

## CHRISTOPHER E. WEAVER

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### EDUCATION

Doctor of Philosophy in Computer Science  
June 1997 – November 2005 (Expected)      University of Wisconsin—Madison  
Minor in Cognitive Psychology

Master of Science in Computer Science  
September 1995 – May 1997      University of Wisconsin—Madison

Bachelor of Science in Chemistry and Mathematics with Honors  
September 1987 – June 1991      Michigan State University  
Honors College

### DISSERTATION RESEARCH

Improvise: A User Interface for Interactive Construction of Highly-Coordinated Visualizations

Exploratory visualization research seeks to allow users to explore information by switching freely between building and browsing in a flexible, integrated, interactive graphical environment that requires minimal programming skill to use. Improvise (<http://www.personal.psu.edu/cew15/>) is a fully-implemented Java application in which users create and explore multi-view visualizations interactively. By coupling visual abstraction with coordination, users gain precise control over how navigation and selection in a visualization affects the appearance of data across multiple views. Users can alter visualizations quickly and incrementally during data exploration, optionally using metavisualization to explore interactive structure as it evolves.

### SELECTED RESEARCH AND PROFESSIONAL EXPERIENCE

- Post-Doctoral Researcher      The Pennsylvania State University  
August 2005 – Present      Department of Geography and the GeoVISTA Center  
Research in information visualization as applied to intelligence analysis and crisis management.
- Dissertator      University of Wisconsin—Madison  
June 2000 – November 2005      Computer Sciences Department  
Dissertation research on information visualization. Sole designer and developer of *Improvise*.
- Graduate Research Assistant      University of Wisconsin—Madison  
January 1997 – July 2001      Computer Sciences Department  
Research on database visualization. Member of the DEVise project.
- MIS-I, Intern/Consultant/Contractor      Lucent Technologies, Inc.  
May 1997 – September 1997, October 1997, December 1998      Bell Labs, Software Production Research  
Research on DBMS-oriented dataflow visualization. Sole designer and developer of *Grounds*.
- Graduate Research Assistant      University of Wisconsin—Madison  
May 1996 – August 1996      Computer Sciences Department  
Research on web site classification using large neural networks.
- Graduate Research Assistant      National High Magnetic Field Laboratory  
September 1993 – August 1994  
Research on real-time data acquisition and visual analysis for fourier transform ion cyclotron resonance mass spectrometry. Developed software for stereographic display of ion trajectories.
- Graduate Research Assistant      The Ohio State University

- September 1991 – September 1993 Department of Chemistry  
Research on signal enhancement in fourier transform ion cyclotron resonance mass spectrometry.
- Undergraduate Research Associate Michigan State University  
September 1987 – September 1991 Department of Chemistry  
Research on heuristic algorithms for pattern recognition in triple-quadrupole mass spectra.
- Walter E. Crummett, Jr. Memorial Internship Dow Chemical, Inc.  
June 1989 – September 1989  
Implemented a database of in situ gas/liquid chromatography (GC) systems in pilot plants.

## PUBLICATIONS/CONFERENCE PRESENTATIONS

- “Visualizing Coordination In Situ”, Chris Weaver, IEEE Symposium on Information Visualization 2005, Minneapolis, MN, October 23-25, 2005. [Paper+Talk]
- “Building Highly-Coordinated Visualizations In Improve”, Chris Weaver, IEEE Symposium on Information Visualization 2004, Austin, TX, October 10-12, 2004. [Paper+Talk]
- “Interactive Poster: Metavisualization of Dynamic Queries”, Christopher E. Weaver and Miron Livny, Infovis 2002, Boston, MA, October 28-29, 2002. [Poster+Interactive Demo]
- “Improving Visualization Interactivity in Java”, Christopher E. Weaver and Miron Livny, in Visual Data Exploration and Analysis VII, SPIE 15th Annual Symposium on Electronic Imaging: Science and Technology, San Jose, CA, January 23-28, 2000. [Paper+Talk]
- “Stereoscopic Projection and Display of Ion Three-Dimensional Trajectories in QIT and ICR Ion Traps”, Shenheng Guan, Christopher E. Weaver, and Alan G. Marshall, 41st Conference of the American Society of Mass Spectrometry, San Francisco, CA, June 1-7, 1994. [Poster]
- “A High Performance FT/ICR/MS Data System Based on VXIbus and Multimedia Personal Computer”, Shenheng Guan, Christopher E. Weaver, and Alan G. Marshall, 41st Conference of the American Society of Mass Spectrometry, San Francisco, CA, June 1-7, 1994. [Poster]

## RESEARCH INTERESTS

- Information visualization: end-user design tools, visual query languages, coordination architectures, software visualization (of user interface structure), interactivity and performance
- Human-computer interaction: augmented user interfaces, integrated teaching tools, in situ help
- Cognitive psychology: visual and auditory processing, associative/structural/textural memory, embodiment
- Non-linear mathematics: visualization of complex adaptive systems, modeling neural dynamics
- Mass spectrometry: time series prediction models, fourier transform ion cyclotron resonance

## SELECTED AWARDS

- University Fellow/National Need Fellow (The Ohio State University, Department of Chemistry, 9/91-8/94)
- Phi Beta Kappa (Michigan State University, Epsilon Chapter, 5/91)
- Distinguished Award in Chemistry (Michigan State University, Department of Chemistry, 5/91)
- National Science Foundation Fellowship Honorable Mention (5/91)
- National Merit Scholar (Michigan State University, 9/87-6/91)

## SERVICE/MEMBERSHIPS

- Program Committee Member (CMV 2005); Reviewer (InfoVis 2004-2005, Vis 2005)
- Association for Computing Machinery (ACM) [Current]
- Institute of Electrical and Electronics Engineers (IEEE) [Current]
- American Society of Mass Spectrometry (ASMS) [1993-1995]