

---

# Personal Informatics in the Wild: Hacking Habits for Health & Happiness

**Ian Li**

Google  
Mountain View, CA 94043 USA  
ianli@google.com

**Jon Froehlich**

University of Maryland  
College Park, MD 20742  
jonf@cs.umd.edu

**Jakob Eg Larsen**

Technical University of Denmark  
Lyngby, Denmark  
jel@imm.dtu.dk

**Catherine Grevet**

Georgia Institute of Technology  
Atlanta, GA 30332 USA  
cgrevet@gatech.edu

**Ernesto Ramirez**

University of California, San Diego  
La Jolla, CA 92093 USA  
erramirez@ucsd.edu

**Abstract**

Personal informatics is a class of systems that help people collect personal information to improve self-knowledge. Improving self-knowledge can foster self-insight and promote positive behaviors, such as healthy living and energy conservation. The development of personal informatics applications poses new challenges in human-computer interaction and creates opportunities for applications in various domains related to quality of life, such as fitness, nutrition, wellness, mental health, and sustainability. This workshop will continue the conversations from the 3 previous CHI workshops [6][7][8] through discussions on practical lessons from previous research and development experiences. In particular, this workshop will extend this ongoing work through a focus on rapid prototyping and deployment in the wild. Topics covered will include designing interfaces for collecting and reflecting on personal data, building robust applications, and infrastructures to make applications easier to create.

**Keywords**

Personal informatics; Reflection; Awareness; Behavior; Life logging; Visualizations

### **ACM Classification Keywords**

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

### **General Terms**

Design, Experimentation, Human Factors

### **Web Page**

More information about this workshop is available at <http://personalinformatics.org/chi2013/> (upcoming).

### **Introduction**

Personal informatics systems are interactive applications that support users in collecting personal information about various aspects of their life, behaviors, habits, and thoughts. These systems help their users improve self-knowledge by providing a personal history and tools for its review or analysis. Self-knowledge has many benefits, such as fostering insight [4], increasing self-control [9], and promoting positive behaviors such as energy conservation [10].

We have organized workshops about personal informatics systems in the past 3 years [6][7][8]. The workshops were successful in getting a diverse group of people from multiple disciplines to discuss the many challenges and opportunities in this growing field<sup>1</sup>.

This year, we will expand the workshop into a 2-day event. The first day will be a rapid prototyping exercise and deployment in the wild. The day will start with a hackathon where participants will be split into groups to work together on prototypes. In the afternoon, we will

---

<sup>1</sup> Position papers from the CHI 2010, 2011, and 2012 workshops are available at <http://personalinformatics.org/>.

test and play with these prototypes in the wild during a short tour of Paris. On the second day, we will follow the format we have used in the past 3 years: 1) short presentations, 2) group sessions, and 3) plenty of breaks to converse one-on-one with other participants. To conclude this event, we will invite members of the Paris branch of the Quantified Self for a conversation about their experiences with self-tracking.

We will continue the discussion of the important topics that emerged from the previous workshops, such 1) designing interfaces and devices for collecting and reflecting on data in different domains, such as fitness, nutrition, wellness, mental health, and sustainability; 2) building robust domain-specific applications; and 3) infrastructures to make applications easier to create. This workshop will extend this ongoing thread with the practical realities of building and deploying life-tracking sensors. Through the hackathon and deployment in the wild, we will put our understandings into practice and reflect on these experiences throughout the workshop.

### **Approach**

*Design and Development.* To maintain continuity with the previous workshops, we will use the stages of personal informatics systems [5] to organize the different issues we will be discussing. We will encourage submissions about collecting new types of behavioral information, facilitating the collection of multiple types of behavioral information, making it easier to understand information about oneself, and helping users take action on their newfound knowledge.

*Behavioral Theories and Social Implications.* Behavioral theories can help guide the design of personal informatics systems. Several theories have been used

to describe the information and feedback needs of people who are looking at their own information for behavior change [2][3]. What other existing theories can provide different perspectives on self-tracking for behavior change?

Many personal informatics systems have social components where people can share with others the data that they have collected about themselves. There are definite opportunities for using data from social media sites for personal informatics, exemplified by WhereDoYouGo (FourSquare), TwitterAnalyzer (Twitter), DeliciousDiscovery (Delicious), and LastHistory (Last.fm). Can sharing data improve self-knowledge? What are the privacy concerns with sharing of personal data and how do we address them?

*Application Domains.* This year's workshop will add discussions on the lessons learned so far from the past workshops, previous research, and experiences from projects and products. The goal is to discuss how to apply these lessons to various application domains. What lessons can we draw from existing research that can impact personal informatics in practice? What designs and methods are working in the wild? What are the major application domains that can be improved by personal informatics?

### **Workshop Goals and Themes**

One goal of this workshop is to define opportunities for exploration of human-computer interaction in personal informatics. Discussing design, behavioral theories, and social implications will help participants direct the future of the development and research in this field.

Another goal is to share expertise between different disciplines to better tackle the many challenges that personal informatics poses on interaction with computers. Researchers need to study how personal informatics can benefit people's daily lives as well as develop the technologies that will make personal informatics available in daily life.

Lastly, we want to get more researchers and practitioners interested in this burgeoning field. Design guidelines and infrastructures need to be created to help more people build personal informatics systems and applications.

### **Topics of Interest**

We invite contributions from various disciplines on topics including but not limited to:

- New and current personal informatics applications and systems on desktop, web-based and mobile platforms
- Sensor and life-logging technologies that monitor various personal behavioral information
- Effective feedback techniques that help users become more aware of their own behaviors, such as visualizations, virtual agents, and persuasive technologies
- Effects of self-knowledge and self-awareness on behaviors and daily life
- Methods of conducting long-term studies to determine effects of personal informatics on user behavior in various domains

### **Participants & Expected Community Interest**

The workshop will invite technologists, behavioral scientists, designers, and artists working on topics

related to personal informatics. In particular, we will recruit participants who are developing personal informatics applications on the desktop and on mobile devices; who develop sensor technologies, life logging applications, visualizations, and effective feedback techniques; who have expertise in testing and evaluating self-knowledge. Prior sensor and device hacking experience is not required to participate in the hackathon.

More personal informatics applications and systems are being created that require users to be engaged with the interface during collection and reflection. Personal informatics poses many challenges and opportunities for HCI researchers and practitioners to pursue.

Additionally, the mainstream media has become interested in personal informatics with articles in *The Wall Street Journal* [1] and *Wired* [11]. These articles describe the current technologies people are building and using to learn their own behaviors, but we do not know how effective these current tools are in helping people. This is an opportunity to start the discussion on research issues that will lead to better personal informatics systems in the future.

The organizers are currently pursuing research related to personal informatics research in their respective institutions. We have developed several systems and applications that facilitate manual and automated monitoring of user behavior and that allow users to explore their behavior using visualizations. We have also conducted long-term studies on the effects of personal informatics on users' daily lives. These works will inform the activities and discussions during the

workshop. Beyond the workshop, we will continue discussing our work and the participants' research.

## References

- [1] Brophy-Warren, J. The New Examined Life. *The Wall Street Journal*, December 6, 2008.
- [2] Consolvo, S., McDonald, D.W., & Landay, J.A. Theory-Driven Design Strategies for Technologies that Support Behavior Change in Everyday Life. *CHI'09*.
- [3] Helen, A.H., Greenberg, S., & Huang, E.M. One size does not fit all: applying the transtheoretical model to energy feedback technology design. *CHI 2010*.
- [4] Hixon, J.G. & Swann Jr., W.B. When Does Introspection Bear Fruit? Self-Reflection, Self-Insight, and Interpersonal Choices. *Journal of Personality and Social Psychology*, 64, 1 (1993), 35-43.
- [5] Li, I., Dey, A.K., & Forlizzi, J. A Stage-Based Model of Personal Informatics Systems. *CHI 2010*.
- [6] Li, I., Dey, A.K., & Forlizzi, J. Workshop - Know thyself: monitoring and reflecting on facets of one's life. *CHI 2010*.
- [7] Li, I., Dey, A.K., Forlizzi, J., Medynskiy, Y., & Hook, K. Workshop - Personal Informatics and HCI: Design, Theory, and Social Implications. *CHI 2011*.
- [8] Li, I., Medynskiy, Y., Froehlich, J., & Larsen, J.E. Workshop - Personal Informatics in Practice: Improving Quality of Life Through Data. *CHI 2012*.
- [9] O'Donoghue & Rabin. Self Awareness and Self Control. *Time and Decision: Economic and Psychological Perspectives on Intertemporal Choice*. (2001) 217-243.
- [10] Seligman, C. & Delay, J.M. Feedback as a Means of Decreasing Residential Energy Consumption. *Journal of Applied Psychology*, 62(4) (1977), 363-368.
- [11] Wolf, G. Know Thyself: Tracking Every Facet of Life, from Sleep to Mood to Pain, 24/7/365. *Wired Magazine*, June 22, 2009.