Hacking, Tinkering, Crafts and Inventive Leisure Practices

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Abstract
Inventive Leisure Practices (ILP) are a growing topic of study in CSCW. These take many forms: hacking commoditized products, building electronics, knitting and crafting, and more. These leisure practices are facilitated by online forums that allow people to build on others' work, whether through the creation of formal documents like FAQs or how-to guides, or merely the accumulation of discussion. In this workshop we bring together researchers engaging with these communities.

Keywords
DIY, hacking, crafting

ACM Classification Keywords
K.m. Computing Millieux: Miscellaneous.

General Terms
Design

Introduction
In this workshop we want to provide an opportunity for researchers interested in various forms of grass-roots innovation to discuss this growing topic and its ramifications for CSCW and HCI. As such, we build on previous work such as the extremely successful workshop on DIY held at CHI 2009 [3], as well as other

publications in the field. We see this workshop as an opportunity to think hard about the ways that this topic is growing within the field of CSCW. In particular, we hope to articulate what the questions and problems are these topics bring to CSCW, and in particular how they contribute to the articulation of an alternative to the Big-W CSCW narrative by positioning individual instances of small-w CSCW – studying, say, IKEA lamp hackers, or knitting groups, or frequent flyer mileage runners – as part of a coherent whole.

This work is particularly relevant given CSCW's location in China this year. A great deal of contemporary hacking, tinkering and modification work is reliant on two factors. First, they are supported by the easy availability of commoditized goods, which are by definition identical wherever they are purchased [13]. While China has for some time been known as a *producer* and exporter of these goods, it is now poised to become a major consumer as well. Secondly, the free exchange and accumulation of know-how, expertise and experience on online bulletin boards and forums provides crucial knowledge resources for practicing hackers. We recognize, however, that such knowledge sharing in global media does not lead to identical hacks the world over, but rather that hacking, tinkering, and crafts are both cultural and technical activities. For example, the circulation and modification in Uganda of globally available mobile phones made by trans-national corporations still exhibits elements that are particularly Ugandan [5]. Crafting and tinkering skills are esteemed in Thailand, providing a living for many (high and low-tech) artisans as well as receiving government support as a means of "reflecting an ancient heritage"[1]; however it often could not be considered a "leisure practice" as DIY typically is in North America. For these reasons we hope to attract a diverse set of cultural and disciplinary perspectives on the practices of hacking, tinkering, and crafting.

Previous Work

We identify three areas of previous work where we have found parallels to the topics of discussion in this workshop. The first involves 'domestic hacking', everyday tinkering in the home. The second involves studies of crafts and hand-work. The third revolves around practices of and support systems for the exchange of technical knowledge. While these topics are sometimes more formalized than others related to hacking, they also reflect a reliance on a certain set of infrastructures and discussions that parallels that of hacking communities. and we believe suggests a potential for cross-fertilization.

Domestic Hacking

Domestic hacking tends to take place within a home and with objects that are found in the home. This found object approach, or bricolage, is found in professional design practice as well in "unselfconscious design" performed by everyday users [11]. There are a wide variety of discussions of domestic hacking and tinkering behaviors. Wakkary & Maestri have discussed everyday hacking and tinkering of the domestic environment in an longitudinal study of three families [20]. We all see small levels of changes in existing technologies characterized as personalization of devices, such as the personalization of Roombas [17], of PCs and mobile phones [2], and of IKEA products [13] or even an

[1] http://www.thai-otop-city.com/, accessed August 5, 2010.

individual IKEA lamp [16]. Using the home as a lens for exploration, Taylor & Swan have discussed the domestic crafting of systems for home organization [18], Woodruff et al. have studied home automation systems of orthodox Jews [21], all of which involve the sort of opportunistic practices found in hacking and tinkering.

Craft

A second topic of particular study within HCI & CSCW revolves around the practice of crafts. Early work in the field emphasized the changes to crafts and craftwork in the face of increasing computation [1]. More recently, Rosner has published a series of studies of knitting communities [14, 15], and Buechley and colleagues have discussed the implications of the integration of digital components into textile development [4]. As we will discuss later, there is an importance of the information exchanged around such practices. For example, Torrey and colleagues have looked at the sharing and publishing of craft knowledge [19], while Rosner has discussed the digital practices around sharing craft information [15].

Tinkering, Hacking, and Expertise Sharing for software

There are also a considerable number of studies of systems for informal development and support of software – a particular kind of hacking. For example, Torrey et al. have studied systems for supporting the exchange of technical knowledge [19], and Hartmann et al. looked at such practices under the rubric of opportunistic design" [9]. Yardi & Poole studied two different technical support boards supporting different technical levels of problem solving [22] and Jones & Churchill studied Yahoo! Pipes, which enables the easy development of mashups [10], while others have looked at support systems in general for enabling the development of mashups [8]. Other related works include systems for supporting hacking and tinkering around topics of music creation [7], generating remixes of existing musical content [6], and media content in general [12].

Workshop plan

The workshop will be a one-day workshop emphasizing group discussion over paper presentation. Because of the emphasis on discussion, we plan to cap the workshop at a maximum of 15 participants. Our aim is to have no more than two authors per accepted paper or project.

Recruitment and Selection

We intend to diversify participants across academia, industry, geographic background and academic disciplines. To this end, we may disseminate calls for submissions to blogs, mailing lists, and other groups outside of the immediate CSCW community. We will attempt to alert professional contacts in China, Korea, India and Thailand as well as North America and Europe, since the conference's location in Asia may help defray otherwise unaffordable travel costs.

Workshop participants will be asked to submit to the workshop in one of two possible formats, which will be used to determine entrance into the workshop:

- As part of our strong commitment to participant observation, and an aim to provide common and relatable experiences for the wide diversity of backgrounds of attendees, researchers seeking to attend the workshop may produce a DIY/hacking/crafts project and document the

process and end result on Instructables, Ravelry, or similar websites. Authors of some subset of these projects may be asked to present their work at this workshop.

- *Alternatively, or, in addition*, participants may produce a 2-10 page paper in Extended Abstracts format, which will be read by the committee. Authors of some subset of those papers may be asked to present their work at the workshop.

All papers and projects will be reviewed by the workshop authors in conjunction with the advisory committee to determine a list of accepted papers/projects. All attendees will be asked to familiarize themselves with both accepted papers and with the projects as to provide a common basis for discussion. Our hope is that a selection of the papers can be further developed over the course of the workshop into a form that will be suitable for publication in a special issue of a journal; we are currently discussing this possibility with the editors of a number of journals in HCI and design.

Themes

This list of themes is intended to be flexible and anticipatory. Other themes may emerge from the set of submissions that we receive.

- People's changing relationships with technology due to consumer engagement in the artifact creation process.

- Differences in hacking practices resulting in the varying audience of their designs (designer as user, designer as gift-giver, designer as owner of crafting small business).

- Sustainability implications of local production, hacking ability, and meaningful ownership.

- The role of globally uniform commodity products in supporting hacking and the sharing of methods and instructions.

- Information sharing and communities

- Inventive practices that trouble the divide between production and consumption, work and leisure.

- Hacking, craft and gender

- Hacking, tinkering and craft in developing regions.

Goals

- To begin to make a real interest group coalesce around issues of inventive leisure practices.

- To solidify a research domain within CSCW centered around craft and hackery. What common themes underly our diverse areas of interest? What methodologies are appropriate for studying this area?

- To publish a special issue or edited volume based on the proceedings of the workshop.

Activities and Draft Schedule
This will be a one day workshop. The approximate schedule is as follows:

9-10: Introductions
10-12: Presentations of selected papers and projects. Each presentation will be followed by a response by a previously chosen discussant.
12-2: Lunch
2-4: Breakout groups, provisionally based on topics of discussion (crafts, software hacking, developing world hacking, etc.). Each group will produce a five minute presentation.
4-5: Presentations; discussions of next steps.

Organizers' Backgrounds

Jofish Kaye is Senior Research Scientist & Ethnographer at Nokia Research Center, Palo Alto. His research explores the social, cultural, and technological effects of technology on people and vice versa. These have recent included studies of families' values and technology choices and visualizations of human-generated data, such as Twitter and publication records. A life-long hacker and tinkerer, he co-organized a session at 4S 2004 on Hacking & Tinkering, and co-authored a paper under consideration on the topic for CSCW 2010.

Amanda Williams is a postdoctoral researcher in the Technoculture Art and Games group at Hexagram-Concordia. Her research centers on gestural games, space and mobile bodies, and the ways in which they interpenetrate with, construct, and are reconfigured by computational technologies and media. She deals with tangible interaction, physical/social/spatial embodiment, DIY, and ubiquitous computing in urban environments. Because she has never been able to decide her disciplinary affiliation, she does design and ethnography, software and hardware hacking. She has organized several workshops at CHI and Ubicomp as well as a hands-on Wiimote Hackery studio at TEI 2010. Williams, along with collaborators Daniela Rosner, Leah Buechley and Eric Paulos, organized the "DIY for CHI" workshop at CHI 2009. The workshop drew 40 participants (double the typical number for a CHI workshop) and was featured in Make online.

Lora Oehlberg is a PhD student in Mechanical Engineering at the University of California, Berkeley. Her research is on studying how personal information tools contribute to the development of shared frames in new product development teams.

Citations

[1] G. Blauvelt, T. Wrensch, M. Eisenberg. 2000. Integrating craft materials and computation, Knowledge-Based Systems, Volume 13, Issues 7-8, 1 December 2000, Pages 471-478

[2] Blom, J. o. & Monk, A. F. 2003. Theory of Personalization of Appearance: Why Users Personalize Their PCs and Mobile Phones. *Human–Computer Interaction*, *18*(3), 193-228.

[3] Buechley, L., Rosner, D. K., Paulos, E., and Williams, A. 2009. DIY for CHI: methods, communities, and values of reuse and customization. In *Proc. CHI '09*. ACM, New York, NY, 4823-4826.

[4] Buechley, L., Elumeze, N., and Eisenberg, M. 2006. Electronic/computational textiles and children's crafts. In Proc of IDC '06, 49-56.

[5] Burrell, J. 2010. Evaluating Shared Access: social equality and the circulation of mobile phones in rural Uganda. *J.CMC* 15, 2 (2010), 230-250.

[6] Cheliotis, G. & Yew, J. 2009. "An Analysis of the Social Structure of Remix Culture". In *Proc. C&T'09* 2009. Springer Verlag, Berlin.

[7] Cook, E., Teasley, S.D., and Ackerman, M.S. 2009. Contribution, commercialization & audience. *Proc. GROUP '09*, ACM Press, 41.

[8] I. R. Floyd , M. C. Jones , D. Rathi, M. B. Twidale. 2007. Web Mash-ups and Patchwork Prototyping: User-driven technological innovation with Web 2.0 and Open Source Software, *Proc. HICSS 2007*.

[9] Hartmann, B., Doorley, S., & Klemmer, S.R. 2006. Hacking, Mashing, Gluing: A Study of Opportunistic Design and Development. *Proc. Perv. Comp. 2006.*

[10] Jones, M.C. and Churchill, E. 2009. Conversations in Developer Communities: a Preliminary Analysis of the Yahoo! Pipes Community. C&T '09: Proceedings of the fourth international conference on Communities and technologies, ACM Press.

[11] Louridas, P. 1999. Design as bricolage: anthropology meets design thinking. (Nov 1999) *Design Studies*, Vol. 20, Issue 6, pp. 517-535.

[12] Obrist, M., Geerts, D., Brandtzæg, P. B., and Tscheligi, M. 2008. Design for creating, uploading and sharing user generated content. In *CHI '08 Extended Abstracts on Human Factors in Computing Systems* (Florence, Italy, April 05 - 10, 2008). CHI '08. ACM, New York, NY, 2391-2394.

[13] Rosner, D. & Bean, J. 2009. "Learning from IKEA Hacking: "I'm Not One to Decoupage a Tabletop and Call It a Day. "pp. 419-422 in Proc. CHI 2009.

[14] Rosner, D. K., Ryokai, K. 2010. Spyn: Augmenting the Creative and Communicative Potential of Craft. Proceedings of CHI 2010.

[15] Rosner, Daniela K., & Kimiko Ryokai. 2009. "Reflections on Craft : Probing the Creative Process of Everyday Knitters. " Proc C&C 2009, 195-204

[16] Saakes, D. 2009. Big lampan lamps: designing for DIY. In Proc C&C '09. ACM, New York, NY, 403-404.

[17] Sung, J., Grinter, R. E., and Christensen, H. I. 2009. "Pimp My Roomba": designing for personalization. In *Proc. CHI '09*. ACM, New York, NY, 193-196.

[18] Taylor, A. S. and Swan, L. 2005. Artful systems in the home. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Portland, Oregon, USA, April 02 - 07, 2005). CHI '05. ACM, New York, NY, 641-650.

[19] Torrey, C., Mcdonald, D.W., Schilit, B.N., and Bly, S. 2007. How-To Pages: Informal Systems of Expertise Sharing. *IEEE Computer*, September 2007, 391-410.

[20] Wakkary, R., Maestri, L. 2008. Aspects of Everyday Design: Resourcefulness, Adaptation, and Emergence, *International Journal of Human-Computer Interaction*, Vol. 24, Issue 5, pp 478-491.

[21] Woodruff, A., Augustin, S., and Foucault, B. 2007. Sabbath day home automation: "it's like mixing technology and religion". In *Proc. CHI '07.* ACM, New York, NY, 527-536.

[22] Yardi, S. and Poole, E. S. 2009. Please help!: patterns of personalization in an online tech support board. In *Proc. C&T '09*. ACM, New York, NY, 285-294.