

Craig S Tashman

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Interests

Human Computer Interaction, pervasive computing, context-aware computing, novel user interfaces and form factors, task and activity management, usable security and related fields. Applications of touch, gesture, and gaze based input are of particular interest.

Education

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| 2005 - Present | Georgia Institute of Technology Ph.D., Computer Science with an HCI Focus |
| 2003 - 2005 | Rensselaer Polytechnic Institute, Troy, NY B.S., Computer Science, Summa Cum Laude, GPA 3.92 out of 4.00 |
| 2000 - 2003 | Pace University, Pleasantville, NY B.S., Physics, Summa Cum Laude, GPA 3.95 out of 4.00 |

Research Experience

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| Summer, 2008 | Summer Intern, Microsoft Research Cambridge. Worked in Integrated Systems research group. Mentor, Gabriella Kazaj; Manager, Natasa, Milic-Frayling <ul style="list-style-type: none">Led multi-phase, qualitative and quantitative evaluation of window/file tagging application.Organized pilot and full scale deployments; designed and conducted participant interviews.Designed and ran a participatory design workshop to create UI for application.Worked with and coordinated a team of several other researchers in this effort. |
| Summer, 2007 | Summer Intern, Microsoft Research. Worked in the VIBE research group. Mentor, Brian Meyers; Manager, Mary Czerwinski, Brian Meyers. <ul style="list-style-type: none">I designed and co-implemented an interactive visualization tool for browsing personal computer use history.System was designed as a follow-up to the earlier Status Writer software, and used the VibeLogger system for information capture.A paper is planned for submission to UIST 2008. |
| Summer, 2006 | Summer Student, IBM Research. Worked in the User Sciences and Experience Research (USER) group. Mentor/Manager, Steve Cousins. |

- **I designed and implemented a window manager extension** for Windows XP to support context preservation when transferring user tasks between computers with widely varying screen sizes.
 - The system also provides virtual desktop management tailored to multi-monitor environments.
 - The system was **shown in the demo and poster sessions at UIST '06**.
- Fall, 2005 - Present
- Research Assistant, GVI Center, Georgia Institute of Technology
Pixi Group
Advised by Keith Edwards
- An information security student and I **submitted a proposal** to a usable security competition within Georgia Tech. Our proposal was accepted and **we were granted funding to pursue the research for 2 semesters**. We designed a tool that presents non-expert home users with security-related features of their computer's system state through visual-spatial metaphors, and by putting unfamiliar abstractions in terms of familiar abstractions. We built multiple prototypes, culminating in a **functional version of our tool** which we used to perform a user study. The study results suggested our tool helped users make more informed security decisions. We submitted a paper on our tool, called Sesame, to the CHI conference.
- Fall, 2005
- Research Assistant, GVI Center, Georgia Institute of Technology
Pixi Group
Advised by Keith Edwards
- I am the **sole author of two visualization systems** under development; both are intended to help inform non-expert computer users about their security situations when browsing the web.
- Winter, 2004 - Present
- Independently developed WindowScape, a Zooming Task Oriented Window Manager
- **I independently conceived of and architected a zooming window manager** with the goal of simultaneously leveraging a user's spatial memory and abilities for rapid visual search. This is intended to be in conjunction with maintaining a high degree of overall screen-image stability.
 - The system provides implicit, post-hoc **task management** through the metaphor of photographic snapshots of a user's history. Snapshots are shown chronologically, and a stable favorite snapshots list is also provided.
 - The system was implemented in C++ and runs within Windows XP, allowing easier field studies.
 - A **Technote discussing the system was accepted to UIST '06** (see publications below), where the system was also shown in the demo session.
 - I performed a summative **evaluation by deploying the system** to several people to be used in their day-to-day work activities. Gathered qualitative and quantitative use data, and wrote up the results in a full paper submitted to the CHI conference.
- Summer,
- Summer Student, IBM Research. Worked in the E-Business Frameworks Department in the LiveBook project.

- 2005 Mentor, Robert Flavin; manager, Roger Pollak.
- **I was the architect and sole implementer** of an extension for the LiveBook project involving COM interfaces. However the details of the project have not been published so I can not disclose them publicly.
- Summers, 2000 – 2004 Summer Student, IBM Research. Worked in the Department of Mathematical Sciences in the Weather Project.
Mentor, Lloyd Treinish; manager, Andrew Conn.
- **I devised an image compression scheme** tailored to two dimensional projections of three dimensional numerical weather model visualizations. Working in C++ and Java, I was **also the sole implementer** of the scheme which yielded considerably better results than did the JPEG compression that was being used in my group at the time. On my management's suggestion, a **patent application was filed**, on which I was the sole inventor (now issued, patent number 7,263,230). At a Watson Multimedia Workshop held by IBM Research, I participated in a poster session where **I presented a poster** on this idea.
 - I was the architect **and sole implementer** of several tools related to the preprocessing of weather model boundary condition data. I authored applications for parsing and concatenating GRIB (an open format used in the meteorological community) meteorological data from the National Oceanic and Atmospheric Administration. These applications, which also involved error checking and correction, statistics generation, and conversion, were written in Java and **used in the day to day forecast generation performed by our group.**
 - **I devised and architected a novel scheme for the compression of certain types of 3D surface data** produced in weather model visualizations. Before leaving the Mathematical Sciences department, I built a preliminary prototype implementation of the scheme as well.
- 1999 - Present Independently developed and patented a technology for displaying true 3D volumetric images
- **I was the sole inventor of a system for displaying three dimensional volumetric images** based on the rapid motion of several one dimensional light arrays through a three dimensional volume. The idea was intended to provide low cost, relatively low fidelity, multi-viewer 3D visualization that would not require goggles, glasses, or anything else to be worn by the viewer.
 - The system provides a way to allow multiple viewers at different viewpoints to see only the voxels of the image that are not occluded by nearer voxels from their point of view. To the best of my knowledge, providing this ability is unprecedented.
 - **Patent issued** Feb., 2004. Pat. No. 6,697,034.

Summary of Research Outputs

Publications

Tashman, C. "WindowScape: A Task Oriented Window Manager", In *Proc. of ACM UIST '06*, pp. 77-80, 2006. ACM Press

Stoll, J., Tashman, C. Edwards, K. Spafford, K. "Sesame: Informing User Security Decisions with System Visualization", In *Proc. of CHI'08*, pp. 1045 – 1054, 2008. ACM Press.

Oleksik, G., Wilson, M., Tashman, C., Rodrigues, E., Kazai, G., Smyth, G., Milic-Frayling, N., Jones, R. "Lightweight Tagging Expands Information and Activity Management Practices" In Proc. of *CHI'09*. ACM Press.

Patents

- Filed, 8/17/2003
Granted, 8/28/2007
 - *Title:* Narrow Field Abstract Meta-Data Image Compression
 - *Inventors:* Craig S. Tashman
 - *Assignee:* IBM
 - *Patent No.* 7,263,230
- Filed, 1/2/2001
Granted, 2/24/2004
 - *Title:* Volumetric, Stage-type Three-dimensional Display, Capable of Producing Color Images and Performing Omni-viewpoint Simulated Hidden Line Removal
 - *Inventors:* Craig S. Tashman
 - *Assignee:* None
 - *Patent No.* 6,697,034

Public Presentations

- October, 2006
 - *Subject:* Poster presentation and demonstration of the Collaboration Annex.
 - *Event:* UIST '06
 - *Subject:* WindowScape presentation and demo.
 - *Event:* UIST '06
- December, 2005
 - *Subject:* Poster presentation and demo of WindowScape zooming, task oriented window manager.
 - *Event:* CHI Program Committee Demos.
 - *Location:* Georgia Tech.
- June, 2003
 - *Subject:* Poster presentation on my image compression system.
 - *Event:* Watson Multimedia Workshop.
 - *Location:* IBM T. J. Watson Research Center.

Pertinent Coursework

- 2006
 - *Information Visualization*
 - *User Interface Design and Evaluation* (a qualitative methods class)
 - *Principles of User Interface Software*
- 2005
 - *Human Computer Interaction*
 - *Math Models for Learning and Discovery*
 - Cognitive Psychology
- 2004
 - *Computational Vision*
 - *Introduction to Artificial Intelligence*
 - Probability Theory and Applications

Programming Experience/Skills

- Java and C++, including Borland and Microsoft IDE's; C#; Scheme; Object Pascal.
- Windows platform and API; .net 3.
- Familiar with COM, ML, Prolog and Assembly.

Service

For several years, I gave lectures at the Honors Math and Science program at IBM Research. This program provided selected high school students with a chance to visit the lab for several Saturdays to

hear lectures by IBM researchers and tour parts of the lab. I explained how data compression works in general, and discussed my own image compression work as well.

References

References are available upon request.