

Suresh K. Bhavnani

2915 Salem Drive, Ann Arbor, MI 48103
Phone: 734-769-7731; E-mail: bhavnani@umich.edu

Professional Goal

To improve the usability of computer applications through (1) the systematic use of techniques from Human-Computer Interaction, Cognitive Psychology, and Anthropology, and (2) the development of advanced systems and search interfaces.

Education

Carnegie Mellon University

Ph.D. in Computational Design and Human-Computer Interaction (HCI), 1998.

University of California at Los Angeles

Master of Architecture (Specialization in Computer-Aided Design).

University of Bombay

Bachelor of Architecture (Specialization in Design).

Professional Experience

Research Assistant Professor: Medical School, University of Michigan (2008-present).

Assistant Professor in HCI: School of Information, University of Michigan (2000-present).

Understanding Users

- **Ethnographic Study of Architectural CAD Users.** Analyzed how professional architects performed real-world tasks using a CAD system. The results led to an understanding of why CAD systems are often used ineffectively, and to a small set of general and effective strategies to address that problem.
- **Cognitive Analysis of Expert and Novice Search Strategies** (*in Collaboration with Healthcare Search Experts*). Analyzed the domain-specific search strategies used by experts and novices to find online healthcare information. The results led to strategies needed by novice searchers to find accurate healthcare information.
- **Ethnographic study of Patent Searchers** (*in Collaboration with IBM*). Analyzed the collaborative search and sensemaking activities between patent searchers (in a tech transfer office), and inventors. The results led to design requirements for a system to support collaborative search and sensemaking.

Understanding Information

- **Scatter of Healthcare Information on the Web.** Analyzed patterns in the scatter of healthcare information on the Web. The results led to search strategies for finding comprehensive healthcare information, and to a model to explain how information scatter occurs over time.
- **Network Visualization and Analysis of Public Health Databases** (*Provided by the National Library of Medicine*). Used networks to visualize and analyze toxic chemicals and acute symptoms. The results led to the design of algorithms and interfaces to help first-responders rapidly identify toxic chemicals in emergencies.

Building Search Systems

- **Design and Usability of StrategyHub for Cancer Patients** (*in Collaboration with Physicians at the University of Michigan*). Developed and evaluated the *StrategyHub* which provides expert search strategies to help novice searches find comprehensive healthcare information. The results led to design guidelines for providing online search procedures.
- **Development of a Social Computing System for Learning and Sharing Search Strategies** (**Winner of the GROCS design award**). Developed and evaluated GoogleBuddy to help users share and learn effective search strategies. The results led to insights for providing online search knowledge.

Product Manager and Developer of AI CAD Applications: Intergraph Corporation (1984-1991).

- **Design and Management of Knowledge-Based System for Engineering Design.** Managed the design,

development and marketing of *ExpertTutor*. The project involved interviewing finite-element modeling experts, formalizing their knowledge, and building the knowledge base and interface using object oriented programming.

- **Development of CAD Software.** Developed software for 2-D and 3-D features in MicroStation (a high-end CAD application). The features were developed, tested, and released in a production cycle.

Post-Doctoral Fellow: Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University (1998-2000).

- **Cognitive Modeling of Real-World Computer Interactions.** Used computational GOMS models to identify the knowledge required to use complex CAD systems. The results led to the design of *Strategy-Based Instruction*, which has been used to teach effective and efficient strategies in 3 universities to almost 400 students.

Technical Skills

Understanding Users and Evaluating Systems. Over 10 years experience in identifying user needs and evaluating system interactions through the use of techniques from HCI, Anthropology, Educational Psychology, and Information Science.

Management and Development of Systems. Experience in managing and developing commercial and prototypical computer applications.

Interdisciplinary Collaboration. Initiated and led research collaborations and publications with anthropologists, cognitive psychologists, computer scientists, physicians, and engineers.

Written and Spoken Communication. Over 40 journal and conference publications including 6 long paper publications and presentations at the ACM SIGCHI conference. Research funded by NSF, Microsoft, and the University of Michigan.

Teaching HCI and Search. High teaching scores in courses including *HCI Evaluation Methods*, and *Search and Retrieval* at the University of Michigan.

Select Publications

 (40 publications with pdfs available at <http://www-personal.si.umich.edu/~bhavnani/publications.html>)

Bhavnani, S.K., Flemming, U., Forsythe, D.E., Garrett, J.H., Shaw, D.S., and Tsai, A. CAD Usage in an Architectural Office: From Observations to Active Assistance. *Automation in Construction* 5 (1996), 243-255.

Bhavnani, S.K., and John, B.E. The Strategic Use of Complex Computer Systems. *Human-Computer Interaction* 15 (2000), 107-137.

Bhavnani, S.K., Bichakjian, C.K., Johnson, T.M., Little, R.J., Peck, F.A., Schwartz, J.L., and Strecher, V.J. Strategy Hubs: Next-Generation Domain Portals with Search Procedures. *Proceedings of CHI'03* (2003), 393-400. New York: ACM.

Bhavnani, S.K. Why is it Difficult to Find Comprehensive Information? Implications of Information Scatter for Search and Design. *Journal of the American Society for Information Science and Technology* 56, 9 (2005), 989-1003.

Adamic, L.A., Bhavnani, S.K., and Xiaolin, S. Scatter Networks: A New Approach for Analyzing Information Scatter on the Web. *New Journal of Physics (Special Issue on Complex Systems)* 9 (2007) 231.

Invited Positions and Roles

Co-chair with Ed Chi (PARC) and Wendy Kellog (IBM), Human-Computer Interaction Consortium (HCIC) Workshop (2007).

Editorial Advisory Board. Encyclopedia of Library and Information Sciences (2007).

Journal and Conference Reviewing. Cognitive Science (2007), SIGCHI (2001-2007), TOCHI (1999, 2007), HCI (2003, 2006), JASIST (2003, 2006), IP&M (2005), JMIR (2003), AMIA (2003).

Grant Reviewing. NSF (2002, 2006).

Invited Member. Comprehensive Cancer Center, University of Michigan (2002-present).