Specific Aims and Goals of the Research Project

My research aims to investigate the relationship between life-logging technology and human memory. Life-logging is a term used to describe recording different aspects of your daily life in digital form. Recording of personal life experiences through digital technology is a phenomenon we are increasingly becoming familiar with: we have a recording of our web activity in a web browser's “History,” we have an archive of emails received and sent, videos and photos of important moments in our life, and a playlist of the music we listen to most frequently on music players like iTunes. Life-logging is simply the concept of digitally capturing our memories.

It is becoming increasingly easy to collect massive amounts of digital data through data capturing devices at a low cost. Thus, I am interested in finding out how to exploit data that is becoming very easy to collect. Microsoft Research's SenseCam is one such device that consists of a camera, data storage chip, and electronic sensors that can capture and store about 3,000 images. It is encased in a lightweight case about the size of a corporate ID badge (see Figure 1). Photos are taken with a wide-angle “fish-eye” lens to capture an image that is likely to contain most of what the wearer can see (see Figure 2).

Figure 1:

SenseCam is a wearable digital camera that performs automatic capture that can serve as a pictorial diary from a user's visual perspective. It is typically worn around the neck, capturing traces of activities users are engaged in from an egocentric point of view. The electronic sensors on the SenseCam detect changes in light levels, motion, and ambient temperature to determine when it is appropriate to take a photo. (i.e. When the user moves from indoors to outdoors, the change in light levels will be detected, triggering the SenseCam to take a photo.)
Because very little research has been done on the implications of life-logging technology coupled with human memory, I would like to explore the interaction of the two. Thus far, SenseCam has been commonly used for research in a medical context for supporting memory of patients suffering from memory impairments. My research will explore outside of this context and investigate SenseCam’s use for a different setting.

I would like to examine the relationship of life-logging and memory by exploring how SenseCam can serve as a memory prosthesis in the context of users and their everyday activities. Though photography can be a form of art, SenseCam may be able to expand this definition and encompass use of photography as a way of capturing one’s identity. SenseCam may be such a digital device that can capture data, such as a user’s experience, bodily movement, moment-by-moment thoughts, and make it available for the assembly of a digital narrative that could be used to tell a story that may not be recollected from raw memory. Specifically, I would like my research implications to benefit the HCI community and enhance a user’s life by allowing users to have a richer recollection of their life and benefit their daily work.

Research Plan/Methods

Because SenseCam is a research product, it is not released to the public. However, through the Distributed Cognition-Human Computer Interaction Lab, I will have access to prototypes of the SenseCam to use for my research. (Refer to page 3 for a detailed explanation of proposed budget).

SenseCam users will be selected from the population of UCSD students and faculty. All participants selected will not have any history of memory impairments. My research will focus on gathering qualitative data from the selected SenseCam users, specifically in the form of SenseCam images and on-video recordings of follow-up interviews with the selected users. A number of users will be asked to use SenseCams to capture digital traces of their experiences both passively and actively throughout a span of a specified amount of time (i.e. day, week, month, etc). Passive images are those taken by the SenseCam automatically; active images are images that are taken by the user him or herself by pressing a button on the SenseCam as if it were a normal camera.

I will be using a video camera to record a follow-up interview with the SenseCam participants regarding their interaction with the SenseCam. Users will be asked to review images that were taken on their SenseCam both actively and passively and create a digital narrative of their past. This would allow for the exploration of how users benefit from viewing the passive images taken by the SenseCam, and the images that were taken actively.

I hypothesize that the digital traces that SenseCam captures will not be analogous to a user’s own memory and experience. I base this idea on the fact that the images captured on SenseCam will contain images that were not actively attended to during the user’s actual experience. Though, I believe the SenseCam will allow users to recollect a picture of their daily life that is different from the one they seem to recollect with no such memory aid. Furthermore, I believe the SenseCam will enable users to recall context and the felt-life that would not normally merit being recounted from their raw memory. If this is so, I would like to further question how the SenseCam makes it possible to engage in this “story telling” of what has actually occurred, of what wouldn’t have been recounted without the digital traces captured by this device.

Academic Goals

Inspiration for my research topic stems from my experience as a Research Assistant for UCSD’s Distributed Cognition-Human Computer Interaction Lab. The research topic involves an investigation of activity history. My research will aim to complement this research, but also aim to find how SenseCam and devices like these can direct design ideas for creating tools for supporting self-reflection in our daily lives. In accord with HCI principles, my aim is to accomplish giving users a richer experience in their life by exploiting use of user-activity recording to enrich the recollection of their past.

The ability to self-reflect through a digital narrative is an interesting idea within the context of HCI. We are rarely presented the opportunity to self-reflect, other than within the confines of our mind. A user typically engages in self-reflection without any external aid, at times challenged by not recalling everything they might have experienced in the past. Users don’t necessarily remember everything they need to remember. Though with the SenseCam, users can reconstruct their past by viewing their “visual diary” because information is “mentally off-loaded” into the external world. Users will be able to use images to construct a sequence of images that narrate their experienced events. This may allow for users to look into their past and gather information about recalling the context of a situation and perhaps recall the experience of “getting first place in a Spelling Bee Contest” just by looking at particular SenseCam images. Users could also search for events that took place in the past by, for example, searching for an image of their friend John to reflect on their summer vacation with him. SenseCam images may also give users the ability to recognize unique events that took place in the past by visually providing users with salient aspects of their experience, and also by summarizing their experienced past in a period of days, weeks, or months.
Sources