WORKSHOP REPORT

Information Access for Personal Media Archives

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Abstract

It is now possible to archive much of our life experiences in digital form using a variety of sources, e.g. blogs written, tweets made, photographs taken, etc. Information can be captured from a myriad of personal information devices. In this workshop, researchers from diverse disciplines discussed how we can advance towards the goal of effective capture, retrieval and exploration of e-memories. Proposed solutions included advanced textile sensors to capture new data, P2P methods to store this data, and personal reflection applications to review this data. Much discussion centered around search and navigation strategies, interactive interfaces, and the cognitive basis in using digitally captured information as memorabilia.

1 Introduction

The domain of lifelogging has received much attention of late [1, 2, 3] and shows the potential of technology to record life's activities and interactions. The benefits of achieving this are widespread from personal health applications, to automated diary capture, to understanding the lifestyle characteristics of populations of people. However other forms of data may not be automatically captured, but they still represent one's lifestyle and can act as a form of memorabilia to act as memory cues to help one re-experience a given event. These forms of data include digital photographs, word documents, e-mails, family videos, etc. As a result of this we believe that it is of upmost importance that people can access relevant information from their personal media archives hence the formation of the inaugural IAPMA workshop.

1.1 Workshop Theme

"Towards e-memories" – challenges of capturing, summarising, presenting, understanding, using, and retrieving relevant information from heterogeneous data contained in personal media archives.

2 Background & Challenges

There has been a relative explosion of personal multimedia data in recent times [4] e.g. work documents [5], e-mail, personal images/videos [6], sensing devices to record biometric data when we go running, cell phone text messages [7], sensed data from the environment around us (air quality, our home energy usage), etc. Some of these technologies already potentially offer great assistance to those with memory impairments, with emerging results from the cognitive psychology field being

very encouraging [8]. The most significant missing element is the technologies to give end users reliable, efficient and high-quality information retrieval over these personal media archives.

These archives pose new and unique challenges in that: data is likely to be multi-modal in nature (text, audio, photo, video, biometric, location, etc.); there may be a vast number of data items (a lifetime of data); items will often not be joined by inter-document links; the archive will contain much non-useful data that users will never want to see again; the archive will contain data about the user's environment that they may not understand; the user may be unable to describe clearly what they are looking for; they may not even be aware that the data was captured and is available; and it may often be helpful to recommend content related to the user's current context.

There have been a number of related workshops over the past few years, with the closest match being the PIM workshop series which incorporates different disciplines including databases, HCI, AI and IR. This has been held in conjunction with various conferences including SIGIR 2006 and CHI 2008. The fourth PIM workshop will take place this year at ASIS&T 2009, a conference focusing on broadcasting information. Another related past workshop series was CARPE which ran from 2004-2006 and was dedicated to the retrieval of personal life experience data and was associated with ACM MM. The "Memories for Life" project in the U.K. organised a series of workshops from 2006-2009 successfully bringing together researchers from computing science and cognitive psychology fields along with others such as biographers to propose a roadmap to access e-memories.

Following in the spirit of these workshops it was our aim to continue investigations in this research area, and to especially encourage contributions from researchers from different backgrounds to present and discuss their ideas relating to the IR challenges of effectively accessing personal media archives. We are interested in work including: development of new sensing devices and technologies to capture novel data of personal interest, algorithmic research, user studies on the real-life benefits of efficiently accessing personal media archives, and also position papers on the place of personal media archive research within IR or proposals for research strategies in this area. Submissions were selected for presentation to reflect a spectrum of work and to encourage discussion in the workshop.

3 Workshop Organisation

To reflect the diverse themes of the workshop, our program committee consisted of the following ranges of expertise:

Program Committee

Lifelogging

Kiyoharu Aizawa (Toyko, Japan)
Jim Gemmell (Microsoft Research, USA)

Mobile Devices

Kevin Curran (University of Ulster, N. Ireland)
Lothar Fritsch (Norwegian Computing Center, Norway)
Josef Hallberg (Luleå University of Technology, Sweden)

Hardware & Device Design

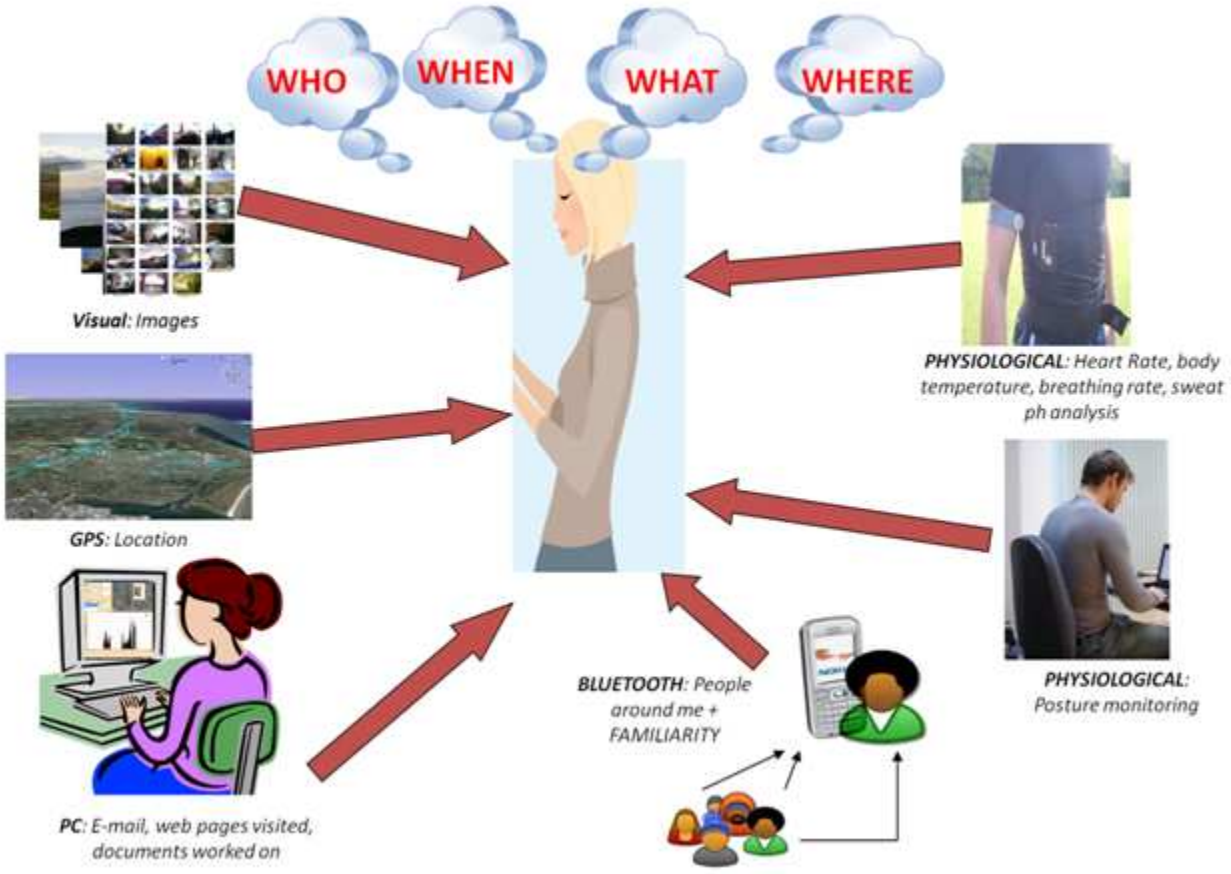
Mike Sinclair (Microsoft Research, USA)
Steve Hodges (Microsoft Research Cambridge, UK)

Information Retrieval
Alexander Hauptmann (Carnegie Mellon University, USA)
Kristin Tolle (Microsoft Research, USA)
Steve Whittaker (IBM Almaden, USA)

User Experience
Kieron O'Hara (University of Southampton, UK)
Daniela Petrelli (University of Sheffield, UK)
Kälervo Jarvelin (University of Tampere, Finland)

To ensure a sufficient blend of diversity and quality would be represented at the workshop, 4 long papers and 1 short paper were accepted for presentation. To complement the range of topics represented in the workshop, we subsequently invited a keynote speaker in the area of personal memorabilia user interaction.

4 Workshop Presentations



The workshop was held on the 28th March 2010 and was co-located with ECIR 2010, the 32nd European Conference on Information Retrieval. There were two sessions, and we now describe the topics covered in these sessions.

4.1 Session 1

Digital Technology and the Value of Personal Memories. Keynote by Daniela Petrelli

Textile Sensors for Personalized Feedback. Shirley Coyle, Edmond Mitchell, Tomas Ward, Gregory May, Noel E. O'Connor and Dermot Diamond

FoodLog: the Easiest Way to Capture and Archive What We Eat. Kiyoharu Aizawa, Gamhewage Chaminda de Silva, Keigo Kitamura and Yuto Maruyama.

The morning session was started with a keynote given by Dr. Daniela Petrelli from the University of Sheffield who discussed the merits of digital technology and personal media archives, and the value in assisting people in effectively accessing their memories. CLARITY researcher Edmond Mitchell presented developments in the field of wearable sensing which will provide less intrusive monitoring of person activities in the near future. To conclude the first session, Prof. Kiyoharu Aizawa from Tokyo presented an overview of one of the most successful systems in the lifelogging domain, namely a diet monitoring application which has approximately 280 users, who have uploaded more than 5,500 images of meals.

4.2 Session 2

Evaluating Interactive Access to Personal Visual Archives. Kan Ren, Risto Sarvas and Janko Calic

Description and Selection of Media Archives for Geographic Nearest Neighbour Queries in P2P Network. Daniel Blank and Andreas Henrich

Search and navigation as retrieval strategies in large photo collections. Ivar Solheim, Øystein Dale, Lothar Fritsch, Till Halbach, Knut Holmqvist and Ingvar Tjøstheim.

After a lunch containing much lively discussion from our well attended workshop, the afternoon session saw Kan Ren from the University of Surrey introduce a novel intuitive interactive interface for browsing of large-scale personal image and video collections. Daniel Blank from the University of Bamberg in Germany considered the problem of managing the vast collections of lifelog generated content, and suggested that peer-to-peer technologies offer interesting solutions. Ivar Solheim from the Norwegian Computing Center discussed the perceived and actual effectiveness of various search and navigation strategies used by individuals when interacting with their lifelog content.

5 Workshop Outcomes & Conclusion

The workshop proved a success in providing a forum for researchers from different backgrounds to present and discuss their ideas relating to the challenges of effectively accessing personal media archives. The workshop fostered much discussion on issues related to personal media archives which capture access mechanisms to life’s experiences. We learned of: 1) advances in textile sensors to unobtrusively gather sensed data of our daily activities, 2) possible P2P methods of storing this data with digital legacy implications; 3) of applications classifying eating activities; 4) of search and navigation strategies; 5) of interactive interfaces; and 6) the cognitive basis in using digitally captured information as memorabilia.

The workshop was well received by all attendees, and to maintain the momentum and growing interest in personal life data, it is likely that a sequel workshop will be run in ECIR 2011 in Dublin, Ireland.

6 Workshop Proceedings

For the interested reader, the workshop proceedings have been made available online at - http://doras.dcu.ie/15373/ - which can also be accessed via the workshop website, www.iapma2010.dcu.ie

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