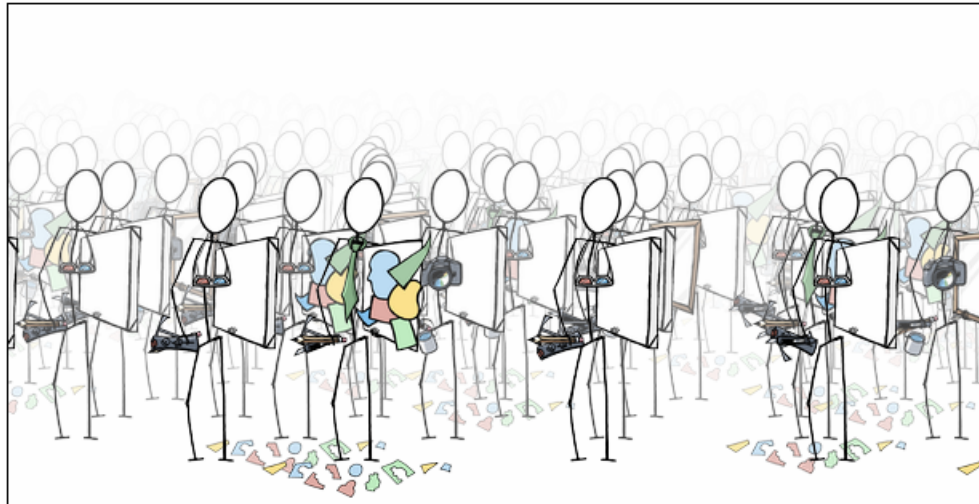


# Usability in the Wild (The ingimp Story)



Michael Terry  
June 27, 2007

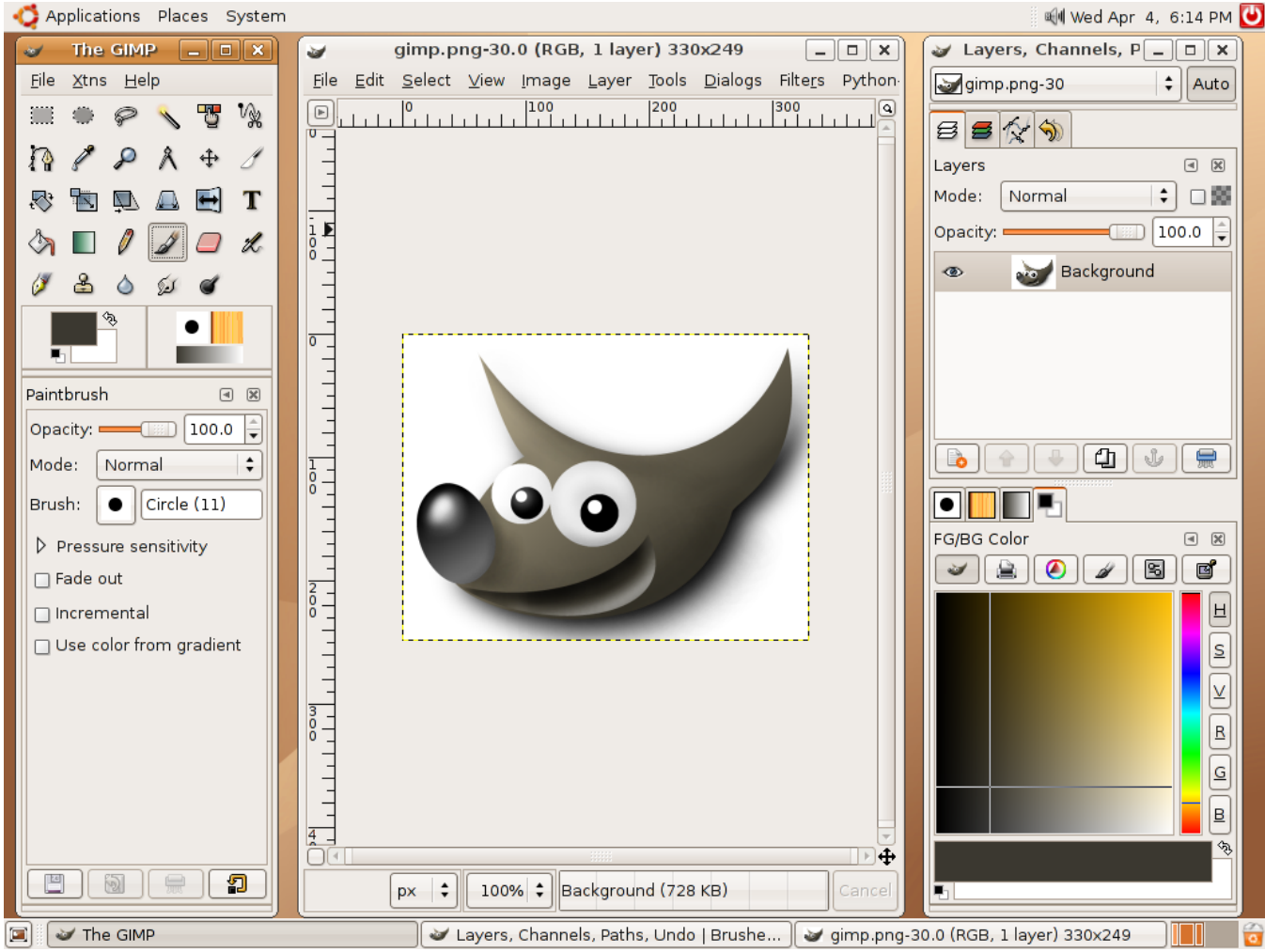
# Who I Am

- Computer Science Professor
- Human Computer Interaction (HCI) researcher
- Lurking (past, *minor*) contributor to GIMP...

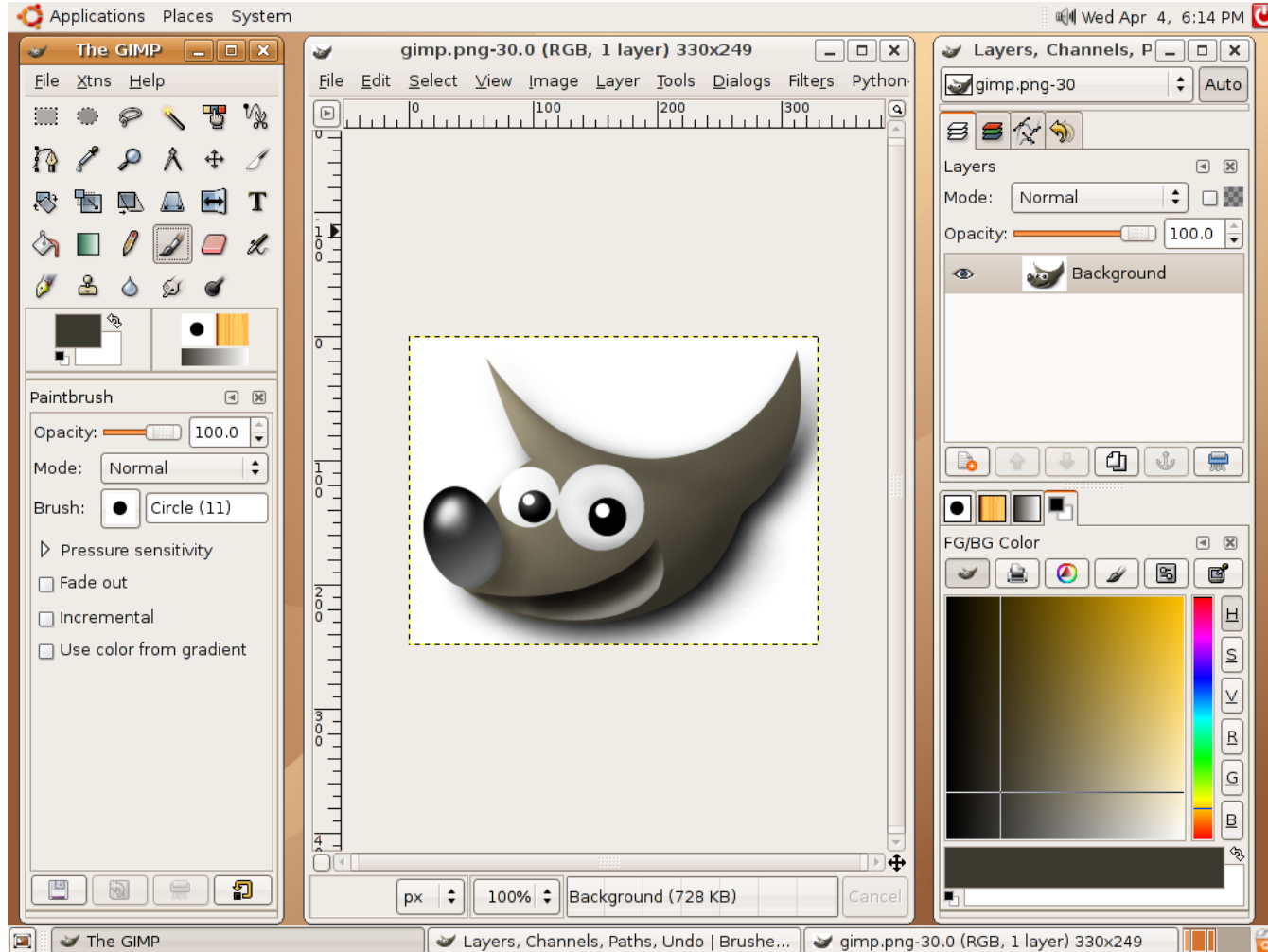
# Current Research

- 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

# GIMP



# GIMP + Usability



# Addressing Usability

- Multiple, complementary methods to study users
  - Qualitative
  - Quantitative
- No single method is the be-all, end-all
- Long-term, “in-the-wild” studies rare
- GIMP efforts underway
  - [http://gui.gimp.org/index.php/GIMP\\_UI\\_Redesign](http://gui.gimp.org/index.php/GIMP_UI_Redesign)
- But more to do than developers have time
- How do we know what is important?



# Answering the Question...

- What if we had a mirror?



# Demo...

- (<http://www.ingimp.org/logs>)

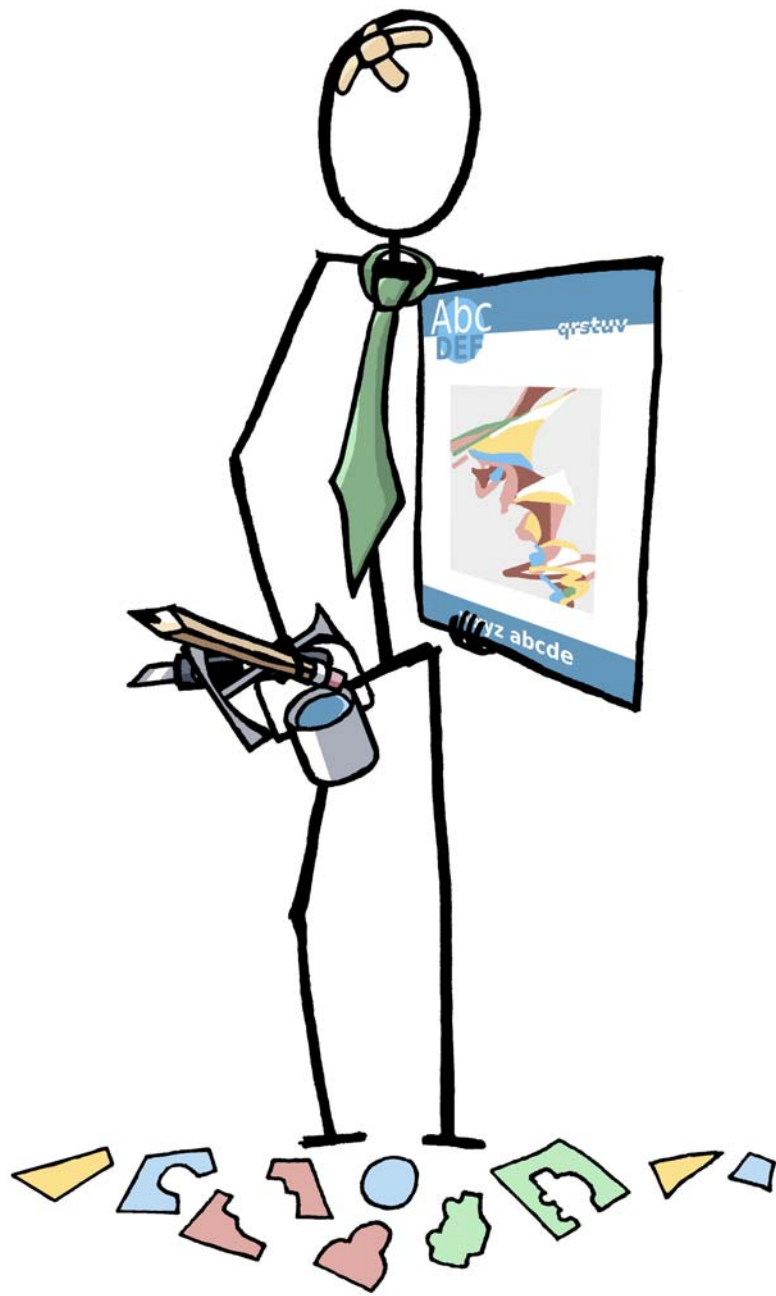
# Usage Log Files

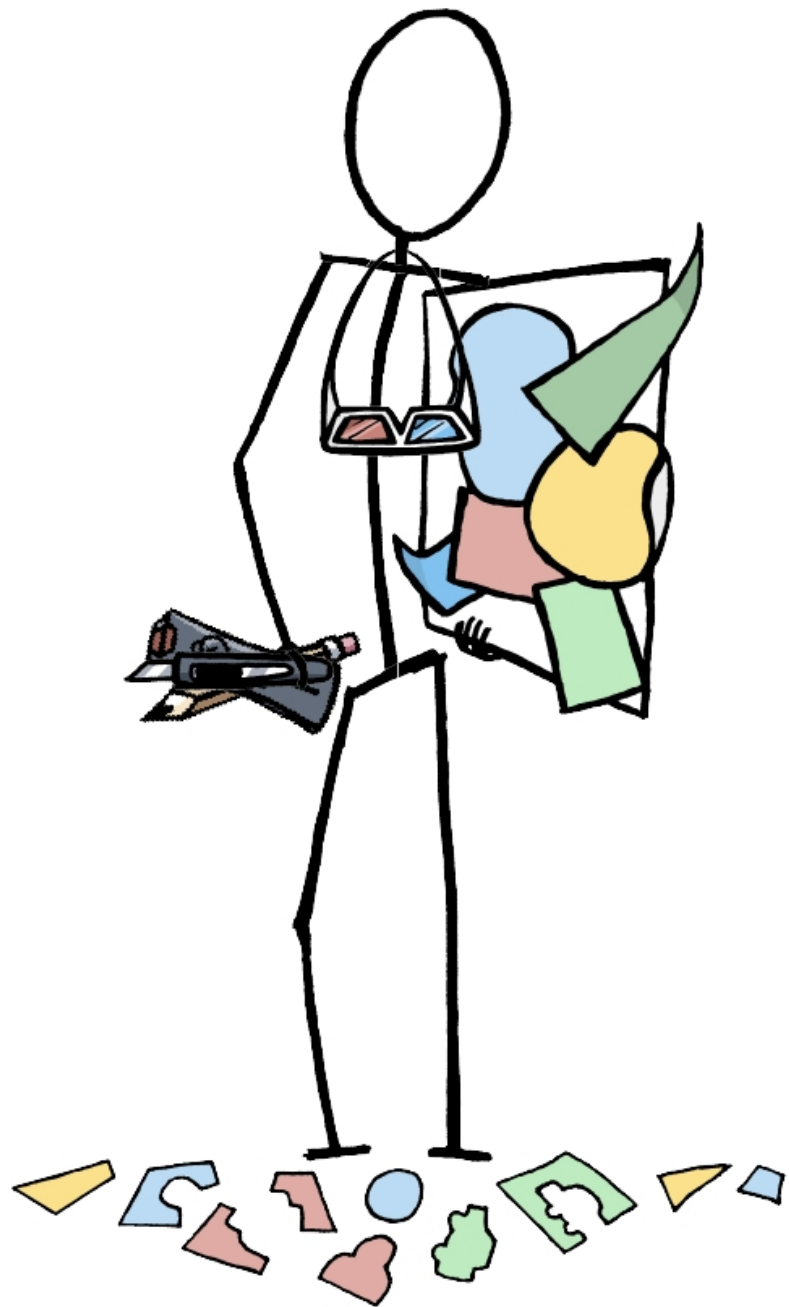
- Log data automatically collected, transmitted, processed
- But pretty boring and dense on their own...

# More Demo...

- (<http://www.ingimp.org/stats/avatar>)

# ingimp Personas...







# Talk Overview

- Demos
- Introducing ingimp
- Architecture
- Data collected
- Making sense of the data
- Privacy
- Compelling use
- Results
- 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
- ingimp server
  - All data publicly available

# 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

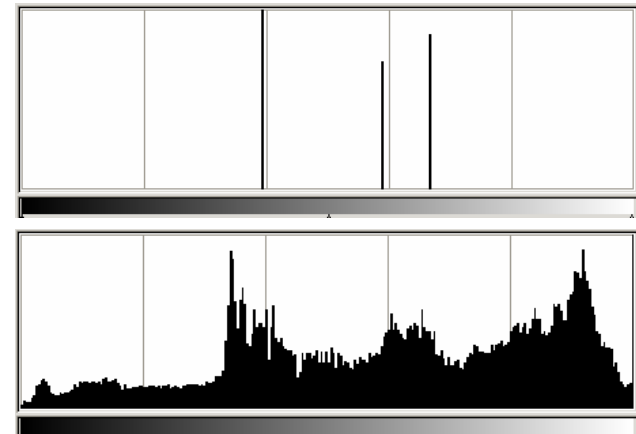
- Link log data to observational studies
- Tags
- Reality checks

# Observational Studies

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

# Examples

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



# Tags



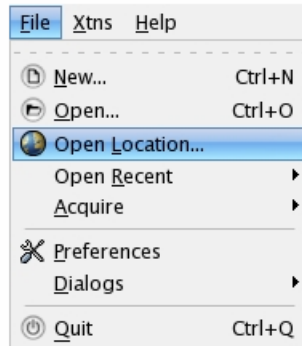
# Reality Checks

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

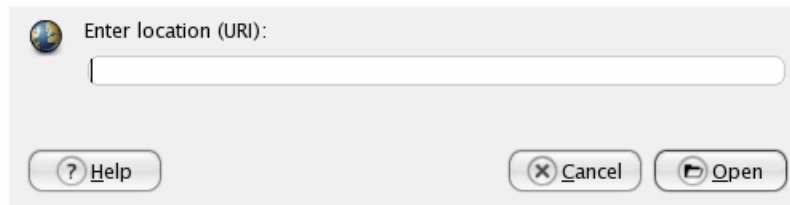
## Reality Check 1

It is important that you use the 'Open Location' dialog from ingimp so that the researchers can determine what image you have used for this reality check.

- From the File menu, select Open Location...:



- Enter the following url: <http://ingimp.org/~tayre/rc1.jpg>



This image was capture using a cell phone device and shows a significant lack of tonal range, incorrect white balance and exposure, and a noticeable amount of noise.

## Task

- Use ingimp to correct any problems that you can determine in this image.

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# Privacy

- All collected data made publicly available
- Not your usual usability lab setup...
- Must be sensitive to privacy issues

# Privacy

- Disable logging at start-up
- ingimp designed to collect only application *usage* information
  - Motto: *No parameters*
- Key/mouse activity, but *no details of what key or where mouse used*
- Transparent data collection via 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">
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    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!

# Known Privacy Issues

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

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- **Compelling use**
- **Results**
- **Conclusion**

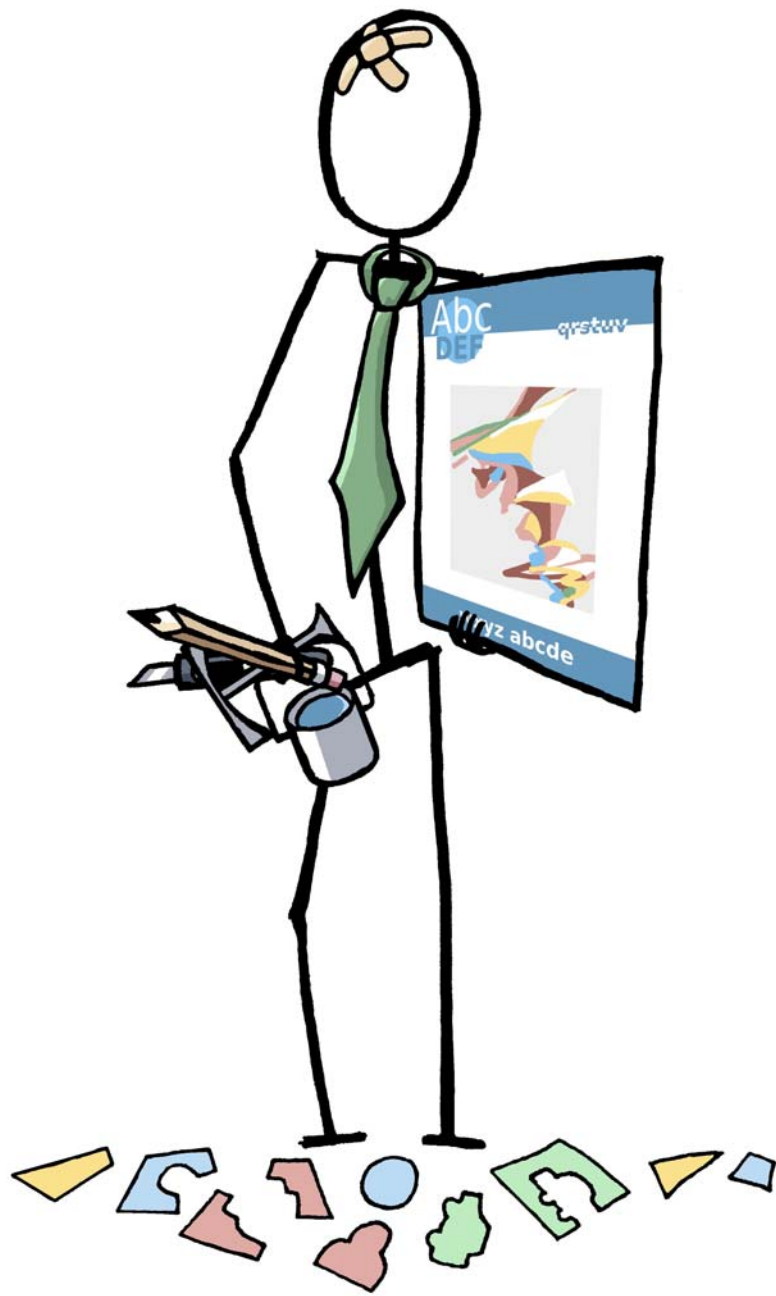
# Compelling Use

- One Windows installer, UNIX source, UNIX packages
  - Packages Debian, Ubuntu
  - We need someone to package into RPMs!
- 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...

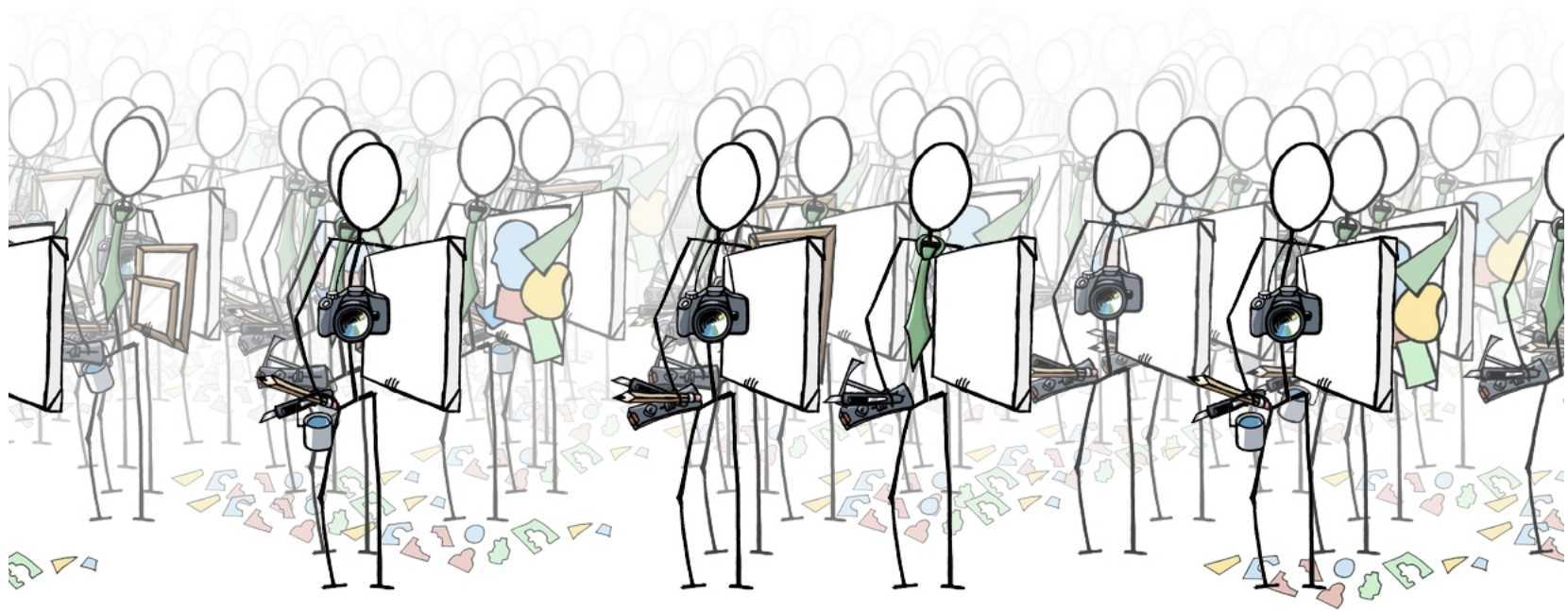
# Stick Figures

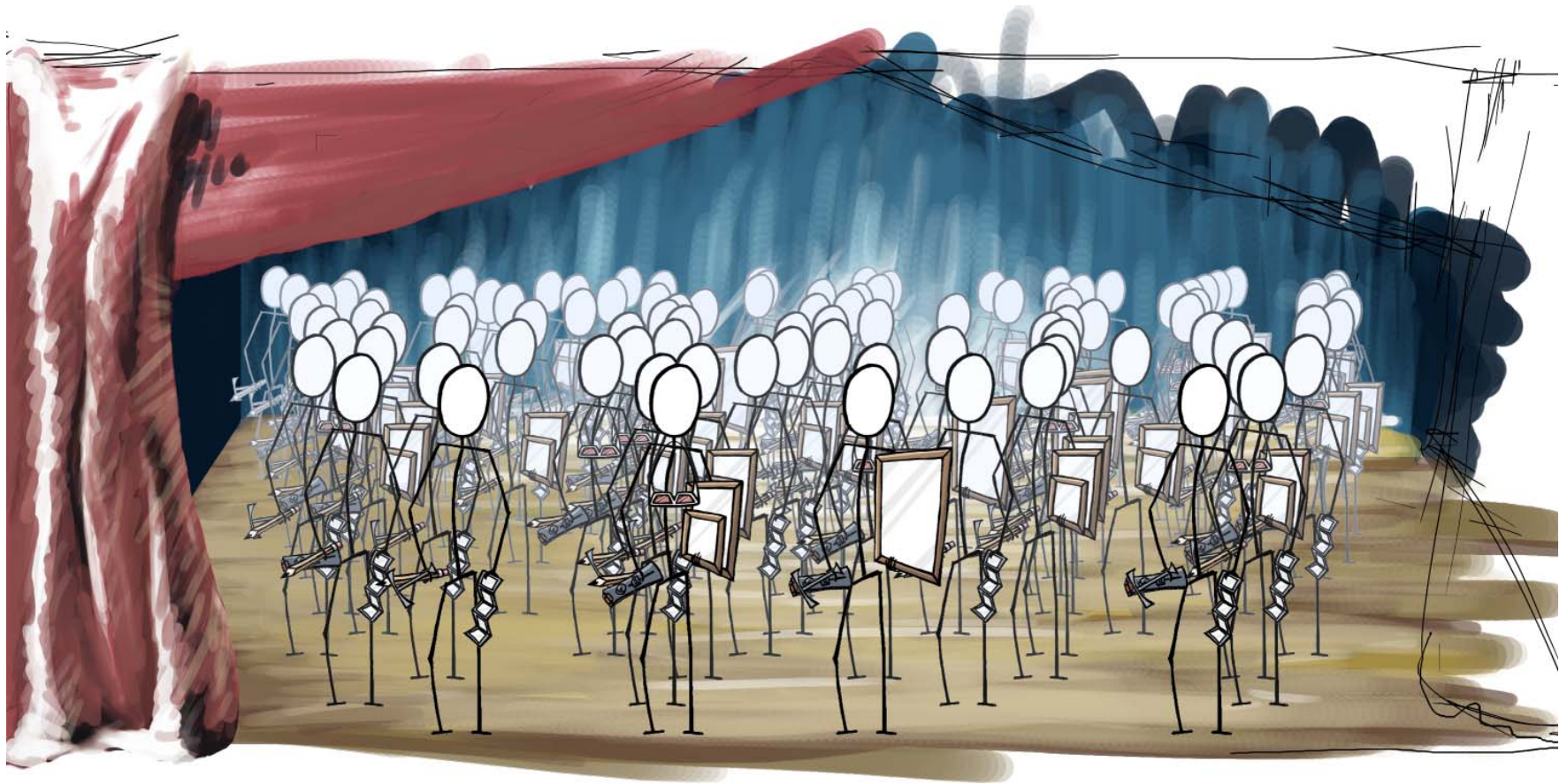
- An information visualization
- Defines staging areas to communicate use
- Simple design so other projects can create them
- Can take a community “snapshot”



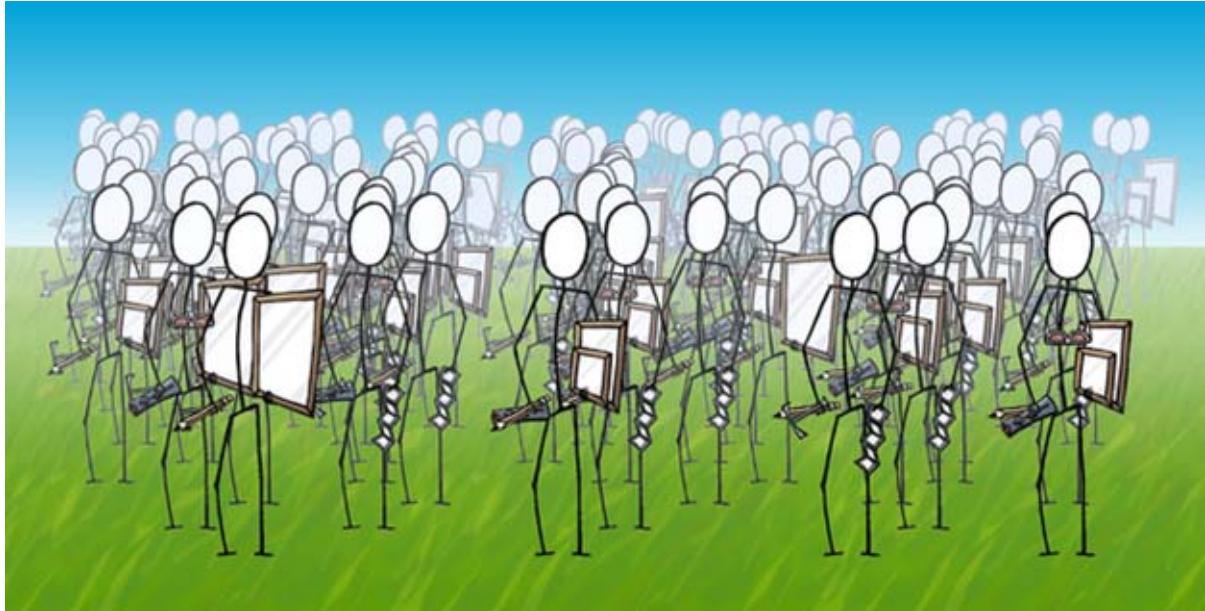












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- **Conclusion**

# Initial Results

- >200 installations
- Most are in Europe (to date)
- >100,000 commands invoked by ingimp users to date
- What can we say about our users?



# Questions We Can Answer

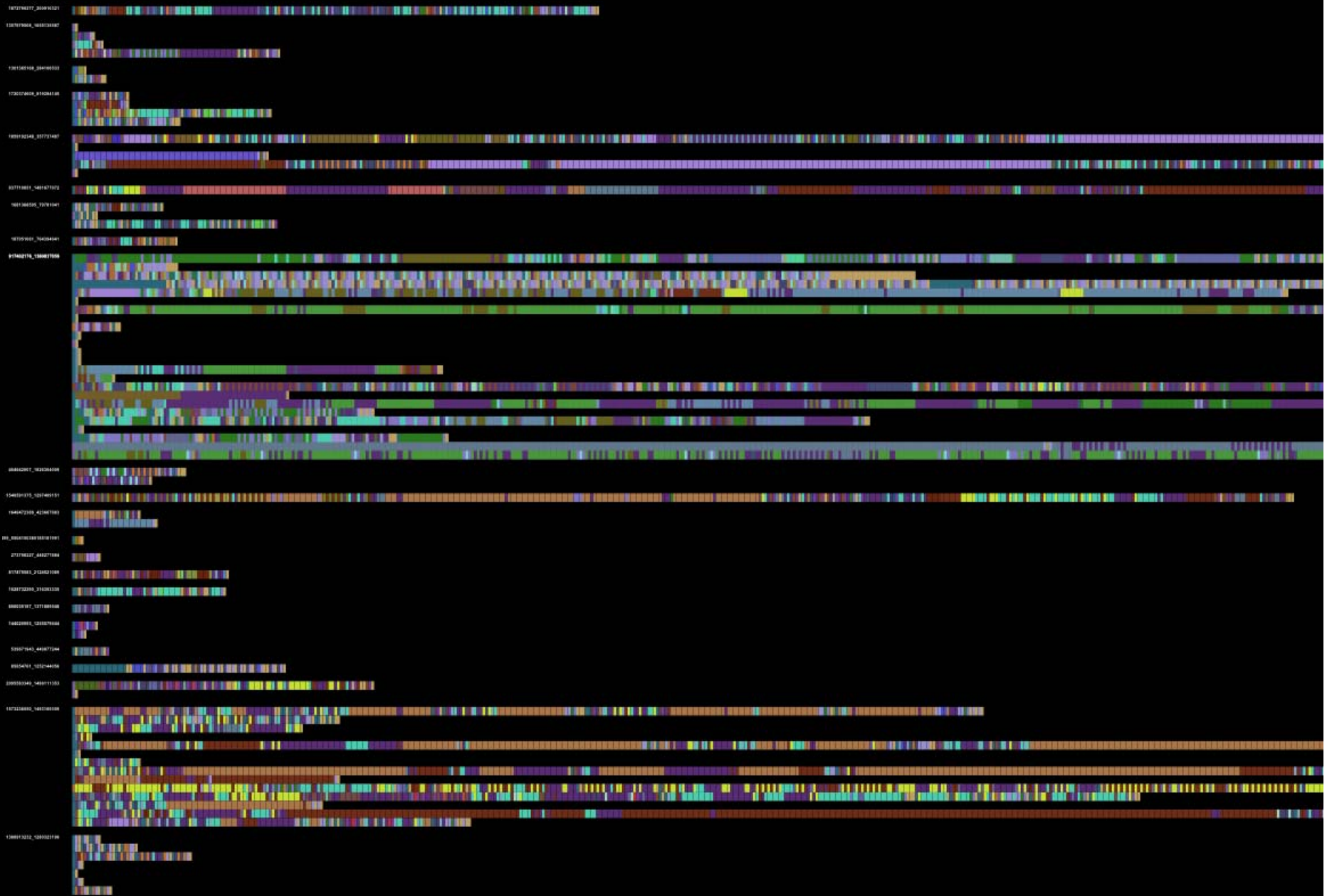
- What are typical screen resolutions?
- How do people use the monitor?
- Multi-monitor setups?
- Most frequently used commands?
- Wait... What does the last one mean?

# Nuances of Interpretation...

- Command usage can be broken down many ways...
- By number of sessions in which it is used
- By number of users who use it
- By number of times actually invoked
- Subtract out number of times undone?
- ...
- Take-home lesson: Summarizing use, even for “simple” metrics is not so simple
- Need a system for *interactive* exploration

# Initial Results: Demo

- What are typical screen resolutions
- How do people use the monitor
- Multi-monitor setups
- Most frequently used commands
- Session summaries...



Chromogram of sessions

# Summary

- ingimp is...
  - Brand new initiative in sustainable open source usability
  - Tool for quantitative analyses to complement other efforts
  - Drop-in replacement for GIMP
  - Creating a completely unique repository of *real-world, longitudinal usage data* useful for research and open source communities
- ingimp emphasizes...
  - Transparent data collection, analyses
  - Privacy
- New and noteworthy...
  - Tags to mark logs, filter results
  - Reality checks
  - Personal summarizations to compel use

# Downloads

- Windows, UNIX clients ready for download
  - Grab a copy!
  - We need more users!
- Mac version right around the corner

<http://www.ingimp.org/do/downloads>

# Looking for Expertise in...

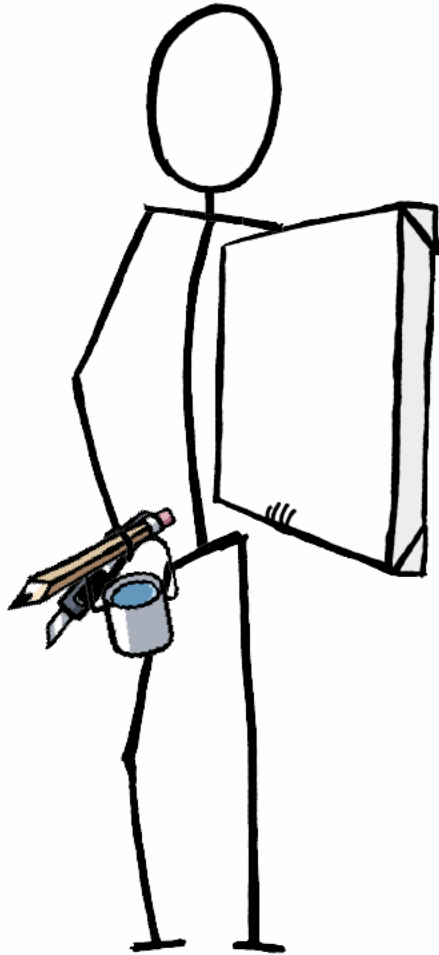
- Packaging for popular Linux distros
  - Need rpm's made
- Web development
  - Site, page design
- Statistical analyses
- Database tweaking
- Information visualization

# Looking for Subjects

- For interviews, observations
- Lasts 30-60 minutes
- In-person, via Skype...
- Don't need to be a GIMP (or ingimp) user
- **Don't need to be local!**
- Especially want to talk to people who would NEVER want to use ingimp, for whatever reason
- **Email [mterry@cs.uwaterloo.ca](mailto:mterry@cs.uwaterloo.ca) with subject: ingimp Study**



# Credits (Movie Style)



Matthew Kay

ingimp persona design  
packaging



Brad Van Vugt

ingimp persona programming  
(individuals and groups)



Jaime Ruiz

website design



Tom Ayre

forums, reality checks



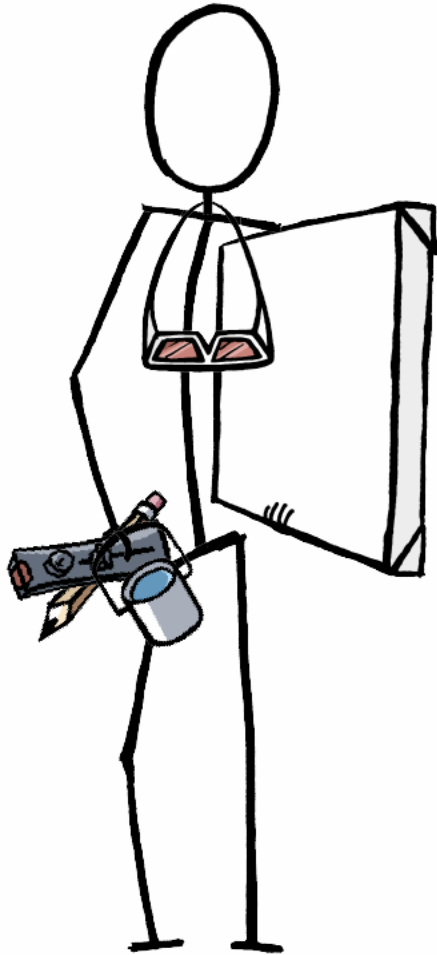
Brandon Slack

usability testing  
packaging



Francois Marier

packaging



Terry Park

original wrapper code





Tom Hazelton

documentation

# More Credits, Thanks, & Links

- CSC for talk invitation
- GIMP community for a fabulous piece of software
- Work partially supported by NSERC grant
- Sign up to participate in our study!!!

<http://www.ingimp.org>  
[mterry@cs.uwaterloo.ca](mailto:mterry@cs.uwaterloo.ca)