

Designing alternative future home stories

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Abstract: Usually the smart home imaginaries portray nuclear families living in detached houses with a focus on efficiency and energy. In this workshop, we follow the co-design approach to imagine alternative future homes beyond this stereotype. First, we brainstorm the concept of *home* addressing idiosyncratic needs and expectations. Second, we try three co-design tool adaptations in small groups which allow us to collaboratively imagine speculative futures. *LittleBoxes* is a cultural probe variation with which participants can configure a speculative future by using inspirational and technological materials. The *Tiles Iot Inventor Toolkit* adaptation helps to tell detailed stories of how to possibly live with technology in the future. With the *Iot Service Kit* adaption participants are able to build speculative home scenarios and playfully explore imaginary future technologies within them. There will be two rounds of co-designing, so every participant will explore two of the toolkits. In the last part, we reflect on the experiences as well as discuss if and how participants could imagine adapting the introduced tools beyond the workshop.

Keywords: Smart Home; Co-Design; Participatory Design; Internet of Things; toolkit; design fiction


1 Background


Current smart home innovations often advertise solutions for comfort, security, and efficiency [Li21], [LPH21], [Mc23]. The underlying image of the inhabitants of such homes is very limited and they are often portrayed as a family living in a detached house [De19], [Mc23]. By treating smart home inhabitants only as users and consumers we perpetuate the underlying heteronormative and capitalist values already inscribed in prevailing smart home visions [Be22]. In doing so, the actual needs and wishes of people as well as the personal idiosyncrasies of homes are not reflected in smart home technologies. But how can future smart homes be envisioned and materialized so as to consider alternative forms of living as well as the individual needs of people in their home?


In recent years HCI and design researchers have developed a multitude of approaches and methods in attempting to broaden the view and gain a deeper understanding of how to move beyond narrow market driven smart home schemes [DWO15], [LPH21], [SAO19]. These approaches draw on collaborative creative processes [SS14] with the aim to create new technological setups for what they consider alternative homes.


In this workshop, we will build on the approaches of speculative design and co-design ventures [LC15], [SS08] as well as on work of human-computer interaction and research-through-design. The twist of this workshop however is, rather than demonstrating a newly developed method of co-creatively addressing the aforementioned issues regarding smart home visions, we adapt existing co-design methods and shift the focus to a narrative perspective which enables participants to speculate and tell stories about their individual visions of future smart home technologies.

By scaffolding a storytelling process participants are empowered to concretize their imaginaries and detail the diegetic contexts in which speculative technologies can be used without flattening the rich field of possible future modes of IoT-enhanced dwelling [Be22]. Furthermore, by demonstrating our narrative adaptations of co-design approaches

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we want to show the versatility such methods can yield if they are appropriated and tweaked for a certain research interest.

2 Workshop

2.1 Aim of Workshop

In the workshop, we challenge conceptions of home. By sharing and reflecting individual perspectives, we attempt to uncover the underlying assumptions in order to gain new insights and further develop everyone's individual concept of home.

The workshop will address the following questions a) What/where is home? b) What is a standard home? c) What is an alternative home? d) What makes home home? e) How can we imagine and narrate future homes? f) How can alternative imaginaries of smart homes be materialized? g) What roles does/can technology play in the home? h) What makes the smart home 'smart'? i) What does this implicate for the interactions with technologies in the home?

To think beyond contemporary imaginaries of smart home technologies, three co-design tools and methods will be provided. Participants have the opportunity to explore and try out two of the methods and speculate on their future homes in a playful manner. The tools enable the participants to express their wishes and needs regarding how they want to live with technology in a home of the future. The methodical scaffolding supports participants in imagining and exploring smart home scenarios in novel ways to create stories about the speculative everyday life in them.

In detail, the three tools that will be available in the workshop are: *LittleBoxes* – a cultural probe variation with which participants can configure a speculative future by using inspirational and technological materials [GDP99]. The *Tiles Iot Inventor Toolkit* adaptation which enables people to tell detailed stories of how to possibly live with technology in the future [MGD17], [PI23]. With the *Iot Service Kit* adaption participants are able to build speculative home scenarios and playfully explore imaginary future technologies within them [Io23].

2.2 Brief Schedule of Workshop

The workshop will be held in-person on Friday, 29.09.23, 10 am to 5 pm. The workshop will be in German, as are all the tools and methods.

- Morning 10 am to 11 am
 - Welcome and introduction to the workshop, hosts & participants
 - Brief and general overview on co-design methods and toolkits for the IoT
 - Brainstorming about the concept of the home, guided by four questions
- Coffeebreak 11 am to 11.30 am
- Noon 11.30 am to 12.30 am
 - Participants will be split in small groups
 - First round of try-outs with one of the tools and methods
 - Participants can choose between an adaption of The Tiles IoT Inventor Toolkit, an adaption of the IoT Service Kit and a cultural probe called LittleBoxes
 - Each method will be facilitated by one of the hosts
- Lunchbreak 12.30 am to 2 pm
- Afternoon 2 pm to 3.30 pm

- Participants will be split in small groups
- Second round of try-outs with one of the tools and methods
- Participants can choose between an adaption of The Tiles IoT Inventor Toolkit, an adaption of the IoT Service Kit and a cultural probe called LittleBoxes
- Each method will be facilitated by one of the hosts
- Coffeebreak 3.30 pm to 4.30 pm
- Reflection & Wrap Up 4.30 pm to 5 pm
- We encourage participants to reflect with us about their experiences of the workshop & to connect with each other beyond the workshop

3 Organizers

Benedikt Haupt: I am a research associate at the Department for Communication and Media Studies at the University of Leipzig. Coming from a qualitative social sciences background my interests became greatly linked during my studies to human machine interactions as well as the role technology plays in our everyday life. As a relatively new member of a transdisciplinary team working with co-design, I am fascinated by the variety and diversity of methods and approaches in this field. Therefore, my motivation mostly derives from the tension between how methods are perceived in the field of co-design and co-creation in contrast to the perception of methods in the qualitative media and communication science and how these perspectives could potentially benefit from each other.

Christian Pentzold: I am Chair and Professor of Media and Communication in the Department for Communication and Media Studies at the University of Leipzig. At Leipzig, I'm one of the co-directors of the Center for Digital Participation. I'm broadly interested in the construction and appropriation of digital media and the roles information and communication technologies play in modern society. As part of my work on the interaction between people and smart digital technologies, I am maintaining a living lab that involves citizens in workshops and lectures, creating tinkering, and co-design events. Next, as a researcher and scholar, I have been involved in peer production since 2005 where people from all walks of life come to create information goods as well as tangible technologies beyond the governance mechanisms and legal constraints of markets or formal organizations.

Alexa Becker: I am a research associate at the Department for Communication and Media Studies at the University of Leipzig with an interdisciplinary background in literature, art, media and computer science. My research interests are co-design, tangibles and micro-interactions especially in the context of the smart home. During the last years I conducted multiple co-design workshops for the smart home in different settings with a variety of people. As a relatively new member in academic research my motivation is to gain more experience and to get in touch with other researchers.

Arne Berger: I am a Professor of Human-Computer Interaction at Hochschule Anhalt. HeI am fascinated by the complex, idiosyncratic and unintended interactions between humans and digital technology. My work is influenced by the Scandinavian tradition of Participatory Design, which recognizes that those who will be affected by a future technology should have an active say in its creation. My research focuses on early phases of design and development processes and he is particularly interested in how errors, failures, blips, and oversights shape how we think about future technology.

4 Post- Workshop Plans

During the workshop the process will be audio recorded and photographed. The results will be documented on post-its and canvas as well as on photos. The photographed results will be shared with the workshop participants. A data privacy statement will be provided as well as a table to fill in the email address if the participant would like to receive the documentation of the workshop.

5 References

- [Be22] Becker, A.; Haupt, B.; Berger, A.; Pentzold, C.: Future home stories: participatory predicaments and methodological scaffolding in narrative speculation on alternative domestic lives, *Digital Creativity*, 2022. <https://doi.org/10.1080/14626268.2022.2082488>
- [De19] Desjardins, A.; Viny, J.; Key, C.; Johnston, N.: Alternative Avenues for IoT: Designing with Non-Stereotypical Homes. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems (CHI '19)*. Association for Computing Machinery, New York, NY, USA, pp. 1-13, 2019. <https://doi.org/10.1145/3290605.3300581>
- [DWO15] Desjardins, A.; Wakkary, R.; Odom, W.: Investigating Genres and Perspectives in HCI Research on the Home. *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*, pp. 3073-3082, 2015. <https://doi.org/10.1145/2702123.2702540>
- [GDP99] Gaver, B.; Dunne, T.; Pacenti, E.: Design: Cultural probes. *interactions* 6/1, pp. 21-29, 1999. <https://doi.org/10.1145/291224.291235>
- [Io23] IoT Service Kit, Creating IoT Services has never been easier, <https://iotservicekit.com> accessed 22/02/2023.
- [LC15] Lindley, J.; Coulton, P.: Back to the Future: 10 Years of Design Fiction. *Proceedings of the 2015 British HCI Conference*, pp. 210-211, 2015. <https://doi.org/10.1145/2783446.2783592>
- [Li21] Li, W.; Yigitcanlar, T.; Erol, I.; Liu, A.: Motivations, Barriers and Risks of Smart Home Adoption: From Systematic Literature Review to Conceptual Framework. *Energy Research & Social Science* 80, 2021. <https://doi.org/10.1016/j.erss.2021.102211>
- [LPH21] Lupton, D.; Pink, S.; Horst, H.: Living in, With and Beyond the 'Smart Home'. *Convergence* 27/5, pp. 1147-1154, 2021. doi:10.17/13548565211052736
- [Mc23] McKinsey & Company, The Connected Smart Home Market, https://www.mckinsey.com/spcontent/connected_homes/pdf/mckinsey_connectedhome.pdf, accessed 22/02/23
- [MGD17] Mora, S.; Gianni, F.; Divitini, M.: Tiles: A Card-based Ideation Toolkit for the Internet of Things. *Proceedings of the 2017 Conference on Designing Interactive Systems (DIS '17)*, pp. 587-598, 2017. <https://doi.org/10.1145/3064663.3064699>
- [PI23] Play with Tiles IoT Inventor Toolkit. Change the world!, <https://www.tiletoolkit.io> accessed 22/02/2023
- [SAO19] Shin, J.; Aceves Sepúlveda, G.; Odom, W.: Collective Wisdom: Inquiring Into Collective Homes as a Site for HCI Design. *Proceedings of the 2019 CHI Conference on Human Factors in Computing systems*, pp. 1-14, 2019. <https://doi.org/10.1145/3290605.3300546>
- [SS08] Sanders, E. B.-N.; Stappers, P. J.: Co-creation and the new landscapes of design. *CoDesign*, 4/1, pp. 5-18, 2008. <https://doi.org/10.1080/15710880701875068>
- [SS14] Sanders, E. B.-N.; Stappers, P. J.: Probes, toolkits and prototypes: three approaches to making in codesigning, *CoDesign*, 10/1, pp. 5-14, 2014. <https://doi.org/10.1080/15710882.2014.888183>