned with the types of submissions we receive. The authors of the selected abstracts will be asked to briefly present (5mins) their research to the workshop participants. Once all presentations are completed we will run a Q&A session, where presenters will be invited to answer questions from all the workshop participants.

After the Q&A session workshop participants will form groups and brainstorm a specific topic. After the allocated time, groups will come to the front and present their ideas. This activity is aimed at forming new ideas and connections to further research and collaboration in this area. To conclude, we will have an open discussion with all the participants to discuss key challenges, research gaps, and opportunities.

3.1 Workshop Program

Times are tentative and will be refined in alignment with overall OzCHI workshop schedule after the number of participants are known.

- 9:00 - Welcome
- 9:10 - Keynote Speaker
- 9:30 - Presentation Session 1 and Q&A
- 10:15 - Morning Tea
- 10:45 - Presentation Session 2 and Q&A
- 11:15 - Presentation 3 and Q&A
- 12:00 - Lunch
- 13:00 - Group Design Challenge
- 14:30 - Afternoon Tea
- 15:00 - Group Presentations
- 15:45 - Workshop Wrap-up

¹UN Global Challenges - <https://sustainabledevelopment.un.org/post2015/transformingourworld>

- 16:00 - Workshop Close

3.2 Room Layout Requirement

We do not anticipate major requirements for our workshop, however at minimum we would need:

- Room for approximately 20 people
- Whiteboard and projector

3.3 Post-Workshop Plans

We are currently in the process of identifying potential HCI journals who would be interested in a special issue based on the topic of our workshop. The discussions and findings from the workshop will result in a “manifesto” on the challenges and opportunities around designing smart for sustainable communities. This manifesto will provide the basis for a special issue of a journal, where participants with an excellent contribution to the workshop will be invited to submit an article.

4 WORKSHOP ORGANISERS

Joel Fredericks is a Lecturer in Design at the University of Sydney and Managing Director of Thrive Engagement. Joel’s research sits across the domains of community engagement, urban planning, digital placemaking, media architecture, smart cities and immersive technologies. Joel has worked on a variety of trans-disciplinary research projects that adopt digital technologies and participatory design methods to support collaborative approaches in the city-making process.

Callum Parker is a Lecturer in Design Computing at the University of Sydney. His research focuses on the digital augmentation of cities to improve the lives of the people within them. On the side, Callum tinkers with technologies, such as augmented/virtual/mixed reality, public displays, sensors, robots, holograms and social media in order to realise ideas that tackle real-world problems.

Glenda Amayo Caldwell is the QUT Design Lab Associate Director, a Senior Lecturer in Architecture, a founding member of the Design Robotics research group, and an active researcher in the Urban Informatics research Group at QUT. Embracing trans-disciplinary approaches Glenda explores the intersection and translation of physical and digital media in creative processes for community engagement, placemaking, and media architecture.

Marcus Foth is a passionate wombassador and beekeeper. In his spare time, he is Professor of Urban Informatics in the QUT Design Lab, Brisbane, Australia. He is also an Honorary Professor in the School of Communication and Culture at Aarhus University, Denmark, and a Visiting Professor in the Department of Design, Politecnico di Milano, Italy. Marcus brings together people, place, and technology with a keen interest in cities and sustainability.

Hilary Davis is a Senior Research Fellow in the Swinburne Social Innovation Institute, Swinburne University and in the Living with Disability Research Centre (LIDS), La Trobe University. She conducts research in complex and sensitive settings. Her current research focuses on digital participation for diverse and marginalised

communities; including people with intellectual disabilities, house-bound people and those disadvantaged due to place.

Martin Tomitsch is Chair of Design and Director of Innovation at the University of Sydney, Visiting Professor at the CAFA Beijing Visual Art Innovation Institute, and founding member of the Media Architecture Institute. His research focuses on the role of design for shaping the interactions between people and technology, and how digital technology and new design approaches can improve life in cities.

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