Curriculum Vita

W. Keith Edwards

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Education

BS, Information and Computer Science, Georgia Tech, 1989
MS, Information and Computer Science, Georgia Tech, 1991
Ph.D. Computer Science, Georgia Tech, 1995
Dissertation: "Coordination Infrastructure in Collaborative Systems"
Ph.D. Minor: Psychology (emphasis on experimental and perceptional psychology)

Research Interests

My research interests lie in the areas of multimedia systems and computer-supported-cooperative work, specifically in system support, programming models, and toolkits for facilitating the development of multimedia and collaborative applications.

Employment

Postdoctoral Research Associate, Xerox PARC

February 1996—Present

Currently working with the Bayou Project in the PARC Computer Sciences Labrotory, where I am investigating weakly-consistent distributed data storage facilities as an infrastructure for mobile and collaborative computing. My research concerns building systems on top of the Bayou platform to support a range of collaborative situations, from fully synchronous to asynchronous to autonomous. I am currently focusing on collaborative tools that make the notion of time explicit in their interfaces, as a mechanism for transitioning between synchronous and asynchronous modes of operation.

Research Assistant, Multimedia Computing Group, Georgia Tech

June 1988—December 1995

Developed Intermezzo [1991-1995], a software infrastructure for supporting collaborative applications. The system supports coordination of applications and users and provides both a toolkit and runtime environment to aid developers. This project was the implementation portion of my Ph.D. research and was funded by Sun Microsystems.

Technical lead on the Mercator project [1990-1995], a system for providing nonvisual access to graphical applications for blind users. I designed and implemented large portions of the code in C++, worked closely with a number of other developers during the course of the project, and coauthored a number of proposals to sponsors (Sun Microsystems, NASA Marshall Space Flight Center, NSA, Georgia Tech) which were funded in excess of $300,000.

Designed and implemented Montage [1989-1990], an extensible multimedia electronic mail system. This system was later licensed to an external company for commercialization.

Involved with several other projects related to audio and video conferencing, computer-supported collaboration, workstation support for video, and digital sound manipulation.

Project Manager, Mercator Project, Georgia Tech

August 1995—December 1995

Managed and was the technical lead on the Mercator Project, a system which constructs non-visual auditory interfaces from unmodified graphical applications at run-time. During this phase of the project I managed two developers, led the software licensing process, and supervised deliverables to the project sponsors (NASA and the National Security Agency). I also led the specification of the Remote Access Protocol, a high-level inter-client communication mechanism for the X Window System, and submitted the protocol to the X Consortium for standardization.

Summer Research Intern, SunSoft, Mountain View, CA

June 1992—September 1992

Developed a distributed session management service for collaborative, multi-user applications. The session management service handled the conference creation, joining, and browsing aspects of multi-user software. I also developed an interpreted interface to a multimedia toolkit called MAK++.

Summer Research Intern, Sun Microsystems Laboratories, Inc., Mountain View, CA

June 1991—September 1991

Designed and implemented a C++ toolkit called MAK++ which supports the development of distributed multimedia applications. The toolkit provides network transparency and extensibility and supports audio, video, and simple signal processing applications. MAK++ was used internally by Sun Labs to produce several proof-of-concept applications such as workstation-based conferencing systems.

Instructor, Georgia Tech Educational Extension, Atlanta, GA

March 1991

Developed a three-day course on programming the X Window System in the Unix environment. Course dealt with all levels of X programming and covered fundamentals of the design and usage of the X Window System.

Reviewer, Unix World Magazine

September 1991—February 1993

Critiqued various commercial software tools in published articles.

Summer Research Intern, Olivetti Research Center, Menlo Park, CA

June 1989—September 1989

Worked on the development of the VOX audio server, a system for managing audio resources in a multimedia workstation environment based on the Mach operating system. Work involved extending the VOX server to add runtime configurability, support for generic audio classes, and enhancing the inter-server routing and communications mechanisms. I also developed a multi-way voice teleconferencing application based on VOX.

Teaching Assistant, School of Information and Computer Science, Georgia Tech

September 1987—December 1988

Taught assembly language programming for VAX architecture machines. Responsible for preparing and presenting lectures, and design and grading lab assignments and exams.

Consulting

Consultant, NeXT Computer, Inc., Atlanta, GA

February 1990—June 1991

Employed by NeXT as a consultant to provide development support to NeXT users on the Georgia Tech campus.

Consultant, Sales Technologies, Inc., Atlanta, GA

September 1990

Developed and presented a 24-hour course on programming in the X Window System. The course covered applications development at the levels of Xlib, the Xt Intrinsics, and Widget programming.

Consultant, BellSouth Information Systems, Atlanta, GA

September 1989—February 1990

Provided design and implementation assistance for a frontend to a distributed database application. The system was implemented on VAX workstations running X11 and acting as a frontend to a remote IBM database containing the Yellow Pages phonebook account information. The project involved significant specification, design, and implementation work.

Consultant, SecureWare, Atlanta, GA

April 1989—June 1989

Consulted on a project to develop a detailed design document for the X Window System as a part of SecureWare's proposal to the National Computer Security Council for a B1 secure version of Apple's version of Unix, A/UX. Work included producing technical documentation for the Xlib library interface and various X clients, especially window managers.

Consultant, Lockheed Aerospace Corporation, Atlanta, GA

June 1988—December 1989

Consulted on a project to develop an X Window-based automated battle-damage assessment and repair system for aircraft. This system would allow ground personnel to rapidly make damage assessments through the use of a graphical user interface. The system would then calculate subsurface damage and suggest appropriate repair actions.

Research and Creative Scholarship

Thesis

Dissertation Topic: "Coordination Infrastructure in Collaborative Systems."

Committee:

- Dr. John Stasko, College of Computing, Georgia Institute of Technology (advisor)
- Dr. Prasun Dewan, Department of Computer Science, University of North Carolina, Chapel Hill
- Dr. James D. Foley, College of Computing, Georgia Institute of Technology
- Dr. Scott Hudson, College of Computing, Georgia Institute of Technology
- Dr. Colin Potts, College of Computing, Georgia Institute of Technology

Published Books and Chapters

Elizabeth D. Mynatt and W. Keith Edwards (in press). Metaphors for Nonvisual Computing, in *Extraordinary Human-Computer Interaction*, edited by Alistair Edwards, University of York, Cambridge University Press.

Published Journal Papers (Invited)

W. Keith Edwards, Elizabeth D. Mynatt, and Kathryn Stockton (1995). Access to Graphical Interfaces for Blind Users, *Interactions*. Volume 11.1, pp. 54-67, January, 1995.

Published Journal Papers (Refereed)

W. Keith Edwards, Susan H. Liebeskind, Elizabeth D. Mynatt, and William D. Walker (1995). A Remote Access Protocol for the X Window System, *The X Resource*, Sebastopol CA. Issue #13, Winter, 1995.

W. Keith Edwards, Elizabeth D. Mynatt, and Tom Rodriguez (1993). The Mercator Project: A Nonvisual Interface to the X Window System, *The X Resource*, Sebastopol, CA. Issue #7, pp. 33-55, Summer, 1993.

Published Conference Papers (Refereed)

W. Keith Edwards, Elizabeth D. Mynatt, and Kathryn Stockton (1994). Providing Access to Graphical Interfaces - Not Graphical Screens, *Proceedings of ACM Conference on Assistive and Enabling Technologies (ASSETS'94)*, pp. 47 - 54. Marina Del Rey, CA, November, 1994.

W. Keith Edwards, Elizabeth D. Mynatt (1994). An Architecture for Transforming Graphical Interfaces, *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST'94)*, pp. 39-48, Marina Del Rey, CA, November, 1994.

W. Keith Edwards (1994). Session Management for Collaborative Applications, *Proceedings of the ACM Conference on Computer-Supported Cooperative Work (CSCW'94)*, pp. 323-330, Chapel Hill, NC, October 22-26, 1994.

Elizabeth D. Mynatt and W. Keith Edwards (1992). Mapping GUIs to Auditory Interfaces, *Proceedings of ACM Symposium on User Interface Software and Technology (UIST'92)*, pp. 61-70, Monterey, CA, 1992.

W. Keith Edwards (1991). The Design and Implementation of the Montage Multimedia Mail System, *Proceedings of IEEE Conference on Communications Software (TriComm'91)*, pp. 47-58, Chapel Hill, NC, April 17, 1991.

Workshops, Demonstrations, and Posters

Elizabeth D. Mynatt and W. Keith Edwards (1995). Audio GUIs: Interacting with Graphical Applications in an Auditory World, Interactive Experience, ACM Conference on Computer-Human Interaction (CHI'95), Denver, CO, May 7-11, 1995.

W. Keith Edwards (1994). Infrastructure for the Sharing of Coordination Information, position paper for Workshop on Distributed Systems, Multimedia, and Infrastructure, ACM Conference on Computer-Supported Cooperative Work (CSCW'94), Chapel Hill, NC, October 22, 1994.

W. Keith Edwards (1994) A Framework for Information Sharing in Collaborative Applications, Research Poster Presentation, ACM Conference on Computer-Human Interaction (CHI'94), Boston, MA, 1994.

Colloquia

W. Keith Edwards (1994). Information Sharing in Collaborative Applications, Doctoral Colloquium, ACM Conference on Computer-Supported Cooperative Work (CSCW'94), Chapel Hill, NC, October 23, 1994.

W. Keith Edwards (1994). A Framework for Information Sharing in Collaborative Applications, Doctoral Consortium, ACM Conference on Computer-Human Interaction (CHI'94), Boston, MA, 1994.

Conference Presentations Without Proceedings

PWDs: An Untapped Multimedia Resource. Invited panel presentation at Unix Expo'94. October 4-6, 1994, New York City, NY.

Mercator: A Nonvisual Interface for X Workstations. Invited presentation at Educom '91. October 18, 1991. San Diego, CA.

Technical Reports

W. Keith Edwards (1993). Intermezzo Implementation Notes, Graphics, Visualization, & Usability Center Technical Report GIT-GVU-93-42, Georgia Tech, October 1993.

Elizabeth D. Mynatt and W. Keith Edwards (1992). The Mercator Environment: A Nonvisual Interface to X Windows and Unix Workstations, Graphics, Visualization, & Usability Center Technical Report GIT-GVU-92-05, Georgia Tech, February, 1992.

Elizabeth D. Mynatt and W. Keith Edwards (1992). New Metaphors for Nonvisual Interfaces, Graphics, Visualization, & Usability Center Technical Report GIT-GVU-92-28, Georgia Tech, 1992.

W. Keith Edwards (1992). Montage: An X-Based Multimedia Mail System, Graphics, Visualization, & Usability Center Technical Report GIT-GVU-92-29, Georgia Tech, October 1992.

W. Keith Edwards (1992). A Session Management Service for Collaborative Applications, Sun Microsystems Laboratories unpublished internal technical report, August 1992.

W. Keith Edwards (1991). The Multimedia Applications Kit/C++, Sun Microsystems Laboratories unpublished internal technical report, August 1991.

W. Keith Edwards (1990). The Design and Implementation of the Montage Multimedia Mail System, Software Engineering Research Center Technical Report GIT-SERC-90-04, Georgia Tech, August 1990.

Other

Conference Paper Reviewer, ACM Symposium on User Interface Software and Technology (UIST '96), Seattle, WA, 1996,

Journal Reviewer, Transactions on Computer-Human Interaction (TOCHI), Association for Computing Machinery, 1996.

Conference Paper Reviewer, ACM Symposium on User Interface Software and Technology (UIST'95), Pittsburgh, PA, 1995.

Journal Reviewer, Computing Systems (The Journal of the USENIX Association), University of California Press, 1993.

Journal Reviewer, First Dagstuhl Workshop on Multimedia. Published as *Multimedia: System Architectures and Applications*, José L. Encarnação and James D. Foley, editors. Springer-Verlag, Berlin, Germany, 1994.

Student Volunteer Chair, ACM Symposium on User Interface Software and Technology (UIST'93), Atlanta, GA, 1993.

References

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