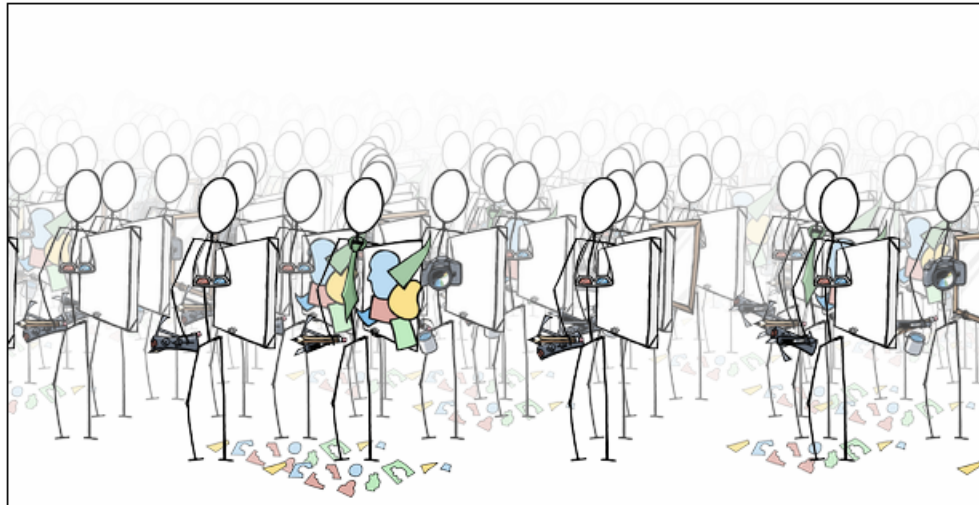


Interaction Mirrors: Reflecting Real-World Use of *ingimp*



Michael Terry
May 5, 2007

Hi, My Name Is...

Who I Am

- Professor in David R. Cheriton School of Computer Science at University of Waterloo, Ontario, Canada
- Human Computer Interaction (HCI) researcher
- Lurking (past) contributor to GIMP...

What I Do

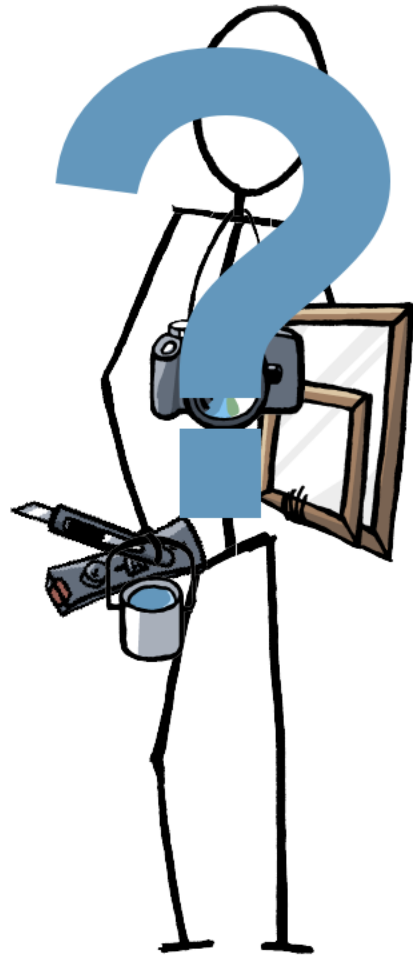
- Study artists, designers to develop better tools
- Use mixed methods to understand deep user needs

Side Views and Parallel Pies

- Demo...

Current Research

- How can open source do usability in ways that commercial software companies can't?
- What *unique* advantages lie in the open source community for creating highly *useful, usable, and enjoyable* software?
- Particularly interested in long-term, *sustainable* usability infrastructures



Answering the Question...

- Multiple, complementary methods to study users
 - Qualitative
 - Quantitative
 - No single method is the be-all, end-all
- Long-term, “in-the-wild” studies rare
- What if we had a mirror?

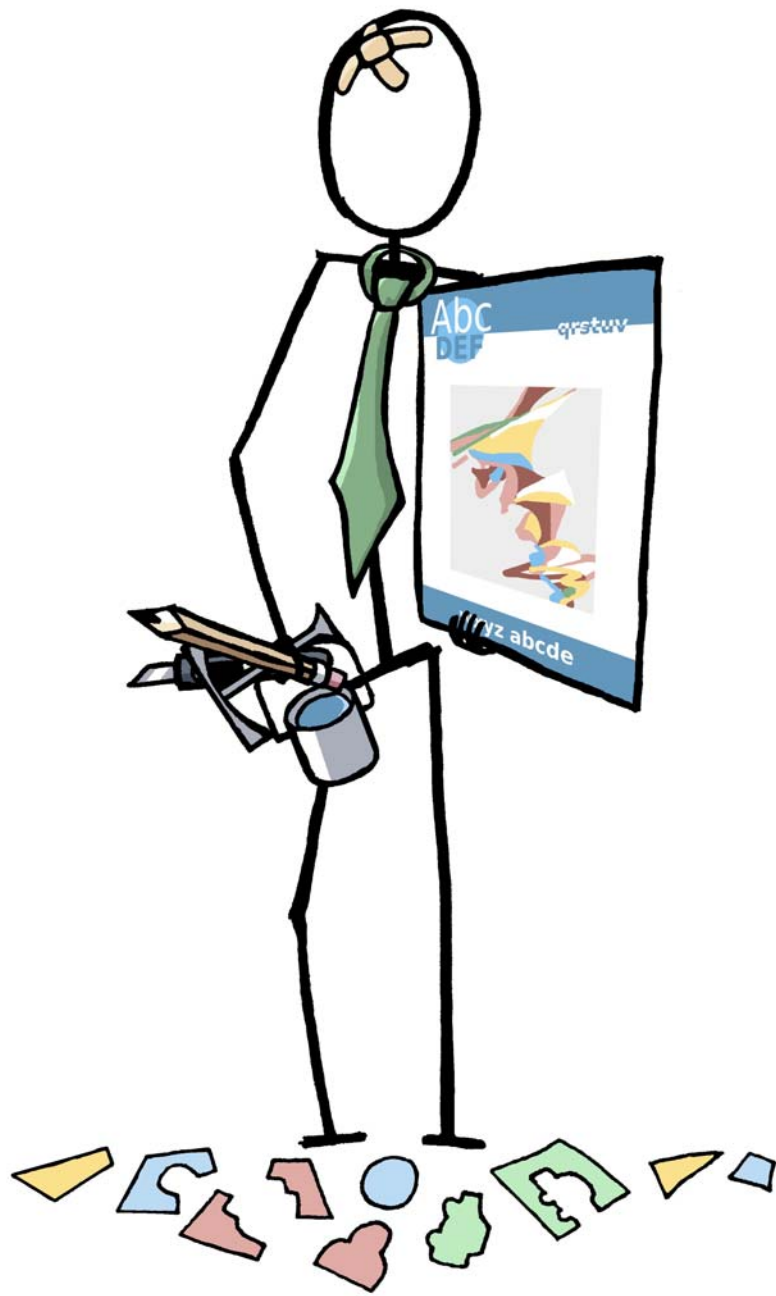
Demo...

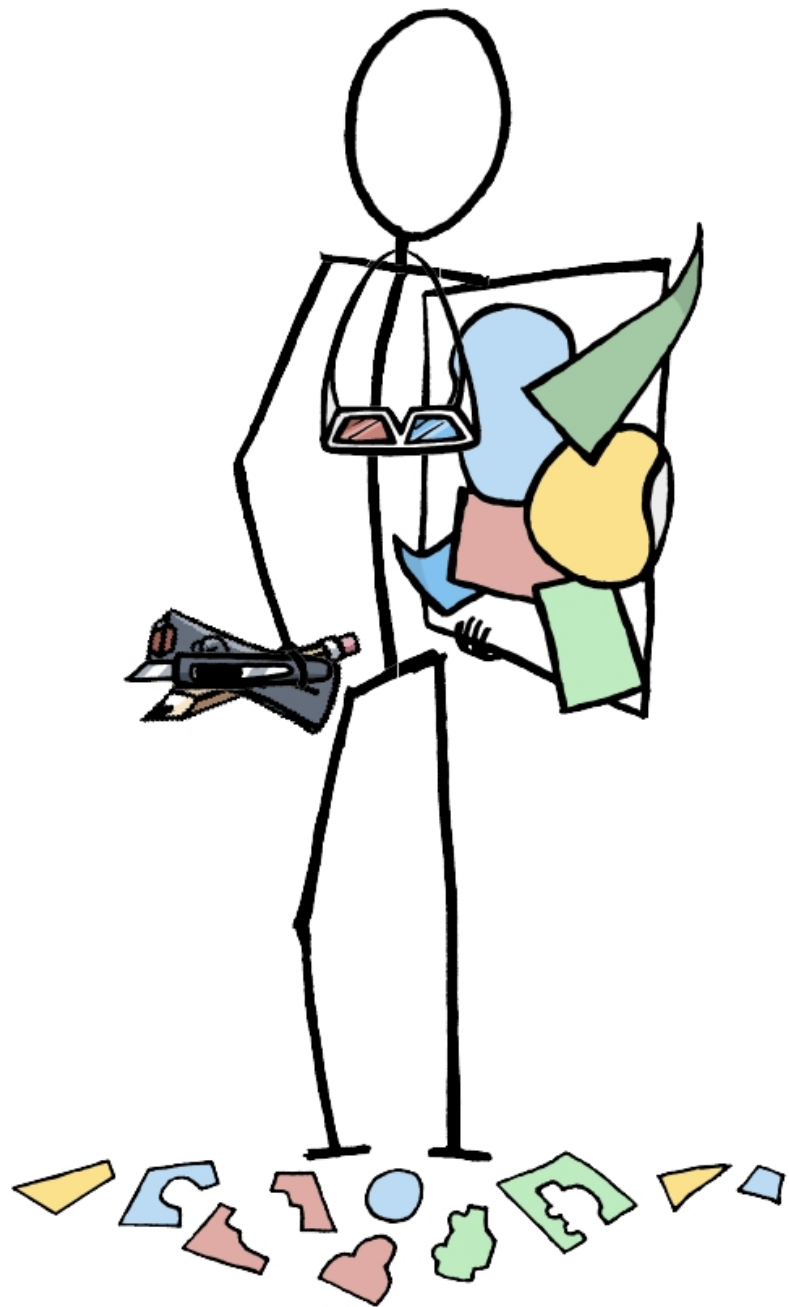
Usage Log Files

- Log data automatically collected, transmitted, processed
- But pretty boring on their own...

More Demo...

ingimp Personas...







Talk Overview

- Demos
- Introducing ingimp
- Architecture
- Data collected
- Making sense of the data
- Privacy
- Conclusion

What is ingimp?

- instrumented version of GIMP
- Tool to see into community's use of GIMP
- Usability tool for the curious and usability experts alike
- Snap-in replacement for GIMP

Architecture

- Hooks in GIMP core
 - Wires into interface events
- Python-based wrapper
 - Set-up, tear-down, transmittal

Data Collected

Four primary types of data collected

1. Command use
2. Interface events
3. Document characteristics
4. System characteristics

Command Use

- Command name, time
- Document affected
- No parameters recorded (privacy)
- Tool selection, zooming, changes to colors, etc.

Interface Events

- Window events
 - Focus
 - Move
 - Resize...
- Key events
 - Key released, but *not* actual key pressed
- Mouse events
 - *No pointer locations*
- Menu events

Document Characteristics

- Size of image
- Number of layers
- Layer characteristics
- Image histograms

System Characteristics

- Operating system
- Number of monitors
- Display resolutions
- Timezone

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Making Sense

- ingimp can generate HUGE log files
- How can we make sense of this data?

Making Sense

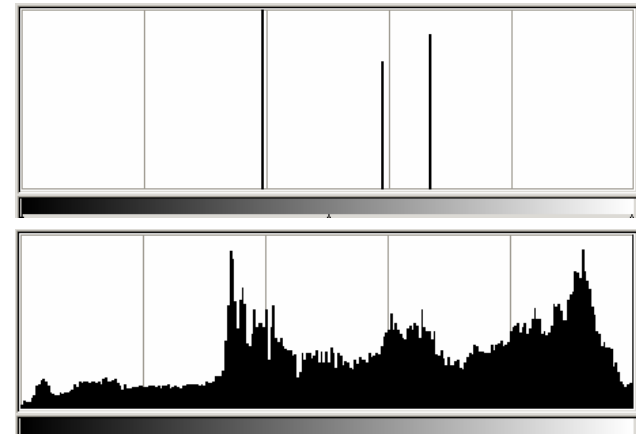
- Link log data to observational studies
- Tags
- Reality checks

Observational Studies

- Watch people use the software
 - Generates questions to ask
 - Suggests ways to analyze data

Examples

- Duplicate/close sequences
- Try-undo cycles
- Layer duplications
- Undo-redo cycles
- Slow/fast menu usage
- Image histograms



Tags



Reality Checks

- Adding to data collection continuum
- Directed tasks performed “in the wild” to answer questions
- Accessed via web site, marked in log file

Analyzing the Data

- Drawing the avatars...
- ...for 5 hours...
- ...results in...

- 50MB XML file
- 25,000 log entries

- Current project focus is on analysis tools

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Privacy

- All collected data made publicly available
- Not your usual usability lab setup...
- Privacy issues arise

Privacy

- Must weigh programmer convenience vs. user awareness
 - *User awareness must prevail here*
- ingimp designed to create a transparent data collection process

Privacy

- Disable logging at start-up
- ingimp designed to collect only application usage information
- Key/mouse activity, but *no details of what key or where mouse used*



Privacy

- Human-readable XML log file format

```
<LogEntry entry_num="581" event_date="2007_05_03_11_52_55"
  elapsed_time_usec="1140515625.000000">
  <WindowKeyEvent window_name="GIMP Text Editor" window_role="gimp-text-editor"
    event_type="9" modifier_state="0"/>
</LogEntry>

<LogEntry entry_num="583" event_date="2007_05_03_11_52_55"
  elapsed_time_usec="1140656250.000000">
  <WindowKeyEvent window_name="GIMP Text Editor" window_role="gimp-text-editor"
    event_type="9" modifier_state="0"/>
</LogEntry>

<LogEntry entry_num="584" event_date="2007_05_03_11_52_55"
  elapsed_time_usec="1140812500.000000">
  <WindowKeyEvent window_name="GIMP Text Editor" window_role="gimp-text-editor"
    event_type="9" modifier_state="0"/>
</LogEntry>

<LogEntry entry_num="585" event_date="2007_05_03_11_52_56"
  elapsed_time_usec="1141234375.000000">
  <WindowKeyEvent window_name="GIMP Text Editor" window_role="gimp-text-editor"
    event_type="9" modifier_state="0"/>
</LogEntry>

<LogEntry entry_num="586" event_date="2007_05_03_11_52_56"
  elapsed_time_usec="1141375000.000000">
  <WindowKeyEvent window_name="GIMP Text Editor" window_role="gimp-text-editor"
    event_type="9" modifier_state="0"/>
</LogEntry>

<LogEntry entry_num="587" event_date="2007_05_03_11_52_56"
  elapsed_time_usec="1141531250.000000">
  <WindowKeyEvent window_name="GIMP Text Editor" window_role="gimp-text-editor"
    event_type="9" modifier_state="0"/>
</LogEntry>
```

You can inspect the source!

Try that, Your-Favorite-Commercial-Software
that-Automatically-Phones-Home-to-Central
Headquarters-Sending-Heaven-Knows-What...

Known Privacy Issues

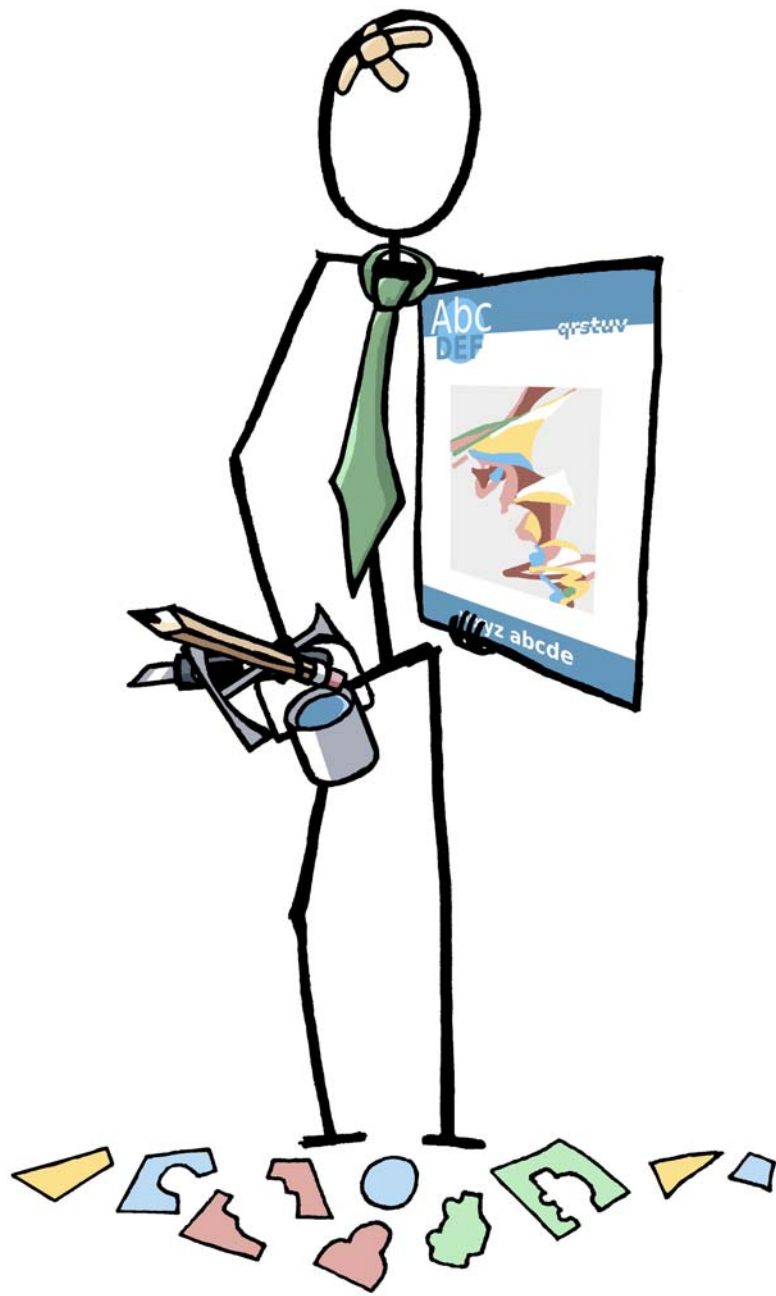
- Tags
- Custom script names
- Both described on website, in consent agreement

Compelling Use

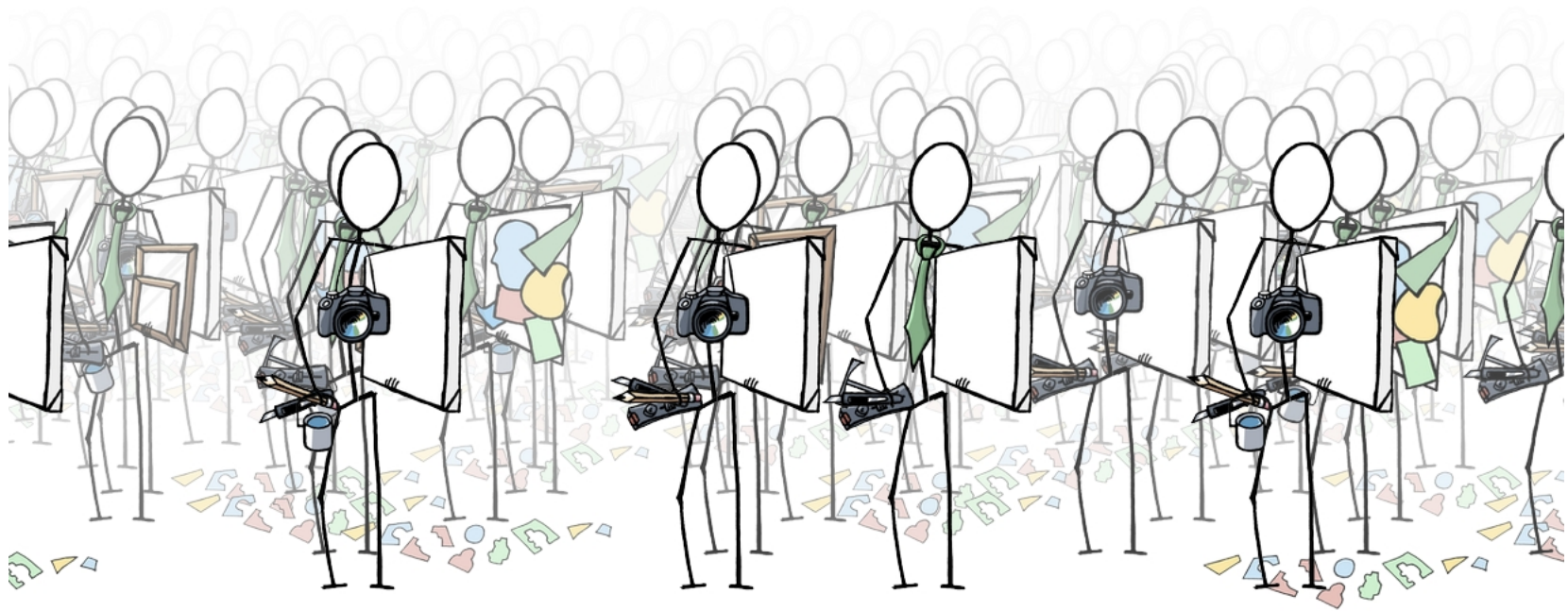
- Problem of self-selection
- One Windows installer, UNIX source/patch
- Stick figure ingimp personas, personalized stats make it personal
 - Satisfy our innate curiosity
 - Not just “install and forget” – can “peek in” on self over time
- Stick figure design...

Stick Figures

- A basic information visualization
- Staging areas to communicate use
- Simple design so other projects can create them
- Enable community “snapshots”







Project Status

- Windows, UNIX clients ready for download
- Gradually filling out server-side with analyses, classification schemes
 - Dynamic stats page under construction
- Want to hear what *you* want to know
 - Go to ingimp's forums, send us an email
 - *We want to learn*

Conclusion

- ingimp complements existing usability methods
 - Quantitative analyses to complement qualitative
- Can be used by casual user and usability expert alike
- Personal summarizations to compel use
- Tags to mark logs, filter results
- Drop-in replacement for GIMP – can use it daily

Credits, Thanks, Links

- Matthew Kay (ingimp persona design)
 - Brad Van Vugt (ingimp persona programming)
 - Jaime Ruiz (web design)
 - Tom Ayre (forums, reality checks)
 - Terry Park (wrapper coding)
-
- GIMP community for a fabulous piece of software
 - Event organizers, corporate sponsors
 - Work partially supported by NSERC grant

<http://www.ingimp.org>
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