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Conference Workshop Proceedings

Hungry 24/7? HCI Design for Sustainable Food Culture

Workshop held in conjunction with OZCHI 2009

28th June 2007, Michigan State University, East Lansing, MI, USA

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Hungry 24/7? HCI Design for Sustainable Food Culture

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ABSTRACT

This workshop proposes to explore new approaches to cultivate and support sustainable food culture in urban environments via human computer interaction design and ubiquitous technologies. Food is a challenging issue in urban contexts: while food consumption decisions are made many times a day, most food interaction for urbanites occurs based on convenience and habitual practices. This situation is contrasting to the fact that food is at the centre of global environment, health, and social issues that are becoming increasingly immanent and imminent. As such, it is timely and crucial to ask: what are feasible, effective, and innovative ways to improve human-food-interaction through human-computer-interaction in order to contribute to environmental, health, and social sustainability in urban environments? This workshop brings together insights across disciplines to discuss this question, and plan and promote individual, local, and global change for sustainable food culture.

Author Keywords

food; sustainability; environment; health; social change; urban informatics; ubiquitous computing

ACM Classification Keywords

H5.0. Information interfaces and presentation (e.g., HCI): General. K.4.2 Social Issues.

INTRODUCTION

Many interactions with food create a culture of imagining, producing, preparing, and consuming food – a 'food culture' of the community at a collective level. Conversely, food culture influences behaviours of both the community and the individual. Accordingly, changing individuals' dispositions to food in day-to-day life towards more sustainable values presents opportunities for bringing about improvements in the sustainability of food cultures at a broader level. The current urban environments present particularly challenging issues as everyday food interaction for many citizens simply

involves consuming ready-made meals and processed food. The problem continues to intensify with the unprecedented scale of urban growth in recent years. Now over half of the global population is living in urban areas. The UN Population Fund (UNFPA, 2007, p. 2) predicts that the urban population will grow further to reach 60% of the entire global population by 2030.

In this current milieu, what kind of contributions can we make from the perspective of human-computer-interaction? More specifically, there are three domains of enquiry this workshop addresses in this regard. *Firstly*, what are the specific areas of sustainable food culture that require imminent attention from HCI? *Secondly*, what are innovative and effective research approaches that allow us to address and investigate such areas? *Thirdly*, what are design approaches to instigate positive changes towards sustainable food culture through HCI? The workshop intends to bring together these three *whats* to consider the fundamental and pragmatic question of how to conceptualise, design, deploy, and utilise ubiquitous technologies in everyday urban life within diverse sociocultural contexts in order to cultivate and promote sustainable food culture.

TOPICS OF INTEREST

As evident in many grassroots initiatives such as the *Local Food Movement* (collaborative effort to build more locally based, self-reliant food economies – *cf.* Feenstra, 2002, p. 100) and *Slow Food International* (non-profit group focusing on preservation of the cultural, culinary, and artistic local traditions – *cf.* Jones, et al., 2003, p. 301), significant transformations arise from large-scale consensual participation of individuals identifying with the value of a sustainable lifestyle both conceptually and pragmatically. To this end, we suggest (but do not limit to) three broad topics of interests for this workshop:

Participatory Networks

Hartley (1999, p. 178) asserts that participatory or DIY culture is fast becoming a core element of contemporary society (at least in developed nations) in which citizenship is construed through 'practice' of self identification by individuals rather than a 'contract between state and subject.' Ubiquitous technologies make urban environments ever conspicuously technosocial (technological and social) networks that are constantly

reconfigured by people as its users and constituents. Therefore, urban sustainability can no longer be achieved or imagined without allowing people to voluntarily interact with and through their environment and other people, to recreate the place according to their needs and desires both collectively and individually. How can we create, sustain, and encompass such participatory networks via ubiquitous technologies?

Research and Design Methods

Creating sustainability networks requires identifying, conceptualising, and innovating the current technological, sociocultural, and material challenges of the given context. As such, disciplinary boundaries – particularly in the form of academic compartmentalisation – need to be reconsidered and constructively refocalised. The workshop invites discussion on empirical and theoretical cases of design and implementation strategies across various disciplines.

Deployability and Interoperability

Since sustainability – be it environmental, health, and social – has become an imminent and immanent issue, designing and developing technologies for sustainability must be practically and efficiently deployable and interoperable with adequately long lifetimes within the current conditions of society. What are some of the core elements of consideration in this regard? How can we better understand, measure, and respond to them for sustainable design and use of technologies themselves?

LOCALLY SPECIFIC VS. UNIVERSAL

While network technology is now a global lexicon it comprises of diverse dialects according to its use context. Similarly, sustainability is concurrently a global and inherently local concern; the meaning of sustainability varies amongst individuals, communities, and broader collective entities according to their value contexts. The workshop calls for a comparative look on both locally specific and common aspects of technosocial cultivation of sustainable food culture/s; it also asks how these aspects can be effectively coalesced in human-computer-interaction.

WORKSHOP FORMAT

We wish to acknowledge the cultural and ecological diversity of the Asia-Pacific region in conducting this workshop. Accordingly, the workshop functions as an open and active forum for forward-thinking practitioners and scholars to address and enhance the role of human-computer-interaction in creating and maintaining environmental, health, and social sustainability that food culture manifests in our urban daily lives. We also welcome contributions from those who are not currently in fields that are directly related to food research. To this end, the workshop is organised to incorporate a small degree of individual presentations of work with a more explorative series of collective brainstorming activities and discussions. The overall outcome will be integrated arrays of theoretical and pragmatic approaches towards sustainable local and global food culture.

Participation and Registration

We kindly ask prospective participants to submit a short position statement (300-500 words) or abstract by 20th September 2009. Please send all submissions and queries to Jaz Choi at h.choi@qut.edu.au. Acceptance notification will be sent by 27th September 2009.

Web:
http://food.urbaninformatics.net/events/ozchi2009/
Facebook:
http://www.facebook.com/event.php?eid=128413300549&ref=mf

THE ORGANISERS

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Greg Hearn: Research Professor in the Creative Industries Faculty at Queensland University of Technology, Australia. cci.edu.au/profile/greg-hearn. Favourite dish: Vietnamese tofu rice wraps – roll your own version.

Eli Blevis: Associate Professor of Informatics, School of Informatics and Computing, Indiana University--Bloomington USA. eli.informatics.indiana.edu. Favourite dish: Cheese omelette (with home grown chives).

Tad Hirsch: senior research scientist, people and practices research, Intel Corporation, USA. Favourite dish: whatever is fresh in the market this morning, with a decent glass of wine.

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Playing with My Food

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Few aspects of our daily experience are as heavily imbued with symbolism and significance as food. Particular foods, for example – think of durian, vegemite, haggis or cheeseburgers – are symbolic of particular regions or cultures. Or, again, acts of eating – the last meal of the condemned man, family dinner, or the potlatch – are ritual events whose significance extends well beyond sustenance. This symbolism is hardly surprising; not only does food sustain the body, food makes the body. It is the fundamental source of corporeality. It is hard to deny the significance of the stuff that makes us us.

However, in his writings on food taboos from the perspective of structuralist anthropology, Claude Levi-Strauss famously observed that particular foods were reserved as special not because they were "good to eat" but rather because they were "good to think." That is, they are supportive of a categorical mapping between the natural world and the social world (Levi Strauss, 1963; Douglas, 1966). In that spirit, I want to "think with food" here (or, perhaps, to play with it.) I will start with food, and work my way back to information technology, to suggest some avenues of investigation.

Let's begin in the American south – Athens, Georgia, in particular – with a paper written by Shun Lu and Gary Fine (1995) on the presentation of "authenticity" in Chinese restaurants, written from a sociological perspective. Fine has written extensively and insightfully on food and restaurants (e.g. Fine, 1996; Fine, 1998). In this paper, Lu and Fine are concerned with the ways in which Chinese restaurants position themselves and their food as ethnically authentic, as part of a broader social process of identity production (and, critically, consumption). The crux of their argument is not simply their questioning of whether the food served in Chinese restaurants in the American south is really "authentic," or could ever be; it is not even their discussion of whether "authentic" Chinese food is really what the southern American palate desires, whatever protestations are made. Rather, is the very figuring of "authenticity" as a consideration, within the frame of the "cultural consumption" associated with tourist economies and international leisure travel. The quest for authenticity in restaurant dining is systematically connected to the quest for an experience of "the real China" (or Argentina, or Kazakhstan, or wherever) as that obtains in a postcolonial world in which the global traffic in goods and resources is matched by a global traffic in "experiences" and leisure dollars.

Lu and Fine's paper, then, places food, its preparation, production, presentation, and consumption within a global frame, one in which contemporary movements of people, ideas, images, resources, and capital are invoked. These global flows are literal elements in Theodor Bestor's (2003) classic study of Tsukiji, Tokyo's massive fishmarket, through which most of the sushi-grade tuna eaten worldwide will flow. In a world where bluefin tuna may be caught in North American Atlantic waters, air-freighted to Tokyo to be auctioned and then freighted back again to be carved into nigiri in a Californian sushi bar, there is no escaping the global reconfiguration of marketplaces that the tuna market represents and exemplifies. Add in the ecological transformation of fisheries and the political negotiations over fishing rights and one is forced to contend with implications of food practice that reach well beyond the dining table.

Arjun Appadurai (1996) coined the term "mediascapes" to suggest the role that media play in the production of the contemporary global environment. For Appadurai, the primary site of globalization is not the market or the factory but the imagination; the significane of globalization is the opportunity that it presents to us to imagine ourselves in other places and other contexts, to recognize opportunities, to understand ourselves – individually and collectively – in the light of our knowledge of others, to figure the very concepts of a global community – of scholars, of thinkers, of consumers, or of eaters. A critical role that information technology or digital media play, then, is in these productions of social imaginaries. Media – and they are increasingly digital – are the means for producing the global citizen, the person who asks, "Would you rather eat Peruvian or Nepalese tonight?" Critically, these are the sorts of globalized imaginings that go beyond individual moments of encounter or use of particular technologies, media, or even foods (Satchell and Dourish, 2009).

There are many ways to think about the relationship between digital technology and food – from mobile systems that link people to fallen fruit, to fostering local advocacy for sustainable farming through virtual communities, to monitoring and providing opportunities for reflection on personal patterns of food consumption. What I want to suggest here is that it is important to recognize, too, how digital media are complicit in the production of imaginaries of food consumption and the cultural significances associated with consumption practice. Within such a recognition is an opportunity, too – in this case, to reimagine food production and consumption in a global and political context.

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Reflexivity as a means to engaging urban citizens in sustainable food culture

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The issues raised in this discussion paper are (understandably) broad. This is not meant to criticize but rather a reminder of the scale, dimension and complexity of issues that surrounds food. After all, the issue at hand spans the nexus of economical, political, social and individual concerns; from local to global, including orbits that are seemingly beyond the individual's control. But more urgently, if this workshop hopes to discover means "to conceptualize, design, deploy and utilize technologies to cultivate and promote sustainable food culture in everyday urban life", then I think that a first point of order would be to agree on what we mean (and understand) as sustainable food culture.

Thus, a fruitful first step is to explicate this core concept. Is it about encouraging food consumption that is grown locally, within a particular radius? And if so, is this about reducing environmental impact, e.g., less CO_2 emission with less freight and transport, or sustaining local agricultural practices and conserving local varieties of crops? And does this include sustainable food *consumption*, a component described by Seyfang [2006] or sustainable food *production* [Brklacich, Bryant et al., 1991]? However, while consulting Google Scholar, it seems (heartening at least) that I am not the only person seeking illumination to it definition.

But Vermeir & Verbeke [2006] offer some clarification with this respect. They also hint that attitudinal and behavioral change with regards to sustainable food consumption could be driven by (self)reflexivity. This happens to fall squarely within my most recent work.

One of the projects I was involved in, (outlined in my OZCHI paper)[Leong & Brynskov, 2009], demonstrates how technology can be harnessed to encourage strong reflexivity amongst people with regards to particular values. It precipitated personal considerations about future actions and more importantly, it allowed us (the researchers) a glimpse into the individual's circumstances and contexts: the lived experiences of the individual in relation to this value. This unearths and exposes the conflicts, the motivations, ambivalence, doubts, and so on. Through this and by getting to a better understanding of how people make sense of their particular situation, we can also begin to understand the decisions that guide their future actions (with regards to this value). In short, such an approach can be harnessed to better encourage reflexivity from people and in doing so also gather richer, more felt and lived information from them regarding particular values.

Thus a first step could be through urban installation(s) to gather 'data' (and perhaps to effect some change). Based upon the knowledge gained, further and more concrete approaches towards design that harnesses ubiquitous computing may continue to support this reflexivity, both on an individual and community level. Such an approach can complement current 'state-organized' efforts without taking a 'big stick' approach for finding ways to encourage reflexivity in people could potentially engender people to make decisions and carry out actions that are based on self-volition.

As for the particularities of longer term technological deployments, Grimes & Harper [2008] offer some inspiration through what they call Celebratory Technology, whereby people's potentials should be augmented to promote more positive engagement with the value.

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Position Statement - Paul Liddelow (paull@stamfordinteractive.com.au)

About me

I am a usability consultant and visual designer with Stamford Interactive. I have recently completed a Masters in Internet Studies, majoring in design, at Curtin University. I also have a Bachelor of Science, majoring in Multimedia Information Systems at Murdoch University. I have worked with Stamford Interactive for almost two years on government and private projects in Melbourne and Canberra. I have worked for State and federal government agencies and departments on diverse projects, doing initial research, information design and interaction design as well as visual design and coding. I have designed intranets and internet websites from concept through to finished product and followed standards-based, compliant coding techniques as well as accessibility and user-centred design principles.

About my work

During my Masters degree I designed and built a variety of websites, some of which focussed on sustainable education and practice. These included a children's online Flash game about planting the most suitable native trees for a local environment to a website that calculated carbon storage capacity based on planting zones around a house. That site, called Cheeky Carbon, promotes particular types of edible and non-edible plants that absorb carbon from the atmosphere and store the carbon in the soil. The website "tracked" these home gardens and the amount of plants that people planted in the ground, and was designed to create a community of like-minded individuals who share their gardens, knowledge and ideas in one place. The idea was to contribute to efforts at mitigating human-caused climate change and reduce personal carbon footprints.

My interest in the workshop

This workshop looks like a great extension of the work that I have been doing at university on sustainable education and sustainable communities networked through the internet and also provides an opportunity to broaden the application of my work experience in user-centred design. We control natural resources through human computer interaction daily, such as the logistics chain movements of produce from farmer to shopper and ever increasingly at retail outlets, and the allocation of water through canals to irrigate crops. A 'Sustainable user'-centred design could play an important role in finding where limitations to sustainable practices exist in the food supply chain and improve upon them.

Further, the workshop provides an opportunity to consider how sustainability movements (like guerrilla gardening and dumpster divers) and especially their approach to community-led rather than state-led sustainability initiatives can be harnessed and networked through human-computer interaction.

From smartWater to smartFood

Jon Pearce & Bjorn Nansen, The University of Melbourne

The experience that we bring to this workshop derives from a project to bring the expertise of horticultural scientists to help advise the general public about efficient approaches to watering their gardens. This project, known as SmartGardenWatering, is described in papers at OzCHI 2008 and OzCHI 2009. It enables a gardener to model their garden (layout, soil type, mulches, microclimate, etc.), specify plants, choose a watering system, and then see a water demand graph over a twelve month period as well as a watering schedule that tells them how often to water and for how long. It also lets the gardener size a water tank to use with the garden.

Water is an essential ingredient for food production, and this application can help to inform the efficient use of water in private productive gardens (vegetables, herbs, etc.), which we noticed in our research were growing in popularity; yet, this is not the angle that we bring to this workshop. Instead, our project began with a scientist's model of a garden's water requirements and the challenge of how to bring this to a non-expert, and non-scientific, audience. We spent many months moving away from the deterministic mathematical simulation of the scientist towards a more playful and palatable environment for the general public. More importantly, in a new version of SmartGardenWatering, we are extending this environment and using some of the techniques that Web 2.0 offers to help establish communities of gardeners who will share their garden models and their expertise about specific gardening issues. Whilst the backbone of this environment is still a highly complex and sophisticated simulation of the factors affecting garden water requirements, much of the value of the new environment will come from the sharing of ideas amongst an online community and the role that civic engagement can play in fostering this community and effecting change. An important issue within this project is not one of 'telling' people how much water to apply to their gardens, but rather encouraging people to change their practice through interactions with others.

Whilst we have not been directly involved in the sustainable food culture area of research, we suspect that similar issues might be present. Scientific knowledge may exist about what we *should* do to instigate positive changes towards sustainable food culture, but effecting behavioural change in people requires a more delicate approach. We hope to be able to discuss these issues with researchers in the field.

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Digital Peaches

Christine Satchell

The intersection of food, design, cultural and technology presents a unique challenge for HCI. As Adam Greenfield in *Everyware* reminds us, the Ubiquitous Computing vision is nearly upon us. The built and natural environment, and the inanimate objects and organic matter that populate it, will soon be embedded with sensors. From fire hydrants, to pavement, from lipstick to apples. The potential to monitor the journey that an organic peach takes from planting to consumption can now become part of the users' experience. From the seed selection, to the climate conditions it was grown under, to the working conditions of those who tended to it, to the food miles used to export it around the world and the demographics of those who eat it. How can this data be visually represented and distributed to the consumers so they can make their consumption choice based on this new type of information?