



OzCHI 2017 - Human-Nature

Proceedings of the 29th Australian Computer-Human Interaction Conference (OzCHI 2017)

Brisbane 28th November -1st December, 2017

Editors:

Alessandro Soro, Dhaval Vyas, Bernd Ploderer, Ann Morrison, Jenny Waycott and Margot Brereton



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Welcome from the Conference Chair

It is my great pleasure to welcome you to OzCHI in Brisbane. We are pleased to hold the 29th annual conference at the historic and beautiful Stamford Plaza hotel and workshops at our QUT Gardens Point Campus.

The theme of our conference this year is Human-Nature. Our theme highlights both the need for socio-technical systems which bring out our better human nature, and the need to better engage people with the natural environment in which we live in order that we understand, appreciate and learn to live in harmony with nature and the wonders it holds. We are pleased to explore these themes with you in our sub-tropical home.

Our conference is made very much easier to organise and affordable to attend because of our sponsoring organisations. I would like personally to thank our major sponsors Queensland University of Technology, the University of Queensland, CSIRO and HFESA. I would also like to thank the organising committee, our keynote speakers, all presenters and participants and our student volunteers, all of whom make this conference happen. We are in particular indebted to HFESA, the Human Factors and Ergonomics Society of Australia, and CHISIG, for their unwavering support of our conference.

I hope you enjoy OzCHI and make many new friends here.

Margot Brereton

Conference Chair (OzCHI 2017)

Welcome from the Technical Program Chairs

The theme of the OZCHI2017 conference in Brisbane, Australia is Human-Nature. Our theme highlights both the need for socio-technical systems which bring out our better human nature, and the need to better engage people with the natural environment in which we live in order that we understand, appreciate and learn to live in harmony with nature and the wonders it holds.

Our keynote speakers, Michael Christie, Yvonne Rogers and Richard Fuller were invited to provide their both academic and practice-based perspectives on this theme.

This year's OzCHI conference received 75 long paper submissions and 11 papers were accepted outright with 25 conditional acceptances (post rebuttal and revision) to appear in the conference program. We received 82 short paper submissions and accepted 11 submissions outright and conditionally accepted 27 submissions to appear in the conference program. All papers were subject to double-blind review by at least 3 reviewers. We ensured each paper had at least one senior reviewer. All papers were then carefully considered by a mixed panel and reviewer comments were highlighted in any conditional acceptance feedback.

Additionally, workshop proposals, industry papers, demos and work in progress papers were reviewed by their respective track chairs and 28 teams submitted proposals for this year's Design Challenge—three of these were selected for presentation during the conference.

Since 2002, CHISIG has presented the Gitte Lindgaard Award for the best long paper presented during OzCHI, CHISIG's Annual Conference. In addition, in 2014 CHISIG committee began the Steve Howard Award, to be presented to the best long paper by a student. We continue these traditions this year and both awards will recognise the best written paper, in combination with the quality of the presentation and discussion at the conference.

OzCHI is the annual non-profit conference for the Computer-Human Interaction Special Interest Group (CHISIG) of the Human Factors and Ergonomic Society of Australia. The OzCHI proceedings are a publication of CHISIG and are included in the ACM (Association for Computing Machinery) International Conference Proceedings Series. OzCHI 2017 proceedings will be made internationally available from the ACM digital library (<http://portal.acm.org/dl.cfm>).

We would like to thank all authors for their contributions and for their openness in integrating reviewer feedback and addressing new template issues. We highlight a special 'thank you' to our reviewers for their extensive reflective feedback, especially those who took on last minute reviews in addition to their allocated papers and to those who engaged in constructive discussions post-review where major discrepancies in scores occurred. We appreciate the time and effort it takes to provide invaluable feedback from your own expertise, not only to the authors, but also to the program chairs. In recognition of the importance of reviewing to the conference we will present awards for the best reviewers of long and short papers. We have endeavoured to maintain high standards for OzCHI papers and for the overall conference. We would also like to thank all members of the conference committee toward making this conference program an exciting one.

We wish you all an enjoyable conference in subtropical Brisbane. And to all our international participants, "we trust you will delight in a little of the Australian summer".

Dhaval Vyas, Ann Morrison, Alessandro Soro, Jenny Waycott, and Bernd Ploderer

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Workshops and Symposia

Career Development Symposium

Aimed at early career academics and researchers (postdocs, early career faculty), this inaugural one day OzCHI Symposium will provide discipline-specific career guidance and development. Participants will get the opportunity to learn from senior HCI mentors as well as from their peers, and will come away with a better understanding of how they want to develop as a successful HCI researcher. The event is open to HCI people who have received their PhDs in the past five years.

The symposium will run according to open space principles: that is, the participants will define the agenda to ensure that it best meets their needs. Each participant will be given a short time to introduce themselves, and will get feedback on his/her current professional activities. There will also be a panel of senior HCI experts who can share stories of their academic history and experiences. The rest of the agenda is for the participants to define! This process will be facilitated by the organizers and supported by senior faculty mentors, who will be present throughout the day to provide advice to participants.

Geraldine Fitzpatrick & Jon Whittle (Career Development Symposium Chairs)

CHI/UX Industry Symposium

Organisers: Sonja Pedell¹, Florian Nachreiner², Oliver Weidlich³, Bridgette Engeler¹, Naseem Ahmadpour⁴.

¹Swinburne University of Technology,

²Oakton,

³Mobile Experience,

⁴University of Sydney.

This year the CHI/UX Industry Symposium will be a “thought hackathon” exploring how academia and industry can collaborate better and create a shared future vision. Based on contributions from the delegate community, a series of brief presentations will provoke discussion and provide the platform for the day’s activities.

Participants will be invited to share thoughts and ideas on how to revive and inspire collaboration through new experiences and activities. Using LEGO® SERIOUS PLAY®, World Café, Mini Design Challenge, and other techniques, we’ll co-design a vision for the CHI/UX community that will shape future collaboration.

Topics include, but will not be limited to:

- How can industry make better use of research results?
- Domain specific considerations (e.g. technologies for health and “on the move”)
- What might the future OzCHI community look like?
- How might academics and industry partners work together in the future?
- What are the challenges for collaboration?
- What best practice examples of collaboration formats or projects can we learn from?

In 2018, we’ll revisit these ideas, evaluate progress and activities of the past year, and continue to improve so we build a more vibrant CHI/UX collaborative community between industry and academia.

Digital Land Rights and Reconnecting Indigenous Communities

Christopher Lawrence¹, Tuck Wah Leong¹, Valerie Gay¹, Michael Mieni¹, Tamatau Faleono¹, Aimee Woods¹, Greg Wadley².

¹University of Technology Sydney,

²University of Melbourne.

The workshop will focus on research and education to create new pathways to support Indigenous communities, developers, entrepreneurs and start-ups to develop and operate Indigenous-owned technology. We invite participants who are researching in the area or interested in learning more about technologies and Indigenous communities, and those who are educating students in the design and development domain. This will include academics, app developers and industry partners wanting to make a real difference for Indigenous Australians. We especially welcome submissions that employ Postcolonial Computing (PC) (Irani et al. 2010) and/or Participatory Design (Iversen et al. 2012) approaches in researching and developing technology for Indigenous wellbeing. Other areas of interest include: cultural protocols, impact sourcing, positive computing, knowledge sharing, and emerging technologies.

Digital Outreach: Designing Technologies for Diversity, Participation and Social Inclusion

Luke Hespanhol¹, Hilary Davis², Joel Fredericks¹, Glenda A. Caldwell³, Marius Hoggenmueller⁴.

¹University of Sydney,

²Swinburne University of Technology,

³Queensland University of Technology,

⁴University of Munich.

Digital participation is fast becoming a core issue for researchers, designers, educators, industry and the government. Yet, academic research, industry practices and government policies still tend to focus predominantly on mainstream communities of highly urbanized settlements, often neglecting smaller cities, regional areas, suburbia and disadvantaged segments of society lacking digital literacy. Likewise, people from diverse and marginalised backgrounds, or who are socially excluded, such as people living with disability, the elderly, disadvantaged youth and women, people identifying as LGBTI, refugees and migrants, Indigenous people and others, are particularly vulnerable to digital under-participation. This workshop proposes to shift the discourse back into the discussion of: (a) design practices relevant to those communities; (b) identify shared challenges and opportunities; (c) uncover strategies for co-design with a wider range of demographics; and (d) devise a roadmap for a more inclusive research agenda around communities and technologies.

Co-Designing Technologies for Citizen Scientist Engagement & Saving Species

Jessie Oliver¹, Mark Cottman-Fields¹, Margot Brereton¹, Paul Roe¹.

¹Queensland University of Technology.

This full-day workshop will explore of how human computer interaction (HCI) design approaches can expand, diversify, and improve ways that members of the public engage with nature and science as citizen scientists. Activities during the workshop will enable members of the design and citizen science communities to network and generate ideas together. It is anticipated this workshop will result in a white paper discussing ideas generated.

Animal Computer Interaction (ACI) & Designing for Animal Interaction (AXD)

Ann Morrison¹, Jane Turner², Helen Farley¹, Sarah Webber³, Jessie Oliver².

¹University of Southern Queensland,

²Queensland University of Technology,

³University of Melbourne

This workshop invites researchers and practitioners from HCI and related fields who work in some capacity with animals and who recognise the sentient nature of their being. We call for those who want to better understand how to work with animals and learn from them. We are a small team wanting to start an Australian chapter of the Animal Computer Interaction Community. If you spend time with animals or in nature (in academia and/or in the industry) or are interested in how technology design impacts on the natural world, or are considering, researching, or working in the emerging Animal Computer Interaction (ACI) area, join us by submitting a 2-4 page position paper in the extended abstract format. The workshop will elicit discussion, head up a new group and lead to a White Paper on the state of the art within this field in Australia, including comparative international studies.

Mixing Quantitative with Qualitative Methods. Current Practices in designing experiments, gathering data and analysis with mixed methods reporting

Ann Morrison¹, Stephen Viller², Tamara Heck¹, Kate Davis¹.

¹University of Southern Queensland,

²University of Queensland.

In this workshop, we set up a discussion on opposing approaches to evaluation methods in order to elicit best practice scenarios. We ask what are the best practice methods being used in the OzCHI community to address the complexities inherent in applying triangulation processes? If you already work with or are considering, researching, or working with both quantitative and qualitative evaluation methods (in academia or industry), join us in this workshop. In particular, we look at adding qualitative to qualitative methods to build a whole picture of user experience. We see a need to discuss both quantitative and qualitative research because there is often a perceived lack of understanding of the rigor involved in each. The workshop will result in a White Paper on the latest developments in this field, within Australia and comparative with international work. Participants are to submit a 2-4 page position paper in the extended abstracts format. We anticipate sharing submissions and workshop outcomes with the HCI community.

Doctoral Consortium

The OzCHI Doctoral Consortium is a single-day forum for candidates undertaking a PhD in human-computer interaction to explore their research topics, plans, methods and theories with an interdisciplinary panel. Selected delegates have the opportunity to present their work and receive constructive feedback and guidance from senior researchers in a supportive and collegial setting. This year's consortium was chaired by Jaz Choi, Peter Lyle, Ann Light and Ben Matthews.

The following students and their projects were accepted to the 2017 Doctoral Consortium:

The Suitability of the ARC Method for Studying Stigmatized Populations

Juan Fernando Maestre, Indiana University Bloomington

Understanding the role of technologies in the parent-adult child relationship after children leave home

Diego Felipe Muñoz Sáez, Queensland University of Technology

eHealth Services and the Doctor-Patient Relationship

Christiane Grünloh, KTH Royal Institute of Technology, Stockholm

Magical interaction focused system control techniques for HMD VR using wand controllers

Lewis Carter, Griffith University

The New Innovators: Lifestyle, Travel, Coworking, and Fun – Understanding the Link between Idea Generation and Leisure Activities as a Factor in Innovation

Ana Bilandzic, Queensland University of Technology

Placemaking through Interactive Installation- Exploring Interactive experience

Yu Kao, Queensland University of Technology

Location-Dependent Playful Experiences: A Framework for Design

Lorna Macdonald, The University of Queensland

Keynote Presentations

Michael Christie Charles Darwin University, Australia. Learning HCI from Australian Aboriginal Elders: reflections on the collaborative design of digital knowledge technologies.

Professor Michael Christie works with the Contemporary Indigenous Governance and Knowledge research group at the Northern Institute, Charles Darwin University. A fluent speaker of Yolŋu languages, he has worked for more than 40 years collaboratively with Indigenous elders and knowledge authorities researching and co-designing solutions to complex problems arising at the interface of Australian Indigenous and settler knowledge and governance practices, for example in housing and homelessness, medicine, the criminal justice system, community governance, environmental and resource management, 'both-ways' educational curriculum, and the intergenerational transmission of ancestral knowledge. He worked as a teacher linguist at Milingimbi and Yirrkala in East Arnhem Land in the 1970s and '80s and from the mid 1990s with Yolŋu elders to establish the Yolŋu studies program at CDU, which continues to attract students of Yolŋu languages and culture, taught by language owners. The program won the Prime Minister's prize for Australia's best university teaching program in 2005.

Working as an educator and linguist in remote Arnhem Land Aboriginal communities since the 1970s, and more recently as an academic in the Northern Territory, the emergence and mobilisation of digitising technologies has long been an inevitable feature of my work. In this talk I introduce a number of different collaborative design projects through which Aboriginal knowledge authorities have instantiated their own knowledge and governance practices, and reflect on some of the epistemological insights this work has produced.

Richard Fuller University of Queensland, Australia Reconnecting people and nature

Richard Fuller is an Associate Professor at the University of Queensland. He studies how people have affected the natural world around them, and how some of their destructive effects can best be reversed. To answer these questions, the lab group works on pure and applied topics in biodiversity and conservation. Much of the work is interdisciplinary, focusing on the interactions between people and nature, and how they can be enhanced. Ultimately, coherent solutions to the biodiversity crisis depend on a healthy relationship between people and the natural environment.

The world's population is predominantly urbanised, and we are spending more and more time indoors. As a consequence, many environmentalists are alarmed about what they see as an accelerating disconnection of people from experiences of nature. The science indeed tells us that spending less time in nature impairs health and well-being, although does not seem to reduce concern about environmental conservation. While many cast technology as the evil of the piece, and see a stark trade off between screen time and green time, I argue that technology has in fact already afforded many opportunities to strengthen our connection with nature. Yet enormous prospects lurk elusively on the horizon. A deeper appreciation of the nature living around us is hampered by at least two fundamental biological difficulties – most species are very hard to perceive, being rare, small, nocturnal or all three, and identification of most taxa remains the domain of experts with years of specialist learning. Can we overcome these difficulties and others through smart interfaces between people and computers?

Yvonne Rogers UCL Interaction Centre. Keynote: Human Nature: The Good, the Bad and the Ugly

Yvonne Rogers is a Professor of Interaction Design, the director of UCLIC and a deputy head of the Computer Science department at UCL. Her research interests are in the areas of ubiquitous computing, interaction design and human-computer interaction. A central theme is how to design interactive technologies that can enhance life by augmenting and extending everyday, learning and work activities. This involves informing, building and evaluating novel user experiences through designing, implementing and deploying a diversity of technologies. A current focus of her work is on human-centred data and people in the Internet of Things in urban settings. Yvonne is the PI at UCL for the Intel Collaborative Research Institute on Urban Internet of Things which was launched in October 2012 as a joint collaboration with Imperial College, Intel, Future Cities Catapult and London Legacy Development Corporation. She was awarded a prestigious EPSRC dream fellowship rethinking the relationship between ageing, computing and creativity and a Microsoft Research Outstanding Collaborator Award in 2016. She is an honorary professor in the Computer Science department at the University of Cape Town. Central to her work is a critical stance towards how visions, theories and frameworks shape the fields of HCI, cognitive science and Ubicomp. She has been instrumental in promulgating new theories (e.g., external cognition), alternative methodologies (e.g., in the wild studies) and far-reaching research agendas (e.g., “Being Human: HCI in 2020”). She has also published two monographs “HCI Theory: Classical, Modern and Contemporary.” and “Research in the Wild.” with Paul Marshall.

It is well known that technology can bring out the worst in human nature. All too many of us readily succumb to some level of digital addiction – perpetually dovetailing between our apps, texts, newsfeeds, social media, games, videos, and so on – while eagerly awaiting the next batch of notifications, that give a glimpse of what is in store when we next look down at our phones. But it does not have to be so. We can also think of how technology can be engineered to bring out the best in human nature. One approach I have been pursuing is to research tech design and use that entices us to ‘look up’ and ‘look out’, and in doing so open our eyes more to see, understand and engage with the natural environment. Rather than playing into the hands of the ugly side of human nature I will talk about how HCI can tap into the good side of humankind.

Panels

Opportunities for collaboration between industry and academia

Long lasting collaboration between industry and academia, rather than brief encounters, has been a topic in the HCI community for a long time. While benefits of any collaboration seem at first sight obvious, perceptions of each other's skills, criteria for success, and handling of processes, timelines, and resolution of final outcomes pose considerable barriers to establish collaboration on a wider scale. Differing expectations and everyday work environments lead to prejudices and misunderstandings of motivations. The aim of this panel, consisting of representatives from academia and industry – all highly experienced in collaboration –, is to clarify some of the perceived barriers and identify opportunities for collaboration. Panellists are asked to tell some tales from previous projects and to come up with their wish list for a way forward to scale up collaborations. In particular, putting the users and their needs truly centre stage as a strategy for accomplishing the common goal of creating products and services that will be adopted instead of focusing on the differences is encouraged to be explored in the discussion to bring both sides together.

Chair: Sonja Pedell, Swinburne University of Technology, School of Design, Melbourne

Ecocide or Existence: Designers in Arms

Inspired by this year's OZCHI conference theme of Human-Nature, this discussion panel asks how interaction designers might respond to existential challenges and refocus efforts away from the business-as-usual of making technology more usable. How might we explore design approaches and strategies that support viable and humane life for all? What commitments can we all make to become research activists?

Chair: Ann Light, University of Sussex, UK

Designing Technology for Wellbeing: A shifting paradigm

The panel of experts from across a range of disciplines including design, health, technology and big data will explore a broad set of issues facing the rapidly changing healthcare sector in light of the emerging developments that include changes to service delivery from provider-centric to user-centric models, increased emphasis on self-management of health, challenges arising from automation and big data and, at the intersection of these, how do we begin to frame questions of ethics and equity of access. Underpinning this discussion are the overarching and foundational questions of: What do we understand as wellbeing? What does it mean to design technology for health and wellbeing?, particularly within transdisciplinary, often methodologically messy processes. And, probably most importantly, how do we know that what we design has value?

Chair: Oksana Zelenko, Queensland University of Technology

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