

Jeffrey D. Campbell, Ph.D.

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Summary:

Computer and information systems research professional with exceptional consulting, research and academic experience. Approaches projects from a multidisciplinary perspective integrating physical science, business and information science degrees. In-depth expertise in database design and human-computer interface - designing and developing computer systems that ensure maximum usability. Demonstrated ability to focus on real-world problems to develop practical, highly useable solutions.

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 display of hydrological data on multiple 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.
- Acquisition and evaluation of meteorological data from Internet sources.
- Internet-based community support for citizen scientists.

Assistant Professor, University of Maryland, Baltimore County (UMBC), Baltimore, MD 2000 - 2007

- Conducted computer supported cooperative work research, particularly 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. Mentored 6 students.
- Taught graduate and undergraduate courses in database, systems analysis and design, human-computer interaction and computer-supported cooperative work.
- *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.
- *Panelist*, National Science Foundation, Computer and Information Science and Engineering Reviewed grant proposals, March 2006, October 2007, January 2008.

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.

Faculty Member, Math and Computer Science, Carlow University, Pittsburgh, PA 1992 – 1994

- Taught full range of information management and computer science courses.
- Managed academic computer labs.

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.
- Scope included: 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.

Accenture, Pittsburgh, PA 1982 – 1989

(Management Information Consulting Division, Arthur Andersen & Co. at that time)

Manager

- Directed projects including budgeting, hiring, client billing and status reporting to top management. Managed consultants during system design and installation.

Senior Consultant

- Analyzed user needs and developed program specifications. Designed databases.

Staff Consultant

- Designed, developed, tested and documented programs.

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. cum laude, 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 web with the option to display current values using GIS software.

Groupware

Collaborative GIS – Developing system allowing multiple people to coordinate GIS work with multiple large displays covering 4 by 16 foot wall area.

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 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 *1996 Information Engineering Award* from University of Pittsburgh School of Information Sciences.

Selected Publications

Campbell, Jeffrey D. and McGuire, Michael, "Evaluation of Collaborative GIS Usage" poster accepted for *American Geophysical Union Fall Meeting*, 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," *Symposium on Next Generation of Data Mining and Cyber-Enabled Discovery for Innovation*, 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.

Scientific Research

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

Scientific Advisory Board for Jug Bay Wetlands Sanctuary, Lothian, MD

- Revised 18-page fish identification key adding annotated color illustrations and photos and field identification oriented text.
- Designed research protocol for 1.5 ha vernal pool survey.
- 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, purple loosestrife, and a series of introductory GIS seminars.

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

Member, Association for Computing Machinery (ACM), American Geophysical Union

Participant in Patapsco/Back River Tributary Strategy Team.

Maryland Water Monitoring Council, Data Management Committee