Making Home:
Asserting Agency in the Age of IoT

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Abstract

This one-day workshop, situated in an AirBnB home, intends to engage participants with concerns of the domestic across a wide spectrum of HCI practice; from those designing technologies to configure space, makers and hackers of the Internet of Things, those seeking to promote behavioral change in the home and those envisaging new forms of domestic space; critically and uncritically. Through provocations, installations, artifacts and demonstrations we shall question the degree of personal agency that these technologies afford the inhabitant. In doing so we expect to find both points of unity and points of debate which we shall document in a short film, to be shared with the community and beyond.

Author Keywords

Agency; assistive technologies; DIY; domestic; hacking; home; Internet of Things; making; precariaty.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Background

For many people the Internet and computation has become firmly embedded in the fabric of their homes. Over the past fifteen years we have witnessed the

growth of home networking and for the past 5 years an increasing number of devices from televisions to thermostats becoming attached to these networks. Networking and the Internet of Things (IoT) are becoming part of the infrastructure of our homes and we are beginning to see a set of technologies to control and manage these complex conglomerations; be that Amazon's Echo, Google Home or Apple Homekit. Such that we might herald the arrival of the Smart Home. With this comes a set of timely and unresolved challenges for HCI.

Visions of the ideal and latterly Smart Home have tended to encode a Taylorist rationality that is largely at odds with the messiness of everyday life. These values are arguably being embedded in the current commercially available devices that might be considered the Internet of Things. We call for a more human centered approach and ask for a critical debate.

The HCI community has had a longstanding interest in the home, the domestic and connected devices; that acknowledges the complex and contested nature of this space [3,4,5,6,8,10]. This is set in a growing public discourse around the new nature of home [2,11].

For many the idea of a private home in which to seek refuge from the world is unknown or at least constrained - the societal ideal of owning a home seems unobtainable. Standing's [14] identification of the 'Precariat' gives us a vocabulary to talk about those who live precariously between short-term employment and variety of housing arrangements. Typically this might be rented accommodation, but we include those living and working nomadically on the move in trucks or hotel rooms [13], those living in mobile homes (RVs)

[16] or on boats, etc. and those who are homeless on the street, in hostels or in tent cities [15]. In terms of Brand's 'Shearing Layers' [1] what opportunities do these people have to control their home environments, to assert their agency? In the rented sector restrictive tenancy agreements make only their *Stuff* configurable. In an RV or tent, there is a lot more control of *Stuff*, and *Space Plan*, *Services*, *Skin*, *Structure* and *Site*; but this requires these to be self-provisioned (e.g. water, sewage, electricity, Internet, etc.).

We consider that the Internet of Things both challenges and opens new possibilities for people acting with agency at home; their ability to change the environment based on lifestyle, everyday routines, desires and needs. And we think this is especially true for the Percariat.

The notion of the Sharing Economy suggests that we can monetise the things we own. Most strikingly our homes – through the phenomenally successful AirBnB – but also in the production of data trails that our use of services produces for corporations. We are beginning to negotiate the status of our homes as 'data factories' [2]. It is clear that the *stuff* we buy has always carried with it the agendas of others, but now it can continue to *act* on their behalf in our homes. Soon the mandated smart meter will make decisions on the behalf of the electricity company. In addition, there is significant investment in assistive technologies that instrument a home to enable older adults to live autonomously overseen by an array of sensors [7]. This is all in the context of a post-Snowden mass-surveillance world.

We focus on agency rather than privacy or surveillance; which we argue are subsets of agency.

Our Focus: Agency in the Home

As our homes become increasingly connected and able to exhibit a range of automatous behaviours, many at the behest of corporations or governments or remote carers, how do we assert and defend our own agency in our own homes? Especially as we negotiate the precariaty of modern life.

To give some exemplars: Superflux's film Uninvited Guests[1] is a speculative exploration of the strategies an elderly man uses to assert himself in his ever-nudging Smart Home. An example of an assertive technology is Julian Oliver's *dropkick.sh* script[2], allowing AirBnB guests to remove any DropCam cameras from the network that might be covertly filming them. Similarly, Mitch Altman's TV-B-Gone[3] gives the individual control over any nearby television. These technologies may be characterised as hacks that negotiate legality and terms of use.

Addressing agency in rented homes of the 1970s, Hennessey and Papanek's Nomadic Furniture [9] is a catalogue of plans for DIY furniture that allows the home environment to be substantially changed without altering the fabric of the room. How can we translate this thinking for the age of the Internet of Things?

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[1] Superflux. 2015. Uninvited Guests. (May 2015). Retrieved October 11, 2016 from https://vimeo.com/128873380

[2] Julian Oliver. 2015. Detect and disconnect WiFi cameras in that AirBnB you're staying in. (December 2015). Retrieved October 11, 2016 from https://julianoliver.com/output/log_2015-12-18_14-39

[3] Mitch Altman. 2008. TV-B-Gone. (October 2008) Retrieved October 11, 2016 from http://www.tvbgone.com/

Our Workshop

This one-day workshop, situated in an AirBnB home, intends to engage participants with concerns of the domestic across a wide spectrum of HCI practice; from those designing technologies to configure space, makers and hackers of the Internet of Things, those seeking to promote behavioral change in the home and those envisaging new forms of domestic space; critically and uncritically. Through provocations, installations, artifacts and demonstrations we shall question the degree of personal agency that these technologies afford the inhabitant. In doing so we expect to find both points of unity and points of debate which we shall document in a short film, to be shared with the community and beyond.

For those focusing on behavioral change or on more technical aspects of technologies in the home this might highlight new and more nuanced understandings of the home; and for those who are critiquing and hacking current systems, it might give them a more complete portrait of the situation, or even newly found inspirational ideas to pursue their work.

Our workshop themes include: agency, privacy, wellbeing, DIY practices, hacking, precarious or nomadic lifestyles and design-led research.

Through these themes we intend to open up new timely debates and identify future avenues of research. We believe that this will make a significant contribution to the HCI community working within the domestic space, building, documenting, and disseminating a shared understanding and formulating an interdisciplinary community of researchers to progress this agenda.

Organizers

We are design-led practitioners drawn together by our desire to foster productive, inclusive, yet critical debate in the HCI community.

David Chatting is a designer and technologist who works in software and hardware to explore the impact of emerging technologies in everyday domestic lives. He is a Research Associate at Newcastle University's Open Lab, a Visiting Lecturer at the Royal College of Art, a Visiting Research Fellow at the Goldsmiths' Interaction Research Studio and he has his own design practice.

Gerard Wilkinson is a researcher who uses sensors embedded in everyday things to inform the production and consumption of media; by applying machine learning techniques. He has a specific interest in the kitchen environment. Gerard is a PhD student at Newcastle University's Open Lab.

Kevin Marshall has research interests in the interaction between digital technologies and health and wellbeing both in home and work contexts. With a focus on how sensor technologies can be used to monitor and intervene to support health and wellbeing among an ageing population. He is a Research Associate in the School of Engineering and Geosciences at Newcastle University. He is also a visiting researcher at the Merchant Venturers School of Engineering, University of Bristol.

Kevin was lead organizer of the CHI 2015 workshop on 'Supporting Children to Engage in Play for Wellbeing' and was also an organizer of an IDC 2013 workshop on design with and for children with additional needs.

Audrey Desjardins is an interaction design researcher, an industrial designer and a maker. Her research interests are centered around everyday design, do-it-yourself practices, and technologies in the home. She has investigated the nuanced and personal making of a home through an autobiographical design project of transforming a cargo van into a camper van.

Audrey is an assistant professor at University of Washington, in the School of Art + Art History + Design.

David Green is a researcher and videographer. He is a Research Associate at Northumbria University. During David's PhD research he developed the notion of *documentary co-design* as a means of enabling *structural participation* in documentary production.

David Kirk is Professor of Digital Living at Northumbria University. His research is in the area of Human-Computer Interaction (HCI) studying the design of interactive (computational) technologies. In particular he is interested in exploring the design of technologies for domestic spaces and notions of the Smart Home.

David has previously organized eight CHI workshops, including most recently a workshop on 'Future of Human-Building Interactions' (CHI 2016).

Andy Boucher is a co-director of the Interaction Research Studio at Goldsmiths, University of London. Andy is a designer whose research interests focus on practice-based design research with a particular emphasis on the design, fabrication and long-term in-situ deployment of computational devices for varied user-groups; frequently in their homes.

Website

Our website (makinghome.org/chi2017) will be developed to first support the workshop, then subsequently to act as a point around which to sustain a community of researchers and practitioners.

Our website shall host and support the call for participation and elaborate our themes. Prior to the workshop we will make the accepted position papers available here. Immediately afterwards the film will be available to promote discussion in the wider community during the conference.

During the workshop we will identify people willing to make regular contributions to the website, to maintain a blog of related work and developments.

In addition, we will establish a mailing-list and use social media accounts (to include Twitter, Instagram and Facebook) to make wide connections.

In this way we intend to create a set of online resources to grow a community of collaborating researchers and practitioners.

Pre-Workshop Plans

Our primary means of recruitment of workshop participates shall be by mailing-lists (e.g. the CHI announcements and the PhD Design lists), social media and by direct invitation. Whilst we have a broad expertise in domestic HCI and are well placed to solicit contributions we must also reach beyond our immediate networks to reach the span of the HCI community that we intend.

We aim to attract between 12-18 researchers, designers and practitioners from a variety of backgrounds, experiences and interests in the subject.

We invite our participants to come to the AirBnB home with an installation or demonstration, an artifact or a provocation, for the space. Details of the home will be emailed to our participants in advance and will include photographs. We are looking for a diversity of work and approaches. The goal of the workshop is to create a lively debate around people, homes and stuff.

Position papers are invited in the CHI extended abstracts format (2 to 4 pages). We encourage rich graphical depiction, for instance the pictorial format. Acceptance will be based on quality and relevance to our themes. We shall form a review panel of the organizers and invite external reviewers depending on the quantity and subject area of the submissions. As members of large multidisciplinary institutions we can draw on wide range of expertise.

Workshop Structure

Locating the workshop at the AirBnB home allows us to explore domestic IoT issues in the wild, it will directly challenge our assumptions about the home and will provide a venue that will facilitate a shared experience. Our participants are invited to come with an installation or demonstration, an artifact or a provocation, for the space. There will be a necessary informality; we are looking for lively debate around people, homes and stuff. The home will provide us a range of provocative locations to discuss agency. A conference room would not offer this.

To make this work successfully we will put a great deal of effort into finding a property that will comfortably accommodate our participants. Being both spacious enough, providing space to present and work, whilst being easily found in an unfamiliar city and being close to restaurants and bars[4]. We have sufficient funding available to cover the cost of the AirBnB fees.

We will curate contributions that address complimentary or opposing themes in three seminar-style sessions to surface debates, each 90 minutes long. Our participants will be encouraged to stage installations and interventions within the fabric of the home. We will show slides on the living room television.

Videographer David Green will document the day in a short film. This will be a combination of talking-head footage, demonstrations and group conversation.

We will have access to the home prior to and after the workshop to prepare the space.

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[4] For instance: https://www.airbnb.co.uk/rooms/11078469

8:30am
Meet at the conference venue, walk to the AirBnB home.

9am-9:30am
Welcome and introductions and overview of workshop.

9:30am-11am
90-minute seminar with first 1/3 of participants.

11am-11:30am
Morning Break - British elevenses - tea, coffee, juice and biscuits provided.

11:30am-1pm
90-minute seminar with second 1/3 of participants.

1pm-2pm
Lunch (off-site).

2pm-3:30pm
90-minute seminar with final 1/3 of participants.

3:30pm-4pm
Afternoon Break - High Tea - tea and cake provided - we might even bake the cake!

4pm-5:30pm
Open discussion moderated by organizers to critically mapping issues, complications and opportunities.

5:30pm and later
We will order pizza and offer beers at the AirBnB house for anyone who would like to stay. Afterwards, we will continue to explore Denver and continue our discussions.

Post-Workshop Plans

Immediately after the workshop the film will be available on our website and via Vimeo. We will use our social media accounts to publicize this widely; we would like to engage specifically with the design and corporate communities. This will allow us to continue our conversations outside the workshop, establishing connections beyond our immediate participants.

During the workshop and over the period of the conference we will be seeking interest in specific future community endeavors, be that further workshops, joint proposals or journal contributions. We will write an article about themes that emerged throughout the workshop for a SIGCHI member publication, such as ACM Interactions magazine, to solicit further interest and participation.

As described we intend that the website, supported by the mailing-list and social media accounts, become a resource and community hub for researchers and practitioners.

Call for Participation

For many people the Internet and computation has become firmly embedded in the fabric of the home. This one-day workshop invites participation across HCI practice; designers of technologies to configure space, makers and hackers of the Internet of Things, researchers of behavioral change in the home and those envisaging new forms of domestic space; critically and uncritically. We will come together in an AirBnB home to debate personal agency in this context. A short film will be made and publicly shared immediately afterwards.

Our agency at home is being challenged; both with changing economic patterns of ownership, and by the home's automatous behaviors - many at the behest of corporations or governments.

The workshop themes include: agency, privacy, wellbeing, DIY practices, hacking, precarious or nomadic lifestyles and design-led research.

We invite our participants to come to the AirBnB home with an installation or demonstration, an artifact or a provocation, for the space. We are seeking a diversity of work and approaches. Our goal is to create a lively debate around people, homes and stuff.

Position papers are invited in the CHI extended abstracts format (2 to 4 pages). We encourage rich graphical depiction. Brief personal biographies should be included. Acceptance based on quality and relevance to our themes. Submissions may be sent via email to: hello@makinghome.org

At least one author of each accepted position paper must register and attend the workshop. All participants must register for both the workshop and for at least one day of the conference.

makinghome.org

Acknowledgements

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