Telling Traces

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Joint work with many collaborators at UCLA

Enabled by $>3 \times 10^9$ mobile phone users, increasingly with GPS, imagers, rich UI, programmability, and ubiquitous connectivity
Mobile smartphones w/ web/cloud services + social networking

real time
(always on)

real place
(always carried)

real context
(historical, environmental, spatial, social)

So much we can learn
…and share
So much they can learn and share...
PEIR: Personal Environmental Impact Report
http://peir.cens.ucla.edu

leverages location time series readily available from consumer smartphones

Mun, Yau, Burke, Estrin, Hansen, West, ...
Program helps kids find their carbon impact
Catalina Gutierrez (center) and twin brother Trevor are learning to make better carbon-based transit decisions. (Brant Ward / The Chronicle)
Participatory Sensing for health and wellness

what can we learn,
what impact can we have,
with access to

...all 168 hours of the week...
...all 1440 minutes of the day...
Health & Wellness: activity traces and experience sampling

Our Actions

Our Self Report

Private Data Storage

- Geocoded, time-stamped
- Mobility traces

Processing

- Aggregates, features, trends, patterns

Visualization, Feedback, Sharing

Event detection

Photo - Marshall Astor
Integrated personal data stream creates a *Living Record*

Automatically prompted, geocoded, uploaded:
- physiological
- patient reporting of medication, symptoms, stress
- location, activity traces
- contextual, environmental, social factors

And it doesn’t require a smartphone to generate *telling traces*…

http://your.flowingdata.com
Capture your life in data. One tweet at a time.

Get Started Now

Step 1. Follow @yfd on Twitter

Step 2. Sign in to your.flowingdata with Twitter

Step 3. Start recording data (via direct messages) following a few simple guidelines

Making Choices

We make tiny choices every day. Those choices become habits, and those habits develop into behaviors. your.flowingdata helps you record these choices.

Collect data anywhere.
The ubiquity of Twitter allows you to record data from just about anywhere. If you can tweet, you can record data.

Interact with your data.
Data is meant to be played with. Use interactive data visualization and explore your data.

Customize views to your data.
All data is not created equally. Create custom visualization pages for what you’re most interested in.

Drink, etc | This page is Public (Edit)

Share your findings.
Some data is meant to be private, but some is worth sharing. You decide what others can and can’t see.

Understand yourself.
In the same way you can see growth from reading old entries in a diary, monitor your growth and progress through data.

Explore your data easily.
your.flowingdata was designed by a statistician, but you don’t have to be one to play with your data.

Follow @yfd on Twitter and Get Started Now

Yau, Hansen
But are these traces *too telling*?

Quantify habits, routines, associations
Easy to share and mine; but difficult to anonymize
Data handling by mobile carriers, credit card companies, is regulated
But...individual is free to capture and share her own data for free apps and services: "Everything is free to you, except for the data we collect about you"

Calls for new privacy practices...
Personal Data Vault (PDV): allow participants to retain control over their raw data

data legally-accessible only to Individual

vault + filters = granular, assisted control over what you send to who, what that data says about you, whether you reveal who you are or share anonymously, ...
Challenges

Best practices:
- Personal data vault
- Legibility
- Long-term engagement

Legal mechanisms:
- Extending privilege
- Subpoena, discovery?
- Professional guardians
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So much **they** can learn and share...
Acknowledgments: Collaborators and Sponsors

Collaborators

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