

**Curriculum Vita**  
**BONNIE ELIZABETH JOHN**

14 February 2009

**PERSONAL INFORMATION**

Home Address:

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Work Address:

School of Computer Science  
Carnegie Mellon University  
Pittsburgh, Pennsylvania 15213

Date of Birth: 10 September 1955

Citizenship: USA

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**EDUCATION AND ACADEMIC HONORS**

The Cooper Union

B. E., Mechanical Engineering, 1977

Full Tuition Scholarship for four years.

Tau Beta Pi, Engineering Honor Society.

Pi Tau Sigma, Mechanical Engineering Honor Society.

Wilson G. Hunt Mechanical Engineering Prize

Graduated Summa Cum Laude

Stanford University

M.S., Mechanical Engineering, 1978.

Carnegie Mellon University

M.S., Cognitive Psychology, 1984

Ph.D., Cognitive Psychology, May, 1988

R. K. Mellon Fellowship for 1983-1984.

**RESEARCH INTERESTS**

I research techniques to improve the design of computer systems with respect to their usefulness and usability. To that end, I have investigated the effectiveness and usability of several HCI techniques (e.g., think-aloud usability studies, Cognitive Walkthrough, GOMS) and produced new techniques and tools for bringing usability concerns to the design process (e.g., CPM-GOMS, CogTool, and software architecture evaluation for usability). Much of my work focuses on cognitive modeling, where I work within a unified theory of cognition to develop models of human performance that assist the design of computer systems. These models produce *a priori*, quantitative predictions of performance with less effort than prototyping and user testing. They allow analysis at different levels of approximation so predictions appropriate to the design situation can be obtained with minimum effort. They are straightforward enough for computer designers to use without extensive training in psychology, and, because they are within a single theory of cognition, these models are integrated enough to cover total tasks. I also bring the psychology of human-computer interaction into software engineering techniques, e.g., including usability concerns in software architecture design.

## PROFESSIONAL HONORS

Thomas A. Wasow Visiting Scholar in Symbolic Systems, Stanford University, Jan 2007  
ACM SIGCHI CHI Academy, 2005  
NASA 2004 Turning Goals into Reality Administrator's Award  
NASA 2004 Group Achievement Award for infusion of information technology into the  
2003 Mars Exploration Rover (MER) Mission  
National Science Foundation Young Investigator Award, 1994.  
Professional Engineer's License in the State of New York, 1981.

## PUBLICATIONS

### Journals Articles

- John, B. E. & Salvucci, D. D. (2005) Multi-Purpose Prototypes for Assessing User Interfaces in Pervasive Computing Systems. *IEEE Pervasive Computing* 4(4), 27-34.
- Vera, A. H., John, B. E., Remington, R., Matessa, M., & Freed, M. A. (2005) Automating human performance modeling at the millisecond level. *Human-Computer Interaction* 20(3), 225-265.
- Bass, L. J. & John, B. E. (2003) Linking usability to software architecture patterns through general scenarios. *Journal of Systems and Software*, 66(3), 187-197.
- Ebling, M. R., John, B. E., & Satyanarayanan, M. (2002) The importance of translucence in mobile computing systems. *ACM Transactions on Computer-Human Interaction*, 9 (1), 42-67.
- John, B. E. & Bass, L. J. (2001) Usability and software architecture. *Behaviour and Information Technology*, 20(5), 329-338.
- Bass, L. J. & John, B. E. (2001) Supporting usability through software architecture. *IEEE Computer*, October 2001, 113-115.
- Bhavnani, S. K., & John, B. E. (2000) The efficient use of complex computer systems. *Human-Computer Interaction*, 15(2), 107-137.
- Altmann, E. M. & John, B. E. (1999) Modeling episodic indexing of external information. *Cognitive Science*, 23(2), 117-156.
- John, B. E., (1998) On our case study of claims analysis and other usability evaluation methods. *Behaviour and Information Technology*, 17(4) pp. 244-246.
- John, B. E. (1998) A case for cases. In Commentary on "Damaged Merchandize?" *Human-Computer Interaction*, 13(3) pp. 289-296.
- Flemming, U., Bhavnani, S. K., & John, B. E. (1997) Mismatched metaphor: User vs. System Model in Computer Aided Drafting. *Design Studies*, 18, pp.349-368.

- John, B. E., & Marks, S. J. (1997). Tracking the effectiveness of usability evaluation methods. *Behaviour and Information Technology*, 16(4/5), pp. 188-202.
- John, B. E., & Mashyna, M. M. (1997) Evaluating a Multimedia Authoring Tool with Cognitive Walkthrough and Think-Aloud User Studies. *Journal of the American Society of Information Science*, 48 (9) pp. 1004-1022.
- John, B. E. (1996) TYPIST: A Theory of Performance In Skilled Typing. *Human-Computer Interaction* , 11 (4), pp.321-355.
- John, B. E. & Kieras, D. E. (1996) The GOMS family of user interface analysis techniques: Comparison and Contrast. *ACM Transactions on Computer-Human Interaction.*, 3 (4), pp. 320-351.
- John, B. E. & Kieras, D. E. (1996) Using GOMS for user interface design and evaluation: Which technique? *ACM Transactions on Computer-Human Interaction*, 3 (4), pp. 287-319.
- John, B. E., Vera, A. H., & Newell, A. (1994) Toward real-time GOMS: A model of expert behavior in a highly interactive task *Behavior and Information Technology*, 13(4).
- Gray, W. D., John, B. E., & Atwood, M. E. (1993) Project Ernestine: Validating a GOMS analysis for predicting and explaining real-world task performance. *Human-Computer Interaction*, 8, pp. 237-309.

### **Refereed Conferences with Less than 20% Acceptance Rate**

- Golden, E, John, B. E., & Bass, L. (2005) The value of a usability-supporting architectural pattern in software architecture design: A controlled experiment. To appear in *Proceedings of the 27<sup>th</sup> International Conference on Software Engineering, ICSE 2005* (St. Louis, Missouri, May, 2005).
- John, B. E., Prevas, K., Salvucci, D. D., Koedinger, K. (2004) Predictive human performance modeling made easy. *Proceedings of CHI 2004* (Vienna, Austria, April 2004) ACM New York. 455-462.
- John, B., Vera, A., Matessa, M., Freed, M., & Remington, R. (2002) Automating CPM-GOMS. *Proceedings of CHI, 2002* (Minneapolis, April 20-25, 2002) ACM, New York. 147-154.
- Bhavnani, S. K, Reif, F. & John, B. E. (2001) Beyond Command Knowledge: Identifying and Teaching Strategic Knowledge for Using Complex Computer Applications. *Proceedings of CHI, 2001* (Seattle, March 31 - April 5, 2001) ACM, New York.

- Baumeister, L., John, B. E. & Byrne, M. (2000) A Comparison of Tools for Building GOMS Models. *Proceedings of CHI, 2000* (The Hague, The Netherlands, April 1-6, 2000) ACM, New York. pp. 502-509.
- Bhavnani, S. K., & John, B. E. (1999). The Strategic Use of CAD: An Empirically Inspired, Theory-Based Course. *Proceedings of CHI, 1999* (Pittsburgh, PA, May 15-20, 1999) ACM, New York. pp. 183-190.
- Byrne, M. D., John, B. E., Wehrle, N. S., & Crow, D. C. (1999) The tangled web we wove: A taskonomy of WWW use. *Proceedings of CHI, 1999* (Pittsburgh, PA, May 15-20, 1999) ACM, New York. pp. 544-551.
- Bhavnani, S. K., & John, B. E. (1998) Delegation and circumvention: Two faces of efficiency. *Proceedings of CHI, 1998* (Los Angeles CA, April 18-23, 1998) ACM, New York. pp. 273-280.
- Bhavnani, S. K., & John, B. E. (1997) From sufficient to efficient usage: An analysis of strategic knowledge. *Proceedings of CHI, 1997*(Atlanta Georgia, March 22-27, 1997) ACM, New York. pp. 91-98.
- Pane, J. F., Corbett, A. T., & John, B. E. (1996) Assessing dynamics in computer-based instruction. *Proceedings of CHI, 1996* (Vancouver, BC, April 14-18, 1996) ACM, New York.
- Bhavnani, S. K., & John, B. E. (1996) Exploring the unrealized potential of computer-aided drafting. *Proceedings of CHI, 1996* (Vancouver, BC, April 14-18, 1996) ACM, New York.
- Altmann, E. M., Larkin, J. H., & John, B. E. (1995) Display navigation by an expert programmer: A preliminary model of memory. *Proceedings of CHI, 1995* (Denver, Colorado, May 7-11, 1995) ACM, New York. pp. 3-10.
- Bauer, M. I. & John, B. E. (1995) Modeling time-constrained learning in a highly-interactive task. *Proceedings of CHI, 1995* (Denver, Colorado, May 7-11, 1995) ACM, New York. pp. 19-26.
- John, B. E. & Packer, H. (1995) Learning and using the Cognitive Walkthrough Method: A case study approach. *Proceedings of CHI, 1995* (Denver, Colorado, May 7-11, 1995) ACM, New York. pp. 429-436.
- Gray, W. D., John, B. E., & Atwood, M. E. (1992) The precis of Project Ernestine or an overview of a validation of GOMS. In *proceedings of CHI, 1992* (Monterey, California, May 3- May 7, 1992) ACM, New York, 1992. pp. 307-312.
- John, B. E. & Vera, A. H. (1992) A GOMS analysis for a graphic, machine-paced, highly interactive task. In *proceedings of CHI, 1992* (Monterey, California, May 3- May 7, 1992) ACM, New York, 1992. pp. 251-258.

Peck, V. A. & John, B. E. (1992) Browser-Soar: A cognitive model of a highly interactive task. In proceedings of CHI, 1992 (Monterey, California, May 3- May 7, 1992) ACM, New York, 1992. pp. 165-172.

John, B. E. (1990) Extensions of GOMS analyses to expert performance requiring perception of dynamic visual and auditory information. In proceedings of *CHI, 1990* (Seattle, Washington, April 30-May 4, 1990) ACM, New York, 107-115.

John, B. E. & Newell, A. (1989) Cumulating the science of HCI: From S-R compatibility to transcription typing. In proceedings of *CHI, 1989* (Austin, Texas, April 30-May 4, 1989) ACM, New York, 109-114.

John, B. E. & Newell, A. (1987) Predicting the time to recall computer command abbreviations. In proceedings of *CHI+GI, 1987* (Toronto, April 5-9, 1987) ACM, New York, 33-40.

John, B. E., Rosenbloom, P. S., & Newell, A. (1985). A theory of stimulus-response compatibility applied to human-computer interaction. In proceedings of *CHI, 1985* (San Francisco, California, April 14-18, 1985) ACM, New York, 212-219.

#### **Papers at Other Refereed Conferences**

Stoll, P., John, B., Bass, L., & Golden, E. (2008) Preparing Usability Supporting Architectural Patterns for Industrial Use. In *Proceedings of the International Workshop on the Interplay between Usability Evaluation and Software Development, I-USED 2008* (Pisa, Italy, September 24th, 2008)

John, B. E. (2008) How Simple Can Motor Modeling Be And Still Be Useful? In Wayne D. Gray (organizer) Models of Motor Control and Performance, a Symposium to be appear in the *Proceedings of the Human Factors and Ergonomics Society 52<sup>nd</sup> Annual Meeting* (New York City, New York, Sept 22-26, 2008).

Teo, L. & John, B. E. (2008) Towards Predicting User Interaction with CogTool-Explorer. *Proceedings of the Human Factors and Ergonomics Society 52<sup>nd</sup> Annual Meeting* (New York City, New York, Sept 22-26, 2008).

Teo, L. & John, B. E. (2008) CogTool-Explorer: Towards a Tool for Predicting User Interaction. *Extended Abstracts of CHI 2008* (Florence, Italy, April 5 – 10, 2008) ACM, New York.

Chaudhri, V., John, B., Mishra, S., Pacheco, J., Porter, B., Spaulding, A. (2007) Enabling experts to build knowledge bases from science textbooks. *Proceedings of the Fourth International Conference on Knowledge Capture (K-CAP 2007)*, (Whistler, BC, 28-31 October 2007) ACM, New York.

Clark, P., Chaw, S-Y., Barker, K., Chaudhri, V., Thompson, J., Harrison, P., John, B., Porter, B., Spaulding, A., Yeh, P. (2007) Capturing and answering questions posed to

a knowledge-based system. *Proceedings of the Fourth International Conference on Knowledge Capture (K-CAP 2007)*, (Whistler, BC, 28-31 October 2007) ACM, New York.

Spaulding, A., Chaudhri, V. K., John, B. E., Prevas, G., Mishra, S., Pacheco, J. (2007) Using equations in concept maps to graphically build knowledge bases. *Alt. CHI 2007* (San Jose, USA, April 28 – May 3, 2007) ACM, New York.

Teo, L., John, B. E., & Pirolli, P. (2007) Towards a tool for predicting user exploration. *Extended Abstracts of CHI 2007* (San Jose, USA, April 28 – May 3, 2007) ACM, New York.

Teo, L., & John, B. E. (2006) Comparisons of Keystroke-Level Model predictions to observed data. *Extended Abstracts of CHI 2006* (Montreal, Quebec, Canada, April 22-27, 2006) ACM, New York.

Golden, E., John, B. E., Bass, L. (2005) Quality vs. quantity: Comparing evaluation methods in a usability-focused software architecture modification task. *Proceedings of the 4<sup>th</sup> International Symposium on Empirical Software Engineering* (Noosa Heads, Australia, November 17-18 2005).

Luo, L. & John, B. E. (2005) Predicting task execution time on handheld devices using the Keystroke-Level Model. *Extended Abstracts of CHI 2005* (Portland, Oregon, April 2-7, 2005) ACM, New York.

John, B. E., Salvucci, D. D., Centgraf, P., Prevas, K., (2004) Integrating models and tools in the context of driving and in-vehicle devices. *Proceedings of International Conference on Cognitive Modeling 2004* (Pittsburgh, PA, July 30 – August 1, 2004).

John, B. E., Bass, L. J., Sanchez-Segura, M-I. & Adams, R. J. (2004) Bringing usability concerns to the design of software architecture. *Proceedings of The 9<sup>th</sup> IFIP Working Conference on Engineering for Human-Computer Interaction and the 11th International Workshop on Design, Specification and Verification of Interactive Systems*, (Hamburg, Germany, July 11-13, 2004).

John, B. E., Bass, L. J., & Adams, R. J. (2003) Communication across the HCI/SE divide: ISO 13407 and the Rational Unified Process®. In proceedings of *HCI International*, (Crete, June, 2003).

Matessa, M. Vera, A., John, B. E., Remington, R., & Freed, M. (2002) Reusable templates in human performance modeling. *Proceedings of the Twenty-Fourth Annual Conference of the Cognitive Science Society*, August 2002.

Bass, L. J. & John, B. E. (2001) Architectural Patterns for Usability, *Proceedings of OOPSLA 2001*. October 2001, Tampa Florida.

- Bass, L. J. & John, B. E. (2001) Evaluating software architectures for usability. *Proceedings of Engineering for Human-Computer Interaction*, May 2001, Springer.
- Bass, L. J. & John, B. E. (2000) Achieving Usability Through Software Architectural Styles. *Extended Abstracts of CHI, 2000* (The Hague, The Netherlands, April 1-6, 2000) ACM, New York. pp. 502-509.
- John, B. E. & Lallement, Y. (2000) A Demonstration of Integrative Modeling of a Complex Dynamic Computer-based Task. In *Proceedings of the 2000 AAAI Fall Symposium on Simulating Human Agents*, November 3-5, 2000.
- Ebling, M. R. & John, B. E. (2000) On the contributions of different empirical data in usability testing. *DIS 2000: Design of Interactive Systems*, (New York City, 17-19 August 2000).
- Hudson, S. E., John, B. E., Knudsen, K., & Byrne, M. D. (1999). A tool for creating predictive performance models from user interface demonstrations. *UIST'99: Proceedings of the ACM Symposium on User Interface Software and Technology*.
- John, B. E. & Altmann, E. M. (1999). The power and constraint provided by an integrative cognitive architecture. Invited paper in the *Proceedings of the Second International Conference on Cognitive Science and the 16th Annual Meeting of the Japanese Cognitive Science Society Joint Conference* (July 27-30, 1999. Tokyo, Japan).
- Jacobsen, N.E., Hertzum, M., & John, B.E. (1998). The evaluator effect in usability studies: problem detection and severity judgments. *Proceedings of the Human Factors and Ergonomics Society 42nd Annual Meeting*: Santa Monica, CA: Human Factors and Ergonomics Society.
- John, B. E. Cognitive Modeling for Human-Computer Interaction. (1998) Invited paper in the *Proceedings of Graphics Interface '98* (Vancouver, British Columbia, Canada, June 18-20, 1998) Canadian Human-Computer Communications Society.
- Lallement, Y., & John, B. E. (1998) Cognitive architecture and modeling idiom: An examination of three models of the Wicken's task. In M. A. Gernsbacher & S. J. Derry (Eds.), *Proceedings of the Twentieth Annual Conference of the Cognitive Science Society* (pp. 597-602). Hillsdale, NJ: Erlbaum.
- Baskin, J. D. & John, B. E. (1998) Comparison of GOMS analysis methods. *Proceedings Companion of CHI, 1998*(Los Angeles CA, April 18-23, 1998) ACM, New York.
- Jacobsen, N. E., Hertzum, M., & John, B. E. (1998) The evaluator effect in usability tests. *Proceedings Companion of CHI, 1998*(Los Angeles CA, April 18-23, 1998) ACM, New York.

- John, B. E., & Lallement, Y. (1997) Strategy use while learning to perform the Kanfer-Ackerman Air Traffic Controller© task. *Proceedings of the Nineteenth Annual Conference of the Cognitive Science Society*, August 1997.
- Siegel, J., Kraut, R., John, B. E., & Carley, K. (1995) An empirical study of collaborative wearable computer systems. In *Proceedings Companion of CHI, 1995* (Denver, Colorado, May 7-11, 1995) ACM, New York. pp. 312-313.
- Nelson, G. H., Lehman, J. F., & John, B. E. (1994) Integrating cognitive capabilities in a real-time task. *Proceedings of the Sixteenth Annual Conference of the Cognitive Science Society*, August 1994. pp. 353-358.
- John, B. E. (1994) Toward a deeper comparison of methods: A reaction to Nielsen & Phillips and new data. In *Proceedings Companion of CHI, 1994* (Boston, MA, April 24-28, 1994) ACM, New York, 1994. pp. 285-286.
- Chuah, M. C., John, B. E., & Pane, J. (1994) Analyzing Graphic and Textual Layouts with GOMS: Results of a Preliminary Analysis In *Proceedings Companion of CHI, 1994* (Boston, MA, April 24-28, 1994) ACM, New York, 1994. pp. 323-324.
- Nelson, G., Lehman, J. F., John, B. E. (1994) Experiences in interruptible language processing, In *Proceedings of the 1994 AAAI Spring Symposium on Active Natural Language Processing*, 1994.
- John, B. E. & Morris, J. H. (1993) HCI in the School of Computer Science at Carnegie Mellon University. In *Proceedings of INTERCHI, 1993* (Amsterdam, The Netherlands, April 24 - April 29, 1992) ACM, New York, 1993. pp. 49-50.
- Gray, W. D., John, B. E., Stuart, R., Lawrence, D., & Atwood. M. E. (1990) GOMS meets the phone company: Analytic modeling applied to real-world problems. In D. Diaper et al. (eds.), *Human-Computer Interaction INTERACT '90*. North-Holland: Elsevier Science Publishers. pp. 29-34.
- Gray, W. D., John, B. E. & Atwood. M. E. (1990) An application and evaluation of GOMS techniques for operator workstation evaluation. *Proceedings of the 13th international symposium on human factors in telecommunications '90*. Turin, Italy.
- Lewis, R. L., Huffman, S. B., John, B. E., Laird, J. E., Lehman, J. F., Newell, A., Rosenbloom, P. S., Simon, T., & Tessler, S. G. (1990) Soar as a Unified Theory of Cognition: Spring 1990. *Proceedings of the Twelfth Annual Conference of the Cognitive Science Society*, July, 1990.

### **Book Chapters**

- Adams, R. J., Bass, L., & John, B. E. (2005) Applying general usability scenarios to the design of the software architecture of a collaborative workspace. In A. Seffah, J. Gulliksen and M. Desmarais (Eds.) *Human-Centered Software Engineering: Frameworks for HCI/HCD and Software Engineering Integration*. Kluwer Academic



Publishers.

John, B. E. (2003) Information processing and skilled behavior. In J. M. Carroll, (Ed.), *Toward a multidisciplinary science of human computer interaction*. Morgan Kaufman.

Bhavnani, S. K., & John, B. E. (2001). The strategic use of complex computer systems. In J. M. Carroll, (Ed.). *Human-Computer Interaction in the New Millennium*. Reading, MA: Addison-Wesley/ACM Books.

Substantial Contributions to:

Pew, R. W., & Mavor, A. S. (1998) Modeling Human and Organizational Behavior: Application to Military Simulations. Panel on Modeling Human Behavior and Command Decision Making: Representations for Military Simulations. Washington, DC: National Academy Press.

John, B. E. (1996) Task matters. In D. M. Steier and T. Mitchell (Eds.), *Mind Matters* (pp. 313-324). Hillsdale, NJ: Lawrence Erlbaum.

Atwood, M. E., Gray, W. D., & John, B. E. (1996) Project Ernestine: Analytic and empirical methods applied to a real-world CHI problem. In M. Rudisill, C. Lewis, P. B. Polson, and T. D. McKay (Eds.), *Human-Computer Interface Design: Success Stories, Emerging Methods and Real-World Context* (pp. 101-121). San Francisco: Morgan Kaufmann.

John, B. E., Vera, A. H., & Newell, A. (1993) Towards real-time GOMS, in *The Soar Papers: Research on Integrated Intelligence* Paul S. Rosenbloom, John E. Laird, and Allen Newell (eds.), MIT Press.

John, B. E. & Newell, A. (1990) Toward an engineering model of stimulus-response compatibility. In *Stimulus-Response Compatibility: An Integrated Perspective*, R. W. Proctor & T. G. Reeve (eds.) North-Holland.

### **Magazine Articles**

John, B. E. (1995) Why GOMS? *interactions*, vol. 2, no. 4. pp. 80-89.

### **Tutorial Materials**

John, B. E. (2008) *Cognitive Crash Dummies: Predictive Human Performance Modeling for Interactive System Design*. Course materials presented at the Human Factors and Ergonomics Society 52nd Annual Meeting (New York City, New York, Sept 22-26, 2008).

John, B. E., Bass, L. & Golden, E. (2008) *Avoiding "We can't change THAT!": Software architecture and usability*. Course materials presented at CHI 2008 (Florence, Italy, 5-10 April 2008).

- John, B. E. (2007) *Cognitive Crash Dummies for System Design*. Course materials presented at the 2007 Behavior Representation in Modeling and Simulation Conference (Norfolk, VA, 26-28 March, 2007).
- John, B. E., Bass, L. & Golden, E. *Avoiding “We can’t change THAT!”: Software architecture and usability*. Course materials presented at CHI 2007 (San Jose, California, 28 April - 3 May, 2007).
- John, B. E., Bass, L. & Golden, E. *Avoiding “We can’t change THAT either!”: Software architecture and usability*. Course materials to be presented at CHI 2007 (San Jose, California, 28 April - 3 May, 2007).
- John, B. E., Bass, L. J., Juristo, N., Sanchez-Segura, M-I. (2004) *Usability and software architecture*. Tutorial materials presented at the 26<sup>th</sup> International Conference on Software Engineering (Edinburgh, Scotland, May 23-28, 2004).
- Remington, R., John, B. E., Vera, A., Matessa, M., Freed, M., Dalal, M., Harris, R., & Dahlman, E. (2002) *Apex/CPM-GOMS: Modeling human performance in applied HCI domains*. Tutorial materials presented at the Twenty-Fourth Annual Conference of the Cognitive Science Society, August 2002.
- John, B. E. & Bass, L. *Avoiding “We can’t change THAT!”: Software architecture and usability*. Tutorial materials presented at CHI 2002 (Minneapolis, April 20-25, 2002), CHI 2003 (Fort Lauderdale, FL, April 5-10, 2003), CHI 2004 (Vienna, Austria, April 24-29, 2004).
- John, B. E. & Gray, W. D. *GOMS Analyses for Parallel Activities*. Tutorial materials, presented at CHI, 1992 (Monterey, California, May 3- May 7, 1992), CHI, 1994 (Boston MA, April 24-28, 1994) and CHI, 1995 (Denver CO, May 7-11, 1995) ACM, New York.
- Butler, K, Jacob, R. J. K., & John, B. E. *Introduction and Overview of Human-Computer Interaction*. Tutorial materials, presented at CHI, 1992 (with Austin Henderson, Monterey, California, May 3- May 7, 1992), INTERCHI, 1993 (Amsterdam, The Netherlands, April 24 - April 29, 1992), CHI, 1994 (Boston MA, April 24-28, 1994), CHI, 1995 (Denver CO, May 7-11, 1995), CHI'96 (Vancouver, BC, April 14-18, 1996), and CHI'98 (Los Angeles, CA, April 18-23, 1998) ACM, New York.

### **Technical Reports**

- Bass, L., John, B. E. (2002) Supporting the CANCEL command through software architecture, CMU/SEI-2002-TN-021. Pittsburgh, PA: Software Engineering Institute, Carnegie Mellon University.
- Bass, L. J, John, B. E. & Kates, J. (2001) Achieving Usability Through Software Architecture. Carnegie Mellon University/Software Engineering Institute Technical Report No. CMU/.SEI-2001-TR-005.

Jacobsen, N.E. & John, B.E. (2000), Two case studies in using cognitive walkthroughs for interface evaluation. Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-00-132 and as the Human-Computer Interaction Institute Technical Report No. CMU-HCII-00-100.

Altmann, E. M., & John, B. E. (1995) A preliminary computational model of expert programming. Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-95-172 and as the Human-Computer Interaction Institute Technical Report No. CMU-HCII-95-103.

John, B. E. & Kieras, D. E. (1994) *The GOMS family of analysis techniques: Tools for design and evaluation*. Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-94-181. Also appears as Human-Computer Interaction Institute Technical Report No. CMU-HCII-94-106.

John, B. E. (1994) *A database for analyzing sequential behavioral data and their associated cognitive models*. Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-94-127. Also appears as the Human-Computer Interaction Institute Technical Report No. CMU-HCII-94-101.

John, B. E. (1993) *A quantitative model of expert transcription typing*. Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-93-120.

*Human-Computer Interaction in the School of Computer Science: A report of the Human-Computer Interaction Faculty in the School of Computer Science, Carnegie Mellon University*. (1992) Bonnie E. John, Phil Miller, Brad Myers, Christine Neuwirth, and Steve Shafer (eds.). Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-92-193.

John, B. E., Remington, R. W., & Steier, D. M. (1991) *An analysis of space shuttle countdown activities: Preliminaries to a computational model of the NASA test director*. Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-91-138.

John, B. E., Vera, A. H., & Newell, A. (1990) *Towards real-time GOMS*. Carnegie Mellon University School of Computer Science Technical Report No. CMU-CS-90-195.

### **Other publications**

John, B. E. (2005). Evidence-based practice in human-computer interaction and evidence maps. In *Proceedings of the 2005 Workshop on Realising Evidence-Based Software Engineering* (St. Louis, Missouri, May 17 - 17, 2005). REBSE '05. ACM, New York, NY, 1-5.

Blackwell, M.K., DiGioia, A.M. III, Ghattas, O., Jaramaz, B., John, B. E., Kallivokas, L., Kanade, T., Morgan, F., O'Toole, R.V. III, Simon, D.A., Tabachneck, H., and Visnic,

C. (1995) "Planning, Simulation, and Execution of Robot-Assisted Surgery in Orthopaedics," *SPIE's International Technical Working Group Newsletter, Robotics and Machine Perception*, April 1995.

John, B. E., Reddy, R., and Smith, R. (1994) Ease of use. In Mary K. Vernon, Edward D. Lazowska, and Stewart D. Personick (eds.) *R&D for the NII: Technical Challenges*, Interuniversity Communications Council (EDUCOM): Washington, D.C.

Gray, W. D. & John, B. E. (1990) *Final report on the NYNEX multi-position Workstation trial, volume 2: Analytic models..* NYNEX internal report.

John, B. E. (1988) *Contributions to engineering models of human-computer interaction*. Doctoral dissertation, Carnegie Mellon University.

### **SELECTED PRESENTATIONS**

**(not associated with conference proceedings listed above)**

John, B. E. (2008) "Cognitive Crash Dummies: Where We Are and Where We Are Going" Computer Science Distinguished Lecture Series, Columbia University (NYC, NY, Dec 1, 2008).

John, B. E. (2007) "Usability and Software Architecture: The forgotten quality attribute and the forgotten design problem". CS547: Human-Computer Interaction Seminar, Stanford University (Stanford, CA, January 26, 2007). Available on YouTube (<http://www.youtube.com/watch?v=CRx4h4ITx9g>) >2,400 views as of 14feb09.

John, B. E. (2007) "Cognitive Crash Dummies: Where Are We and Where Are We Going?" Symbolic Systems Program Forum SSP Forum, Stanford University (Stanford, CA, January 25, 2007).

John, B. E. (2005) "Cognitive Human Performance Modeling by Demonstration" 47th Annual Conference of the Human Factors and Ergonomics Society (Orlando, Florida, September 26-30, 2005).

John, B. E. (2005) "Architectures for Usability". Invited tutorial at the Sun Employees Conference, February 22, 2005. Santa Clara, CA.

John, B. E. "Beyond the UI: Product, Process and Passion." Keynote address, NordiCHI 2004. Tampere, Finland, 23-27 October, 2004.

John, B. E. (2003) "HCI beyond the UI." Opening keynote speaker at the conference celebration of the opening of the Social and Behavioral Research Laboratory at Rensselaer Polytechnic Institute. (Troy, NY, December 5, 2003)

John, B. E. (2003) "Data collection in support of modeling and other usability techniques" New Paradigms in Using Computers Conference, IBM Almaden Research Center (San Jose, CA, July 15, 2003)

- John, B. E., Bass, L. J., & Adams, R. J.. "Using Usability Scenarios to Redesign the Architecture of a Collaborative Workspace." International Federation for Information Processing Usability and Software Engineering Technical Group (Paris, Oct 30-31, 2002)
- John, B. E. & Bass, L. J. "Software architecture and usability." International Federation for Information Processing Usability and Software Engineering Technical Group (Minneapolis, April 17, 2002)
- John, B. E. "Avoiding "We can't change THAT": Software Architecture and Usability" Invited talk at the Software Engineering Speakers Series, Rochester Institute of Technology (April 20, 2001).  
A version also delivered at the Human-Computer Interaction Speakers Series, Virginia Tech ( February 2002).
- John B. E. "Engineering Models of Human Performance." Design for Safety Workshop 2000, NASA Ames Research Center (11-12 October, 2000, Mountain View, CA).
- John, B. E. "CMU, HCII, SEI, ATAM, & ABAS: Alphabet soup from the USA." Xerox Research Series, (20 January 2000, Cambridge, England).
- John, B. E. "Cognitive Modeling for Human-Computer Interaction." Keynote address at the European Workshop on Cognitive Modelling. (14th-16th November 1996, Berlin Germany.)
- John, B. E. "Usability of CAD Systems." Cadence Design Systems Distinguished Lecture Series (15 Aug, 1996, Chelmsford, Massachusetts).
- John, B. E. "Why GOMS?" Microsoft Corp (25 Oct, 1995, Seattle, Washington).
- John, B. E. "A Unified Theory Approach to Modeling Learning in a Time-Pressured Environment" Krasnow Institute of Cognitive Science, George Mason University (27 Nov, 1995, Fairfax, Virginia).
- John, B. E. "Soar" in the symposium "Production System Models of Complex Cognition." Seventeenth Annual Conference of the Cognitive Science Society (23 July 1995, Pittsburgh, PA)
- John, B. E. "A Psychological Theory meets Cognitive Engineering" in the symposium "Cognitive Science Meets Cognitive Engineering" Sixteenth Annual Conference of the Cognitive Science Society (14 Aug 1994, Atlanta, Georgia)
- John, B. E. "Engineering Models of Human Performance" Bell Northern Research Design Forum (7 Dec 1994, Ottawa, Canada)
- John, B. E. "Experiences in Evaluating a Multi-Media Authoring Tool: A Case Study Approach" HCI Seminar Series, CMU (9 Nov, 1994, Pittsburgh, PA).

- John, B. E. "Applying psychology to the design of computer systems" Human Engineering Division, Armstrong Laboratory Colloquium Series, Wright-Patterson Air Force Base, (25 May 1994, Dayton, Ohio)
- Kosbie, D. S. & John, B. E. "Hierarchical event histories and GOMS." Poster at the Human-Computer Interaction Consortium Winter Workshop (January, 1994, Frasier, Colorado).
- John, B. E. "Ubiquitous evaluation." Presented to the National Academy of Sciences Committee on Virtual Reality Research and Development (15 Aug 1993, Woods Hole, Mass.)
- John, B. E. & Kieras, D. E. "The space of task analysis and modeling techniques using goals, operators, methods and selection rules" Human-Computer Interaction Consortium Winter Workshop (Jan. 1993, Atlanta, GA).
- John, B. E. "A role of cognitive science in human-computer interaction." Artificial Intelligence Seminar Series, Naval Research Lab. (30 Nov 1992, Arlington, VA).
- John, B. E. "The role of psychological research in human-computer interaction." Psychology Colloquium, CMU (10 Nov 1992, Pittsburgh, PA).
- John, B. E. "Task matters: Discussion of 'The human, the machine, the task, and their interaction' by Stuart Card." Mind Matters Symposium in honor of the memory of Allen Newell, CMU (27 Oct 1992, Pittsburgh, PA).
- John, B. E. & Peck, V. A. "Browser-Soar: A computational model of browsing and its implication for design." Human-Computer Interaction Consortium Winter Workshop (Feb 1992, Pittsburgh, PA).
- John, B. E. "Cognitive modeling for fun and profit" CMU-SCS PS Seminar Series (18 Nov 1991, Pittsburgh, PA).
- John, B. E. "Validation of GOMS: A cognitive modeling technique for predicting and explaining real-world task performance" Software Engineering Institute Seminar Series (24 Oct 1991, Pittsburgh, PA).
- John, B. E. "The immediate interaction cycle." ONR contractees meeting (Sep 1991, Atlanta, Georgia).
- John, B. E. "Short-Term Memory in Soar." Thirteenth Annual Conference of the Cognitive Science Society (10 Aug 1991, Ann Arbor, Michigan).
- Gray, W. D., John, B. E. & Atwood, M. E. "An application and evaluation of GOMS techniques for operator workstation evaluation." Human-Computer Interaction Consortium Winter Workshop (Feb 1991, Ann Arbor, Michigan).

John, B. E., Remington, R. W., & Steier, D. M. "Lift-Off! An analysis of the NASA Test Director's view of the cooperative work required to launch the space shuttle." Human-Computer Interaction Consortium Winter Workshop (Feb 1991, Ann Arbor, Michigan).

John, B. E., "Interface design: The engineer's problem, the engineering models approach." EDRC research group series (Dec 1990, Pittsburgh, PA).

Gray, W. D., Atwood, M. E., Olson, J. S., John, B. E., & Elkerton, J. Panel session, "Real-Time GOMS: Comparative modeling of a user-Nintendo interaction." Human Factors Society 34th Annual Meeting (Oct 1990, Orlando, FL).

John, B. E. "Applications of theory in HCI design." Presented at a meeting sponsored by the Applied Experimental and Engineering Psychology Division of APA and the Potomac Chapter of the HFS (Mar 1990, Washington D.C.).

John, B. E. "Browser-Soar: A model of a highly interactive task." ONR contractees meeting (Mar 1990, Princeton, NJ).

John, B. E., Newell, A., & Card, S. K. "Browser-Soar: A GOMS-like model of a highly interactive task." Human-Computer Interaction Consortium Winter Workshop (Feb 1990, Vail, CO).

John, B. E. "Engineering models of the user for human-computer interaction: Current status and a program of research." NASA-Ames Research Center AI and HF groups (Jun 1989, Cupertino, CA).

John, B. E., "Engineering models of human-computer interaction with application to situation assessment." DOD Human Factors Technical Group (Nov 1988, Albuquerque, NM).

John, B. E., "Engineering models of human-computer interaction applied to voice messaging systems" Talk to committee of telephone company representatives studying voice messaging system standardization (Oct 1988, New York, NY).

John, B. E., "Engineering models of human-computer interaction" NYNEX Science and Technology (Aug 1988, White Plains, NY).

John, B. E. "Three themes: Human-Computer interaction, programs as psychological theories, stimulus-response compatibility." University of Colorado Psychology and Computer Science Colloquium (Jan 1986, Boulder, CO)

## **RESEARCH CONTRACTS**

2007-2008 ABB Inc. "Usability Supporting Architectural Patterns for the Common Gauge Architecture"

2007-2010 NASA. "Automation Interaction Design and Evaluation Methods"

- 2004-2009 Boeing. "Research on Cognitive Performance Modeling."
- 2004 General Motors. "Interruptibility of In-Vehicle Information Devices."
- 2003 General Motors. "Task Structure and Interruptibility: Criteria."
- 2002-2009 ONR. "Scalable Cognitive Modeling through Compositional Reuse" (With A. Vera, HCII; R. Remington, M. Matessa,, NASA; R. Lewis, U Michigan)
- 2001-2005 NASA "High Dependability Computing Program." (One of many named PIs, including multiple universities, headed by Bill Scherlis Institute of Software Research, International, SCS, CMU.)
- 2001-2004 NASA "Effective Team Support" (with Katia Sycara, RI, CMU).
- 2000 Rank-Xerox EuroPARC. Collaborative work agreement (3-month salary support for sabbatical in at Xerox, Cambridge UK).
- 1999-2002 Software Engineering Institute, CMU. "Usability and Software Architecture." SEI supported a 1-year Leave of Absence ('99-'00 calendar year sabbatical and part-time salary for two additional years). Work with Len Bass, continuing under HDCCP.
- 1998-1999 Xerox Foundation. "WWW Use."
- 1998-2001 NSF. The Strategic use of Complex Computer Systems. NSF CISE-EI Program. (with Dan Olsen, HCII).
- 1994-1999 NSF Young Investigator Award.
- 1994 AT&T Foundation Special Purpose Grants in Science and Engineering.
- 1994-1997 NSF National Challenges - ENG-CISE "High Performance Computing for Simulation, Planning and Execution of Robot-Assisted Surgery" (with Takeo Kanade, Robotics Institute, CMU; Omar Ghattas, Civil Engineering, CMU; Anthony DiGioia & Branislav Jaramaz, Shadyside Hospital).
- 1993-1996 ARPA "Usability of Knowledge-based Planning Systems."
- 1992-1993 DARPA (subcontracted from ISI/USC) "Improving the Soar Programming Environment."
- 1992 Software Engineering Institute, CMU. Development of a Curriculum Module entitled "Goals, Operators, Methods, and Selection rules."
- 1991 NSF "CISE Research Instrumentation" (to re-equip the User Studies Lab, see academic experience, below).



- 1990-1993 NASA "Modeling the NASA Test Director."
- 1989-1999 ONR "The Immediate Interaction Cycle: Generality of Mechanisms and Learning to Perform"
- 1989-1990 U. S. West "Applying Cognitive Theory to the Evaluation and Design of Human-Computer Interfaces."
- 1988-1990 Xerox "Research on an Engineering Theory of the User of Browsers."
- 1987-1989 ONR "Contributions to the Model Human Processor."

## **TEACHING EXPERIENCE**

### **Courses Taught**

Spring 2007; Cognitive Crash Dummies. A readings- and project-based class in cognitive modeling as applied to HCI design and evaluation problems. Students from all colleges at Carnegie Mellon University, from a freshman mechanical engineer to a PhD student in Architecture, participated.

Spring 2007; Cognitive Crash Dummies, Symbolic Systems Program, Stanford University.

Summer 2001, 2002, Spring 2006; Capstone project for Masters in HCI at CM-West, NASA Ames Research Center, California. Supervised group of masters students building systems to support cognitive modeling at NASA Ames.

Fall, 1997, 1998, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008. Spring 2001: HCI ProSeminar. Masters-level seminar introducing students to leaders in the HCI field.

Fall 1997-present: Independent study in HCI at the masters level. Oversea all IS courses supervised by individual faculty in HCII.

Spring, 1997, 1999, 2002, 2004: Cognitive Modeling for HCI. A readings- and project-based seminar in cognitive modeling as applied to HCI design and evaluation problems. Graduate and upper-level undergraduate course in the HCI Institute.

Fall, 1996, 1997, 1998, 2000, 2001, 2002, 2003, 2004, 2006, 2007, 2008. Spring 2001, 2002: Human-Computer Interaction Methods. Masters and upper-level undergraduate course cross-listed in Computer Science, Psychology, and Social and Decision Sciences. Co-taught with Sara Kielser in 1996, 1997; with Cleotilde Gonzalez in 2001; with Ken Koedinger in 2002; with Christine Neuwirth in 2003, 2004 & S006; with Jen Mankoff in 2007; with John Zimmerman in 2008.

Spring, 1995: Fundamental Structures of Computer Science. Undergraduate "gateway" computer science course for non-majors who want to go on in such aspects of CS as AI, hardware, robotics, etc.

Spring 1994: Comparison of HCI Techniques, graduate course with students from CS, Engineering and Public Policy, English, and Architecture.

Fall 1994, 1993, Spring 1993: Human-Computer Interaction, advanced undergrad and graduate course, cross-listed in the departments of Computer Science and Psychology, CMU.

Fall 1985: Human Factors, advanced undergraduate course, Psychology, CMU. Redesigned the course using a new curriculum, new textbook, and new project assignments.

Spring 1985: Teaching assistant for an undergraduate course in human factors engineering at Carnegie Mellon University.

Fall 1984: Teaching Assistant for an undergraduate course in cognitive psychology at Carnegie Mellon University.

Fall 1979: Taught installation and maintenance of mini-computer hardware to Bell System technical writers and maintenance personnel.

## **Guest Lecturer**

Software Architecture (required course in Masters of Software Engineering), Spring 2002, 2003, 2004, 2005.

Software Architecture for UI. Fall 2001, 2002, 2003, 2004, 2006, 2007, 2008.

CS Freshman Immigration Course (CSD-SCS). Fall 1994, Fall 1995, Fall 1996.

Introduction to HCI (SDS-H&SS). Fall 1995

Fundamental Structures of Computer Science (CSD-SCS). Spring 1994, Fall 1995

User Interface Programming (CSD-SCS). Spring, 1995

Introduction to Cognitive Psychology (Psychology-H&SS). Spring 1994, Spring 1996.

## **STUDENTS ADVISED**

### **Doctoral students at CMU:**

Leonghwee Teo, HCII, entered Fall 2005.

Elsa Golden, HCII, entered Fall 2003.

Suresh Bhavnani, Architecture-CFA, thesis advisor, graduated Summer 1998

"How Architects Draw with Computers: A Cognitive Analysis of Real-World CAD Interactions"

Erik Altmann, CSD-SCS, committee chair, graduated August 1996

"Episodic Memory for External Information."

Daivd Huss, Psychology-H&SS, committee member, entered 2004

Christian Lebiere, CSD-SCS, committee member, graduated 1998

Maria Ebling, CSD-SCS, committee member, graduated 1998

Minh Tue Vo, CSD-SCS, committee member, graduated 1998

Jennifer Kay, CSD-SCS, committee member, graduated 1996

Joseph Mertz, EPP-CIT, committee member, graduated 1995

Hermina Tabachneck, Psychology-H&SS, committee member, graduated 1993

### **Doctoral students not at CMU:**

Niels Ebbe Jacobsen, University of Copenhagen, Denmark. On-site advisor while he is visiting CMU January 1997-May 1998, graduated 1999.

Sherry Koshman, Library and Information Sciences, committee member, graduated 1996

Cathleen Wharton, CSD, University of Colorado-Boulder, committee member, graduated 1994

### **Masters students at CMU**

Maria Emerson, HCII independent study, 1 semester (Spring 2009)

Matt Guibert, HCII, independent study, 1 semester (Spring 2008)

Gabe Clapper, Brad Hunt, Adam Overholtzer, HCII, small group study, 1 semester (Spring 2007)

Joshua Ehlke, HCII, independent study, 1 semester (Spring 2007)

Lily Chou, HCII, independent study, 1 semester (Fall 2006)  
Jason Cornwell, HCII, independent study, 1 semester (Summer 2006)  
Sue Young Chung, HCII, independent study, 1 semester (Summer 2004)  
Richard Gunther, HCII independent study, 2 semesters (Spring/Summer 2003)  
Kristina McBlain, HCII independent study, 2 semesters (Spring/Summer 2003)  
Konstantine Prevas, HCII independent study, 1 semester (Fall 2002).  
David Crow, HCII, independent study, 1 semester (Summer 1997)  
Joel Baskin, HCII, independent study, 1 semester (Summer 1997)  
Santosh Mathan, HCII, independent study, 1 semester (Spring 1996)  
Matthew Mashyna, MSE, independent study, 2 semesters (Spring & Summer 1995)  
Hillary Packard, MSE, independent study, 2 semesters (Spring & Summer 1994)  
Edward Liu, INI, reader for masters project (Summer & Fall 1993)

### **Undergraduate students at CMU**

Steeve Hillenius, HCII, independent study, 1 semester (Spring 2007)  
Carmen Jackson, CSD-SCS, independent study, 1 semester (Fall 2006)  
Steven Marks, CSD-SCS, independent study, 1 semester (Spring 1995)  
honors thesis (Fall 1995 & Spring 1996)  
Pat Rogan, Psychology-H&SS, independent study, 1 semester (Spring 1994)

## **UNIVERSITY SERVICE**

Faculty member in residence, Carnegie Mellon – West, Summer 2001 and 2002.

Member of the CMU's Institutional Review Board, Spring 1998 – Fall 2001.

School-level Tenure and Promotions Committee, School of Computer Science, 1998-1999.

Dean Search Committee for the School of Computer Science, 1998-1999.

Self- Assessment Committee of the School of Computer Science, 1997-1998.

Director of the HCI Masters' Program, 1997 to 2009 (except for 1999-2000 sabbatical)

Member of the Executive Committee of CMU's Human-Computer Interaction Institute, from its inception in 1994 to present.

Carnegie Mellon University's representative to the governing board of the Human Computer Interaction Consortium, 1988-present.

Administrator of the User Studies Lab, a laboratory used to obtain videotape protocols of people using computer systems. 1985-2000. I opened the lab as a university resource in 1985 and now the lab is used by researchers from all over the CMU community: Psychology, Computer Science, Engineering & Public Policy, Social and Decision Science, English, Design, GSIA, Architecture. I've gotten two separate external grants specifically for equipment upgrade and space renovation to maintain and improve the lab over the years.

Ran university-wide faculty lunch for HCI, 1993-1994.

Participated in several Teaching Center and Academic Services functions (e.g., a lunch where I spoke about the use of semester-long group projects to other faculty members, the Herstories workshop, etc.)

Focus-group participant for the Carnegie Mellon University Libraries committee on LIS Pro.

## **OTHER ACADEMIC EXPERIENCE**

Doctoral Consortium Chair, CHI 2009, Boston, USA. April 2009.

Engineering Program Chair, CHI 2006, Montreal, Quebec, Canada. April 22-27, 2006.

Member of International Federation of Information Processing (IFIP) Working Group 2.7/13.4, November 2002.

Review Board, University of Texas Health Science Center, School of Health Information Science. Fall 2002.

Soldier Systems Panel of the Army Research Laboratories Technical Assessment Board, 2002-2006.

September 2001 – November 2002: Review Panel National Cancer Institute, Evidence-based Website Design Guidelines.

Review Panel, AMBR Project Phase 3, US Air Force. 2001-2002.

Board of Advisors, Office of Naval Research, Program in User-Centered Direct Interaction and Interactive Visualization, June 2000.

Member of the Committee on Human Factors, National Research Council. Feb 1997-Jan 2005.

Member of the Panel on Human Behavior Representation for Military Simulations, National Research Council. Summer 1997-Summer 1998.

Editorial board of  
*ACM Transactions on Computer-Human Interaction*. (1993-1999)  
*Behavior and Information Technology*.

Advisory board of  
*Cognitive Science Quarterly: A European Journal of Basic and Applied Research*

Technical Program Committee member for the ACM Human Factors in Computing Systems (CHI) conferences, 1989, 1990, 1991, 1992, 1993, 1994 (associate chair), 1995, 1996 (associate chair), 1997, 1999 (associate chair), 2000, 2004 (associate chair).

Technical Program Committee member for the International Conference on User Modeling (June 20-24, 1999, Banff, Canada).

Reviewer for the ACM Conference on User Interface Software & Technology 1994, 1995.

Reviewer for the Cognitive Science Society Annual Meeting, 2002.

Reviewer for refereed journals:

Human Computer Interaction  
ACM Transactions on Information Systems  
ACM Transactions on Computer-Human Interaction  
Behaviour and Information Technology  
Cognitive Psychology  
Memory & Cognition  
International Journal of Human-Computer Interaction

Reviewer for research proposals:

National Science Foundation  
Air Force Office of Scientific Research

Reviewer, NSF Young Investigators Award Program, May 1992.

Invited participant in the ACM workshop entitled "Strategic Directions in Computing Research", Cambridge, MA, June 14-15, 1996.

Steering committee NSF Interactive Systems Grantees Workshop, Boston, November 11-12, 1995.

Consultant to the National Academy of Science Committee on Virtual Reality Research and Development, August 1993.

Invited participant in the symposium entitled "Diverse Perspectives on Working Memory" at the Cognitive Science Society annual meeting, 10 August 1991.

Invited participant in the ISAT Summer Study for DARPA entitled "Intelligent Interfaces", Spring & Summer 1991.

Invited participant in the NSF workshop entitled "An Agenda for Human-Computer Interaction: User Interface Development Processes and Methodologies", March 1991.

Invited participant in the Workshop on Future Metrics and Models for Assessment of Human/System Performance in Advanced Military Systems. 23 July - 26 July 1989. Sponsored by Crew System Ergonomics Information Analysis Center, AAMRL/HE/CSERIAC Wright-Patterson AFB.

Member: Association for Computing Machinery, Cognitive Science Society, Human Factors Society



## **PROFESSIONAL EXPERIENCE**

Effective July 2005: Professor, Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University.

January 2007 – February 2007: Visiting Professor, Symbolic Systems Program, Stanford University.

January 2005 - present: Consultant for SRI, International. Lead of User Interaction Team for the AURA system (part of the Halo Project sponsored by Vulcan)

January 2000 – March 2000: Visiting Scientist, Xerox Research Centre – Europe, Cambridge, UK.

August 1999 – August 2000: Visiting Scientist, Software Engineering Institute, Carnegie Mellon University.

July 1997 - June 2005: Associate Professor, Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University. Courtesy appointment to the Department of Psychology and Computer Science Department.

July 1997 -present: Director of the Masters of Human-Computer Interaction Program, Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University.

July 1996 - June 1997: Assistant Professor, Human-Computer Interaction Institute, School of Computer Science, Carnegie Mellon University. Courtesy appointment to the Department of Psychology and Computer Science Department.

Sept 1992- July 1996: Assistant Professor, Computer Science Department, School of Computer Science, Carnegie Mellon University. Courtesy appointment to the Department of Psychology and Human-Computer Interaction Institute.

April 1989-Sept 1992: Research Faculty, School of Computer Science, Carnegie Mellon University. Courtesy appointment to the Department of Psychology.

March 1996: Consultant for Microsoft Corp. Seminar and project-specific consulting on GOMS modeling applied to product development.

April 1992-May 1992: Expert witness qualified in human performance, cognitive psychology, and human-computer interaction, retained by AT&T for the TMAC Contract, GSBCA Docket Nos. 11776-P & 11777-P.

December 1988-May 1991: Consultant for NYNEX Corp, White Plains, NY. Conducted a theoretical analysis of skilled performance on two different toll & assistance telephone operator workstations. This analysis predicted the outcome of a large-scale field trial of the workstations.

May 1988-April 1989: Post-doctoral researcher, Department of Psychology, Carnegie Mellon University.

September 1988-June 1989: Consultant for the Software Engineering Institute, Pittsburgh, PA. Conducted a feasibility study to explore the construction of an expert system to aid in the design of human-computer interfaces.

April 1987-September 1988: Consultant for CarnegieWorks, Inc., Pittsburgh, PA. Provided advice on design and testing of documentation for computer systems.

February 1985-March 1985: Consultant for American Robot Corporation, Pittsburgh, PA. Designed a hand-held control panel for an industrial robot.

June 1977-August 1983: Member of Technical Staff at Bell Laboratories, Holmdel, NJ.  
September 1977-August 1978: On Stanford's campus earning an M.S. in Mechanical Engineering.

September 1978-September 1980: Physical designer responsible for the design and selection of printers, the design of control panels for office graphics equipment, and the design of communication protocols for teleconferencing.

October 1980-December 1982: Systems engineer responsible for customer installability and maintainability for a small business telecommunications system now being marketed as MERLIN (a registered trademark of AT&T).

January 1983-August 1983: (Employed by American Bell Inc., later to become AT&T Information Systems.) Systems engineer for large business terminals. Responsible for a high-end executive data and telecommunications terminal and for a low-end home-and-business data and telecommunications terminal.