Disasters in Personal Informatics: The Unpublished Stories of Failure and Lessons Learned

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ABSTRACT
Though never a desirable outcome, failure is an inevitable part of research. Too often, however, the tried but failed paths are lost in the translation of work to publication. With the pragmatics of publishing (e.g., page limits) and the academic emphasis on positive outcomes, failed processes, methodologies, study designs, and technologies are frequently not captured or surfaced in traditional publications because of embarrassment, perceived irrelevance, or simply lack of space. We want to provide an explicit forum to share stories of failure, perhaps even entire lines of research that did not succeed, in order to synthesize lessons learned and help progress the PI research community forward.

Our workshop builds on the successful four previous Personal Informatics workshops at CHI2010-CHI2013 [1–4] but with a particular aim towards engaging the UbiComp/Pervasive Computing audience. This community is increasingly engaged in PI-related research and particularly has expertise in building and deploying highly technical systems, where many of the challenges of PI lie. PI researchers in general—and those in UbiComp in particular—have much to benefit from surfacing UbiComp’s collective knowledge about the challenges in this space.

We hope to derive a set of concrete directions for future work in the personal informatics field from the collective experiences of participants engaged in QS related research from an HCI and UbiComp perspective.

WORKSHOP GOALS AND TOPICS
Over the last several years, interest in the field of Personal Informatics (PI) has been rising at a fast pace. This has been fueled in large part by the availability and popularization of smartphone applications and activity tracking devices such as the Fitbit, the Nike FuelBand, and the Jawbone UP.

Personal Informatics research activity in HCI and Ubiquitous Computing has kept pace with this trend. A large number of papers related to personal data and quantification have been submitted to top-tier conferences (e.g., CHI, UbiComp) and workshops, such as the ones we have organized [1–4].

One unique element of PI research is that it is intrinsically tied to people’s own life experiences. It is characterized by the collection, visualization and analysis of real personal data, whether it is financial, health, or productivity-related. While it might be possible to conduct lab-studies or simulate personal informatics data, research outcomes are significantly more valuable when researchers sense and interface with individuals in practice. Consequently, the research community’s efforts have been oriented towards deploying personal informatics systems in real-world settings. In this practical context, however, successful research faces numerous challenges, from privacy issues, to

INTRODUCTION
“Enlightened trial and error outperforms the planning of flawless intellect” —David Kelley [5].

In this workshop, our goal is to uncover, analyze, discuss, and learn from the failures of Personal Informatics (PI) and Quantified Self (QS) research—failures that are most often not captured or surfaced in traditional publications because of embarrassment, perceived irrelevance, or simply lack of space. We want to provide an explicit forum to share stories

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efficient data collection, to methodological barriers—all
total potential failure points—in addition to overcoming
prototypical engineering complexities associated with
building deployable systems.

As evidenced by the high-quality and community validation
of some of the PI papers published in the last few years [6],
it is clear that many researchers have been successfully
navigating the treacherous waters of PI system deployment
in ecologically-valid settings. However, anecdotally—and
from our own experience—even the most successful
research initiatives in this domain endured missteps and
failures.

Since failures are most often excluded from the traditional
publication format due to a number of factors, the aim of this
workshop is to bring PI researchers together in an
environment where sharing mistakes and stories of failure
is encouraged. We feel that many researchers would greatly
benefit from a solid set of practical, community-harvested
guidelines and methodologies for conducting PI research in
light of the challenges in this space. New PI researchers
would particularly benefit from the surfacing of this
institutionalized knowledge, as detours caused by repeating
previous researchers’ mistakes can delay a project on the
order of months or years without meaningfully advancing
research goals. Therefore, the output of the workshop will
be a document of publishable quality that synthesizes best
practices for the field of Personal Informatics.

In our view, the workshop format seems ideal for such
effort; it will be organized as an open forum where
researchers will have the opportunity to share experiences
and identify common challenges we have faced in this
space. It also presents the opportunity to form new
collaborations going forward.

**Topics of Interest**

We will invite contributions on topics associated with
research failure points, including but not limited to:

- **User Study Design**: How decisions affecting the design
  of studies proved to be flawed, affected the validity of
  results, led to biases, or constrained findings.

- **Privacy and Security**: Approaches that could threaten
  the privacy of individuals or expose study participants to
  harm or discomfort.

- **Field Deployment**: Undesirable issues that emerged only
  in real-life deployments and could not be anticipated.

- **Hardware and Software**: The role that hardware and
  software platform choices played in failed experiments
  (e.g., open vs. proprietary, custom vs. off-the-shelf, web,
  mobile, desktop, wearables, sensors)

- **Data Collection**: How different approaches for data
  collection could compromise the data (e.g., in case of
  hardware failure).

- **Methods and Techniques**: Misuse of tools and
  instruments, such as poorly produced surveys and
  experience sampling abuse.

- **User Interfaces**: How UI design influenced findings,
  proved to be an obstacle in terms of user experience,
  provided misguided feedback or steered participants
  away from the task at hand.

- **APIs**: Issues around querying user data through third-
  party APIs, both in terms of technical approaches that
  proved limiting/unsuccessful or that violated terms of
  service agreements.

**WORKSHOP PLAN AND PROCESS**

**Before the Workshop**

We will invite participants from a broad range of
disciplines, including technologists, behavioral scientists,
designers, and artists to submit two-to-four page papers
describing their PI-related disasters, a retrospective analysis
of what went wrong and why, and a synthesis of lessons
learned. Papers will be reviewed by the committee based on
their topic relevance, exposition, and potential to provoke
thoughtful discussion. Each paper will receive at least 3
independent reviews and we will select 15-20 papers in
total.

We have observed an increasing level of quality of the
submissions we have received at previous workshops. In
previous workshops we have hosted accepted papers on the
website [http://personalinformatics.org](http://personalinformatics.org); however, for this
workshop we propose to also include accepted papers in the
ACM Digital Library and the supplemental proceedings of
the conference in order for our high-quality submissions to
reach a broader audience.

For recruitment, we aim to actively solicit submissions
from a wide range of disciplines. We will create a website
hosted at [http://personalinformatics.org](http://personalinformatics.org) (where previous
workshops are also hosted) to advertise the workshop,
communicate between organizers and participants, and post
the workshop plan. We will also post links to workshop day
notes and follow-up information.

To foster and facilitate all-group discussion, we will limit
the total number of participants to 25 participants including
the 4 organizers.

**Workshop Dates**

Important dates for the workshop include:

- Apr 18 Announcement of the workshop and CfP
- Jun 1: Deadline for workshop paper submissions
- Jun 16: Author notifications
- Jun 30: Deadline for camera-ready paper
- Sep 13/14: Workshop

**Workshop Schedule**

We will follow the one-day format we successfully
employed in previous PI workshops (with the exception of
The workshop day will be split between rapid, five-minute “workshop madness” talks summarizing the authors’ workshop papers, small-group breakout discussions, and full-group presentations that distill and summarize the breakout sessions. The “workshop madness” talks will be timed to ensure that participants adhere to the 5-minute length. This is to make sure that the workshop sticks to the schedule, while all participants get a chance to present and discuss their work. Discussions of the presentations will be a part of the breakout session.

Submitted papers will be analyzed by the organizing committee for common, emergent themes around both failures and lessons learned. These themes will form the basis of the two breakout sessions. Attendees will be pre-assigned breakout groups to help foster and balance discussions.

The morning session will begin with brief introductory remarks, an ice-breaker, and then move immediately to the first madness session. After morning coffee break, we will split-up into prearranged small groups for the first breakout session (failures). We will reserve the last 20 minutes before lunch for group distillation and discussion.

The afternoon session will mirror the morning with madness, the second breakout session (lessons learned), and finishing with a ~45 minute synthesis and all-group discussion. For all sessions, we will employ a shared Google Doc for collective note taking. Again, this approach was successful in previous workshops and allows for an easy, on-going record of the day’s events and discussions.

A draft outline of the workshop program:

9:00 - 9:15: Introductory remarks and ice breaker
9:15 - 10:15: Workshop madness (fast talks + q/a)
10:15 - 10:30: Coffee Break
10:30 - 12:00: Breakout session (small group discussions)
12:00 - 2:00: Lunch
2:00 - 3:00: 2nd half of workshop madness (fast talks + q/a)
3:00 - 3:30: Coffee Break
3:30 - 4:30: Breakout Session II (small group discussions)
4:30 - 5:30: Synthesis and group discussion
5:30 - 6:00 Closing
6:00 - 9:30 Meeting with the local Seattle QS meetup group

In the evening, after the workshop main program, we will meet with the local Seattle branch of the Quantified Self group. This provides a unique opportunity to bridge academia with an accessible group of practitioners (QS self-trackers) that is already sharing ideas, methods and experiences in a structured way. We have done this at previous workshops and participants found this very valuable—it builds connections beyond academia and the HCI/UbiComp community.

**After the Workshop**

To promote and disseminate our research findings, we are planning three initiatives as outcomes of the workshop:

- We propose to include accepted papers and the supplemental proceedings of the conference in the ACM Digital Library. This will make it easier to expose the work to a broader audience while making all papers searchable, and thus easier to reference, by the Personal Informatics community.
- We will produce a document that synthesizes best practices for the field of Personal Informatics, giving special emphasis to lessons learned in light of failures from use cases, as told by workshop attendees. We will host this document at the [http://personalinformatics.org](http://personalinformatics.org) web site.
- We will submit our PI best practices paper to a journal and/or format it as an article for a magazine (e.g., IEEE Pervasive Computing).

**THE ORGANIZERS**

Two of the organizers (Jon and Jakob) have organized previous Personal Informatics workshops, while the other two organizers (Edison and Matthew) have been PI workshop participants. Below, we present a summary of the organizers’ biographies:

**Jon Froehlich** is an Assistant Professor in Computer Science at the University of Maryland, College Park, a member of the Human Computer Interaction Laboratory (HCIL), and founder of the Makeability Lab and HCIL Hackerspace. His research interests include designing sensing and feedback systems to promote healthy and proenvironmental behaviors. He has been working on QS-related systems since 2006.

**Matthew Kay** is a Ph.D. student in Computer Science & Engineering at the University of Washington. His research centers on user understanding of data—and particularly data uncertainty—in personal informatics systems. He has focused primarily on health systems, and has published best papers at UbiComp on personal informatics of sleep- and weight-related data.

**Jakob Eg Larsen**, Ph.D. is Associate Professor in Cognitive Systems at the Technical University of Denmark (DTU) where he is heading the mobile informatics lab (milab). His research interests include HCI, personal informatics, and mobile/wearable sensing for assistive technologies and health applications.

**Edison Thomaz** is a Ph.D. candidate in the School of Interactive Computing at Georgia Tech, in the Human-Centered Computing program. In his research he focuses on building systems that can sense, recognize and model people's everyday life activities in service of health and well-being applications. Edison has worked on Personal Informatics systems at France Telecom R&D, at Slife Labs, LLC and throughout his graduate studies.
REFERENCES


UbiComp2014 Workshop: Call for Papers
5th International Workshop on Personal Informatics

Disasters in Personal Informatics: The Unpublished Stories of Failure and Lessons Learned
at the 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp)
September 13-17, 2014, Seattle (Washington, US)

Introduction
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Paper Submissions
Submitted papers must be 2–4 pages in the SIGCHI Extended Abstract format (Word | LaTeX). Papers will be reviewed by the committee based on their topic relevance, exposition, and potential to provoke thoughtful discussion. Each paper will receive at least two independent reviews. Accepted papers will be published in the UbiComp 2014 adjunct proceedings.
**Important Dates**

Jun 1: Deadline for workshop paper submissions  
Jun 16: Author notifications  
Jun 30: Deadline for camera-ready paper  
Sep 13 or 14: Workshop

**Organizers**

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