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Spooning in the Kitchen

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ABSTRACT

Cooking together is an important part of everyday life. In cooking with others we share not only the experience of creating the meal, but a social event in which people enhance their relationships through shared stories, relating daily happenings and discovering new ideas about food preparation from each other. Cooking together in the kitchen also involves bodily negotiation, where we position ourselves in order to share techniques, show progress in cooking, demonstrate what the food should look like at many points in the recipe, and share the sociality of the activity. If we then want to introduce technology into this situation, to support either the cooking activity, the social activity or both, it is important that we design this technology to fit with the physicality of both the kitchen, and the cooks. Our method for understanding the bodily experience of the cooking activity involved a digital ethnography on a set of YouTube videos of people cooking together in their kitchens. From an analysis of F-formations of social encounters in the kitchen, we were able to identify the “spooning” configuration – a close-up view over the cooks shoulder as an important part of the human-food interaction.

Author Keywords

Cooking together, the body in the kitchen.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

Cooking together is an important part of our lives. We cook with friends, families, colleagues and strangers to share not only the experience of creating a meal, but as a social event where we enhance our relationships with others through shared stories, relating daily happenings and discovering new ideas about food preparation from each other. Recently, the kitchen has become a focus for HCI research into understanding the role that technology currently plays with regard to the cooking activity and what roles it might play in the future (Grimes & Harper, 2008).

From a methodological point of view, we want to

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understand the shared cooking experience for the purpose of generating design ideas for technological augmentation of kitchen spaces. This involves understanding not only how artefacts and kitchen spaces shape the movements of an individual while cooking, but also how the presence of others, sharing the cooking experience, influence the kinds of physical interactions that happen. In using YouTube as our data source, we are able to focus on peoples interactions with co-present others, with physical space, with cooking artefacts, as well as the remote audience (via the camera).

Our first research agenda is to gather understanding of the human-food interaction to inform technology and interaction design providing people with the experience of cooking with family, friends and others who are geographically distributed using their respective kitchens as a single, digitally “blended” cooking space. Our manifesto is that people involved in this shared remote cooking activity should experience essential, “as if I was there”, aspects of the cooking activity. This then supports distant friends and relatives sharing their everyday activities, using the cooking activity to set the conversational context, with close ones who are living away. This is important for maintaining these close tie relationships (Nardi et al, 2004).

BACKGROUND

Inspired by smart domestic environment projects (e.g. Georgia Tech Aware Home¹, MIT House_n², Washington State University CASAS Smart Home³) and in particular smart kitchen projects (e.g. CounterIntelligence⁴, CounterActive⁵), especially collaborative cook (deRuna et al., 2010), our design focus is on adding value to a shared domestic experience, using technology to bring people together in a social context. We take the approach that kitchens are “sites where meaning is produced, as well as meals” (Bell & Kaye, 2002) to create a blended interactive kitchen space for geographically distributed people together in a shared virtual place for socializing while cooking.

An important challenge for HCI researchers interested in the design of new domestic technologies is to observe and

¹ <http://awarehome.imtc.gatech.edu/>

² http://architecture.mit.edu/house_n/

³ http://architecture.mit.edu/house_n/

⁴ <http://www.media.mit.edu/ci/>

⁵ <http://www.media.mit.edu/pia/counteractive/>

make sense of people's daily practices, so that these practices can meaningfully inform design and seed innovation (Bell & Kay, 2002). Understanding the human-food interaction is important so that our designs do not seem irrelevant to people or constrain them from performing their everyday activities in the ways that they want to. Our first task in this research project therefore, is to understand what it is that people do and how they do it when cooking together in their own kitchens. We want to get a sense of how people move around kitchen spaces during the activity of cooking together, both in respect to co-present others, and also how they physically orient to the "person in the camera". This is why the YouTube videos are an appropriate data source for this human-centred approach to understanding the body in the design of interactive technologies for the kitchen.

In the domestic research context, traditional HCI methods of "understanding users" such as direct observation, interview and questionnaires are not always possible, desirable, or even effective in gathering information about peoples activities in their own homes. As the design of domestic technologies becomes more prevalent in HCI, an assortment of techniques for dealing with "understanding users" in these kinds of private situations is emerging. Examples include: cultural probes to understand close-tie relationships (Kjeldskov et al., 2005); video cameras placed in rooms to understand communications in families (Crabtree & Rodden, 2004) and functional systems installed over extended periods of time to access lived routines of the home (Sellen et al, 2006). In the spirit of these explorations, we take a similar approach with emphasis on opening up spaces for informal analyses, chance observations and serendipitous design inspirations.

As the movie "Kitchen Stories" (Hamer, 2003) so charmingly illustrates, it is not ideal, or even logistically possible, to sit in an observation chair in the corner of people's kitchens to observe their cooking behaviors. The movie shows, and Crabtree and Rodden (2004) confirm, that although the home is relatively easy to access, direct observation disrupts the ordinary flow of household activities and can cause people to alter their ordinary behavior. Instead we use YouTube videos to access to how conversations in the kitchen unfold, how people interact with each other, with the food, and with the physical artifacts and spaces of the kitchen environment when cooking together in a form of digital ethnography (Dicks et al., 2005). YouTube is becoming a useful resource for different types of qualitative research projects, to study its use in asynchronous video computer-mediated communication (Harley & Fitzpatrick, 2009), as a performance stage (Blythe & Cairns, 2010), and in building online communities (Rotman & Preece, 2010). In terms of gaining access to peoples "kitchen stories" YouTube provides an excellent insight into how people choose to digitally share with others the activity of "cooking together".

How the physical aspects of cooking spaces contribute to shaping the kinds of activities and experiences people have when cooking together is an important aspect of this

study. As well as the natural proxemics (Hall, 1966) involved in the activity of cooking together in a kitchen space the introduction of technology into this situation creates new "interaction proxemics" (O'Hara et al., 2011) of collocated people in respect to the cameras and display artifacts, as well as the virtual presence of remote participants. In the original notion of proxemics the different spatial distances are given numeric values. *Intimate* distance is 0-45cm and reserved for lovers, family and close friends. *Personal* distance is 45-120cm and usually used with strangers in everyday situations. *Social* distance is 120-360cm and encompasses things like work and business meetings. *Public* distance is anything beyond 120cm, where any sense of personal involvement with the other actor is lost. The very activity of cooking can influence the general ways in which human interaction is spatially organized in the cooking space. Having to work side-by-side at a kitchen bench influences the way that two people communicate as opposed to working at opposite sides of a kitchen island. Facing a video camera during the interaction adds yet another level of complexity, not only to the collocated communication, but also in respect to field of view of the camera, as this affects the viewers perceived distance from the cook.

The F-formation (facing formation) system is a conceptual tool that can be used to analyse physical spaces in terms of how they support social interactions and by extension, their potential augmentation with technology (Kendon, 1990; Marshall et al., 2011). This spatial-orientational system, explains how people arrange themselves spatially in different kinds of focused interactions, to support their conversations. Just as space can generate and structure the activities of those who inhabit it, there is also an interaction between spatial structures and the different kinds of social activities that are enacted within them. These F-formations can therefore be used to explore the influence of physical space on social interactions.

In Kendon's (1990) system of the F-formation individuals have a spaced called a *transactional segment*. This is the space in which people focus their attention and manipulate artefacts. This space is defined in relationship to their lower body, so turning their head sideways directs their gaze out of it, and the segment changes in size depending on the kind of activity that people are doing. The F-formation is formed when the transactional segments of two or more people overlap and create a shared inner space, where the main activity occurs, called the *o-space*. There is also a *p-space*, the area occupied by the people and their personal artefacts (i.e. handbags, briefcases, cooking implements). Kendon identifies the following spatial patterns: *L-shaped* (standing perpendicular), *vis-à-vis* (facing) and *side-by-side* (formed by two people); *circular*, *rectangular*, *semi-circular*, and *linear* (for groups of three or more). We use F-formations to identify spatial patterns of people, kitchen design and camera locations that support social interaction while cooking together over a distance.

OUR STUDY

In their kitchen manifesto, Bell and Kaye (2002) advocate a kitchen/technology relationship that draws on and learns from the rich cultural history of the kitchen as a place for living and above all, a focus on those who experience the space, rather than the resident technologies.

In our approach, we studied a set of videos published on YouTube to understand particular nuances of the activity of people cooking together. We used qualitative content analysis on a set of 169 YouTube videos comprising the search results for the keyword phrase “cooking together” on 15 November 2010, sorted by relevance (see Figure 1). Several of the resulting videos were clearly not related to the research area of people cooking together but were poems, music clips or gaming videos with misleading keywords. These were discarded from the analysis process as well as any duplicates, leaving a final set of 61 videos to be analyzed in depth.



Figure 1. Sample scene from “Cooking Together” video

From this analysis the following set of categories were induced: *video production, cook expertise, relationship of cooks, genre, content, intended audience, skill level, location, background story, mood, food role, people role, motivation*. This was then used to make a content map of the videos based on their attributes within these categories. From this content map, six main types of videos were identified: *family life; family cooking; celebrities cooking; amateur cooking show; professional cooking show; documentary; educational video and advertising*. A representative video from each of these groupings was then “transcribed” in detail, using a map form similar to Kendon’s diagramming technique for recording F-formations at a birthday party (p. 228). On the map we recorded patterns of physical movement and bodily relationships of the cooks to each other and to the “remote person” (in respect to the camera view). Each frame was time stamped with the video time count and recorded a newly established position of individuals and the position of the camera and field of view. The cooks were shown as ovals with two lines extending to show their *transactional segment*, making visible where they intersect to create an *o-space*. Paths of movement through spaces and focal artefacts were also documented. Showing the virtual position of the imagined viewer made it possible to identify their participation in F-formations.

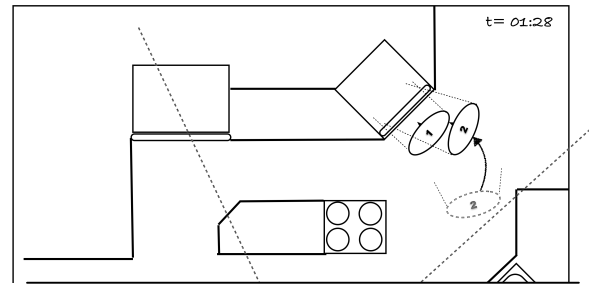


Figure 2. F-formation Map of YouTube video: 57

These maps were then used to identify the following: the F-formation system between collocated cooks; the F-formation system between the viewer (the camera) and the cooks; and the perceived distance between the viewer and the person in focus using the distance classifications from Hall (1966). These identifications were then studied in respect to activities being performed by the cooks, the positions of the cooks in respect to each other and the position of the camera in respect to the activity in focus and the cooks. Identifying F-formations highlighted situations where an *o-space* was formed by participants’ *transactional segments* (including the viewer) and any focal artefacts (i.e. the food being prepared, the kitchen utensils) located in that *o-space*. The proxemic coding was used to correlate the intimacy or otherwise of the bodily interactions between cooks (including the “virtual” viewer).

FINDINGS

Our analysis focused on the location and composition of F-formations (Kendon, 1990) in the kitchen between people cooking together and a “virtual” viewer. Focusing the digital ethnography on F-formations allowed us to identify situations when interaction with the camera, the cooking partner, and/or both, supported inclusion in the social encounter for all. That is, when an F-formation exhibited an *o-space* formed by all participants’ transactional segments (cooks and viewers). In both cases the transactional segments intersected on the activity being performed and hence an F-formation system was created and maintained for the duration of this activity. The formation of the *o-space* confirmed the viewer’s participation in the activity of cooking together. In any digitally “blended” cooking space, that is the kind of experience that should be supported using technology.

Using the spatial maps of the human-food interaction helped us to identify a new kind of spatial pattern, not previously classified by Kendon (1990), that formed an important part of the cooking interaction when wanting to include others in the activity. We called this F-formation *spooning*. From the videos it can be seen that *spooning* is an important part of showing and sharing progress during a cooking activity. It is also an *intimate* interaction, in respect to Hall’s (1966) proxemics. People come from behind a person, both to assist in an activity being performed by the front person (e.g., how to chop food in a particular way, how to add an ingredient) and to see what a person is doing with a particular artefact or piece of food from the perspective of the front person (e.g.,

stirring a pot, putting something in the oven). This is particularly poignant when you are the viewer to the interaction through the camera, as you really feel connected to the cooking activity when the video is taken over the shoulder of the cook.

DESIGN IMPLICATIONS

Being able to map out whether a space provides adequate opportunities for social interactions is a good starting point from which to consider what kind of technology interventions can transform a space (Marshall et al, 2011). In designing camera positions in a digital kitchen it seems that it would not support an feeling of involvement in the activity to simply have a camera that focuses on the stove top from directly above (as in the CounterActive kitchen). An important part of the interaction is our (the remote persons) view over the shoulder of the person we are cooking with – both the angle of view, and some capture in the periphery of parts of that person to indicate their presence. This personal relationship adds to the social aspects of the interaction missing from some of the recent digital kitchen designs surveyed in the literature. Most digital kitchen designs that we have seen simply place cameras in locations that could be said to be providing “a clear view of the cooking artefact”. In our project, it is more about shared experience of an ongoing conversation around food preparation and daily encounters than it is about clear views and detailed ingredient lists.

Our concern in this study was in understanding, through our particular form of digital ethnography, how people cook together in respect to geometric properties and configurations of the spaces they are cooking in, how they involve artifacts and others in the interaction and their communication behaviors both with others collocated in the space and their perceived YouTube “audience”. An important part of the understanding gained was how they turned a physical kitchen space into a place for experiencing cooking and commensality through their physical movement and bodily orientations to people on “the other side of the camera”.

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