

Jeffrey D. Campbell, Ph.D.

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Computer and information systems research professional with exceptional consulting, research and academic experience. Approaches projects from a multidisciplinary perspective integrating science, business and information science degrees. In-depth expertise in database design and human-computer interface - designing and developing computer systems that ensure maximum ease of use and effectiveness in conveying information. Demonstrated ability to focus on real-world problems to develop practical, highly usable solutions. Created groupware, database/data warehousing, and acquisition and visualization of environmental geospatial data systems.

Professional Experience

Assistant Research Scientist, University of Maryland, Baltimore County (UMBC), Baltimore, MD 2007-
Center for Urban Environmental Research and Education

- Designed and procured equipment for information visualization lab for real-time geospatial display of hydrological data on eight large monitors. Developed proof of concept system to coordinate display of geographical information systems (GIS) data between monitors to support multiple users simultaneously collaborating with the display. Conducted initial usability evaluation.
- Investigated and created strategy for acquisition and evaluation of Internet meteorological data.
- Identified research potential for Internet-based community support for citizen scientists.
- Initiated and developed six research grant proposals in the role of principal investigator.
- *Panelist*, National Science Foundation, Computer and Information Science and Engineering Reviewed grant proposals, March 2006, October 2007, January 2008 and June 2009.

Assistant Professor, University of Maryland, Baltimore County, Baltimore, MD 2000 – 2007
Department of Information Systems

- Conducted computer supported cooperative work research, particularly innovative user interface features to improve usability of real-time collaborative editing and instant messaging.
- Proposed and directed a three-year, 30-participant, \$283,000 National Science Foundation summer Research Experiences for Undergraduates site in Human Computer Interaction. One of only 15% of proposals funded that year. Led team of 10 faculty mentors. Recruited, hired and supervised all participants. Directly mentored six students.
- Taught graduate and undergraduate courses in database, systems analysis and design, human-computer interaction, and created new computer-supported cooperative work course.
- *Student Volunteer Co-Chair*, ACM Conference on Human Factors in Computing Systems (CHI 2001) Recruited, scheduled and managed 130 students for five-day academic conference.

Graduate Researcher, Teaching Fellow, Instructor, University of Pittsburgh, Pittsburgh, PA 1994 – 2000

- Designed and taught new Visual Basic Database Programming continuing education course.
- Created a graphical editor for authors structuring educational materials for the web.

Principal Consultant, Campbell Systems Consulting, Pittsburgh, PA 1989 – 1994

- Provided management information systems consulting to help medium and small businesses get the information they need to effectively manage their business.
- Conducted needs analysis, hardware/software selection, systems integration, custom software and database development, training, support, and management consulting.

Adjunct Faculty, Carnegie Mellon University, Heinz School, Pittsburgh, PA 1990

- Taught graduate database management course.

Manager, Senior Consultant, Consultant, Accenture, Pittsburgh, PA 1982 – 1989
(Management Information Consulting Division, Arthur Andersen & Co. at that time)

- Directed projects including budgeting, hiring, client billing and status reporting to top management. Managed consultants during system design, prototyping and installation.
- Managed project and completed on-time and within budget as on-site lead consultant.
- Analyzed user needs and developed program specifications.
- Designed, developed, tested and documented programs. Trained users.

Education

University of Pittsburgh, Pittsburgh, PA - Ph.D. Information Science

Department of Information Science and Telecommunications

Dissertation: *Consistency Maintenance for Collaborative Diagramming* (2000)

Carnegie Mellon University, Pittsburgh, PA - M.S. Industrial Administration (MBA)

Tepper School of Business

University of Rochester, Rochester, NY - B.A., with honors, Geology, second major General Science

Selected System Prototypes and Research Tools Developed

Ecological Data Warehouse – Repository for meteorological, astronomical and hydrological data to support multiple research projects. Currently using data mining and information visualization techniques to investigate factors in salamander migration and turtle movement.

Internet Weather – Prototype automatically downloads personal weather station data from the Internet with the option to display current values using Geographic Information Systems (GIS) software.

Collaborative Systems

CoDiagram – Prototype enabling multiple people to work on the same Microsoft Visio diagram at the same time from different computers with each person immediately seeing all changes.

CoWrite – Shared real-time text editor that displays changes made by any participant to all.

Instant Messaging – Research system for usability testing of innovative user interface enhancements.

Usability Evaluation Suite for Real Time Collaborative Systems

Data logging component – Records keystrokes and mouse clicks during groupware usage.

Flexible log analyzer – Tool features multiple visualizations of data and customizable analysis.

Automatically identifies groups of log entries, performs calculations and supports manual classification. Demonstrated at ACM Computer Supported Cooperative Work conference.

Usability Test Support – Administrative functions for multi-person usability evaluation sessions with efficient entry of observer notes, synchronization, and windows monitoring.

Visio Data Logger – Component for Microsoft Visio that records each diagram change.

Scheduling System – Web-based auction system scheduled 130 volunteers for 900 person-task assignments for ACM CHI 2001 and 2002 conferences. Users expressed work preferences by bidding for available tasks. Volunteers strongly preferred this system to prior one.

CoMMIT Authoring System – Graphical editor to specify relationships between problem-based learning materials by drawing precedence graphs.

Text Markup System – Information retrieval similarity measures identified section headings in unformatted ASCII text and added appropriate HTML formatting code. Won *Information Engineering Award* from University of Pittsburgh School of Information Sciences.

Environmental Research and Field Experience

Scientific Advisory Board for Jug Bay Wetlands Sanctuary, Lothian, MD – Revised 18-page fish identification key. Designed research protocol for amphibian egg survey in a 1.5 ha vernal pool. Developed database to analyze fish population data. Assisted with field studies of stream macro-invertebrates, fish, amphibians, submerged aquatic vegetation and water chemistry. Developed and taught public programs on fish identification, invasive plants, and a series of introductory GIS seminars.

Southern California Earthquake Center, University of Southern California – Presented seminar on improving computer system usability. Evaluated user interface for fault modeling software.

Howard County Recreation and Parks and Stream Waders, Maryland Department of Natural Resources – Identified stream macro-invertebrates to assess water quality.

FrogWatch USA – Regularly collected data on anuran calling. Developed computer system to display spatial and temporal county-wide data. One of top 50 observers in the country.

National Aquarium in Baltimore – wetlands restoration as Aquarium Conservation Team volunteer.

Professional Affiliations and Service

Chair of Maryland Water Monitoring Council Information Management Committee
Member, Patapsco/Back Rivers Tributary Strategy Team
Selected for Columbia Association Watershed Advisory Committee
Member, American Geophysical Union
Member, Atlantic Estuarine Research Society

Selected Publications and Presentations

- Campbell, Jeffrey D.** and McGuire, Michael, "Evaluation of Collaborative GIS Usage" poster *American Geophysical Union Fall Meeting*, San Francisco, December 2008.
- Campbell, Jeffrey D.**, "Database Development: Best Practices Case Study," *Maryland Water Monitoring Council Annual Conference*, December 4, 2008.
- Campbell, Jeffrey D.**, Molines, Karyn and Swarth, Christopher, "Data Mining for Ecological Field Research: Lessons Learned from Amphibian and Reptile Activity Analysis," *NSF Symposium on Next Generation of Data Mining and Cyber-Enabled Discovery for Innovation*, Baltimore, October 2007.
- Campbell, Jeffrey D.**, "Coordination for Multi-User Visual Program Development," *Journal of Visual Languages and Computing*, 17(2006) pp 46 - 77.
- Campbell, Jeffrey D.**, "Does Spelling Matter in Instant Messaging? Answers from Measuring Error Correction Frequency," *ACM CHI 2005*, April 2005.
- Campbell, Jeffrey D.**, "Interaction in Collaborative Computer Supported Diagram Development," *Computers in Human Behavior*, 20(2), pp 289 – 310, 2004.
- Campbell, Jeffrey D.**, "Instant Messages: A Framework for Reading Between the Lines," *ACM Conference on Computer Supported Cooperative Work*, November 2004, pp 519 - 522.

Complete list of publications and presentations is available at:
<http://www.research.umbc.edu/~jcampbel/publications.html>