

# Aruna D. Balakrishnan

Human-Computer Interaction Institute  
Carnegie Mellon University  
Pittsburgh, PA 15213 USA

aruna at cs dot cmu dot edu  
www.cs.cmu.edu/~abalakri

## RESEARCH INTERESTS

computer supported collaborative work, team collaboration, collaborative analysis, computer mediated communication, information and communication technology, information visualization, business intelligence, organizational behavior, decision sciences, empirical studies, human computer interaction

## EDUCATION

**Ph.D. in Human-Computer Interaction**, expected 2011

Thesis: Investigating the Effects of Visualizations in Remote Collaborative Analysis  
Carnegie Mellon University  
Advisors: Sara Kiesler & Susan Fussell

**M.S. in Human-Computer Interaction**, 2009

Carnegie Mellon University

**B.A. in Engineering, Cum Laude with Honors in Field**, 2003

Harvard University

## SELECTED RESEARCH PROJECTS

**Collaborative Problem Solving with Visualizations** 2006 – present

Do visualizations improve collaborative problem solving? My research goals are (1) to understand information exchange in distributed collaborations, and (2) to study the impact of different visualizations on information sharing.

*Collaborators: Sara Kiesler, Susan Fussell, Aniket Kittur & Ruogu Kang*

**Understanding productive climates for virtual research collaborations** 2009 – present

What makes some collaborations more successful than others? Through in-depth interviews and surveys, this research seeks to identify institutional environment factors that influence successful research collaborations which span multiple institutions and disciplines.

*Collaborators: Sara Kiesler, Jonathon Cummings & Reza Zadeh*

**Understanding the Role of Technology for Business Analysts** 2008 – present

With the proliferation of web 2.0 tools, how do real workers decide which tool to use and for which purpose? I conducted a series of interviews and observations of business analysts at a large, global company to understand the roles of technology and information sharing.

*Collaborators: Tara Matthews, Jeffrey Pierce, Eser Kandogan, Eben Haber & Tom Moran*

**Imagery and Risk Perceptions** 2007 – 2009

Can realistic imagery of natural disasters compel individuals at risk to take proper precautions? I conducted a national survey to explore how photographic images of disasters affect risk perceptions of those who live in areas likely to be hit by those disasters.

*Collaborators: Sara Kiesler & Susan Fussell*

### **Persuasive Technology for Environmental Sustainability** 2006 – 2007

With the impact of unsustainable practices on the planet becoming increasingly apparent, can user interface design encourage sustainable decisions? Through a recipe website, we examined design factors that help people make environmental sustainable choices.  
*Collaborators: Turadg Aleahmad & Jeff Wong*

## PROFESSIONAL EXPERIENCE

### **IBM Research - Almaden**

Research Intern | Summer 2009

Conducted an ethnographic study of business analysts with in-depth interviews and observations on everyday work practices at a large, global company to understand how technology is currently used and to discover potential technology innovations.

Research Intern | Summer 2008

Designed and conducted a field study that included a survey and in-depth interviews on an activity-centric computing system used by nearly 32,000 workers at a large, global company to understand how the system supplemented or replaced other collaborative tools.

### **RAND Corporation, Infrastructure, Safety and Environment Unit** 2004 – 2006

Research Assistant. Performed statistical analysis on large datasets to assess quality of patient healthcare. Built a searchable database of resources on cyber security events. Maintained an online-collaborative work space for a multi-organization team.

### **Harvard University School of Public Health, Environmental Health Department**

Lab Manager, Occupational Biomechanics Laboratory | 2003 – 2004

Assisted in budget planning, grant proposal writing, and IRB submissions.

Research Assistant, Occupational Biomechanics Laboratory | 2002 – 2003

Designed and conducted experiments to develop a mathematical model of finger joint mechanics during tapping on a computer keyswitch.

## SKILLS

**Methods** | interviews, grounded theory, survey design, contextual inquiry, think-aloud user studies, cognitive walkthrough, heuristic evaluation, directed storytelling, personas & scenarios, storyboarding, speed-dating, prototyping

**Software** | SAS, JMP, SPSS, Dreamweaver, Stata, Weka, Access

**Programming** | C, HTML, Java, Flash Action Script

**Language** | English (native), French (intermediate), Spanish (intermediate), Tamil (spoken)

## HONORS & AWARDS

**ACM CHI 2010 Best Note Nominee**

**IBM Frances Allen Fellowship** 2009

**IBM PhD Fellowship** 2009

**National Science Foundation Graduate Fellowship Honorable Mention** 2007, 2008

**National Science Foundation TESS Grant** 2007

**California Byrd Scholarship** 1999-2002

**National Merit Scholarship** 1999

## SELECTED PUBLICATIONS

**What's in a move? Normal disruption and a design challenge.** Reza Zadeh, Aruna D. Balakrishnan, Sara Kiesler, Jonathon N. Cummings. To appear in *ACM Human Factors in Computing Systems (CHI)*, May 2011.

**Research Team Integration: What it is and why it matters.** Aruna D. Balakrishnan, Sara Kiesler, Jonathon N. Cummings, Reza Zadeh. In *Proc ACM Computer Supported Collaborative Work*, Mar 2011.

**Fitting an Activity-Centric System into an Ecology of Workplace Tools.** Aruna D. Balakrishnan, Tara Matthews, Thomas P. Moran. In *Proc ACM Human Factors in Computing Systems (CHI)*, Apr 2010. [Best Note Nominee]

**Pitfalls of Information Access with Visualizations in Remote Collaborative Analysis.** Aruna D. Balakrishnan, Susan R. Fussell, Sara Kiesler, Aniket Kittur. In *Proc ACM Computer Supported Collaborative Work*, Feb 2010.

**Do visualizations improve synchronous remote collaboration?** Aruna D. Balakrishnan, Susan R. Fussell, Sara Kiesler. In *Proc ACM Human Factors in Computing Systems (CHI)*, Apr 2008.

**Fishing for Sustainability: The Effects of Indirect and Direct Persuasion.** Turadg Aleahmad, Aruna D. Balakrishnan, Jeffrey Wong, Susan R. Fussell, Sara Kiesler. In *Proc ACM Human Factors in Computing Systems (CHI) Extended Abstracts*, Apr 2008.

**A Review of Methods to Measure Health-related Productivity Loss.** Soeren Mattke, Aruna Balakrishnan, Giacomo Bergamo, Sydne J. Newberry, (2007). *American Journal of Managed Care*, 13(4): 211–217.

**Freedom and Information: Assessing Publicly Available Data Regarding U.S. Transportation Infrastructure Security.** Eric Landree, Christopher Paul, Beth Grill, Aruna Balakrishnan, Bradley Wilson, Martin C. Libicki, (2007). Santa Monica, Calif.: RAND Corporation, TR-360-DHS.

**Investing in cyber security: The path to good practice.** Shari L. Pfleeger, Rachel Rue, Jay Horwitz, Aruna D. Balakrishnan, (2006). *Cutter IT Journal*, 19(1): 11–18.

**Horizontal force components can reduce finger joint torques during tapping on a computer keyswitch.** Aruna D. Balakrishnan, Devin Jindrach, Jack T. Dennerlein, (2006). *Human Factors*, 48(1): 121–129.

**Measuring and Reporting the Performance of Disease Management Programs.** Soeren Mattke, Giacomo Bergamo, Aruna Balakrishnan, Steven Martino, Nicholas V. Vakkur, (2006). Santa Monica, Calif.: RAND Corporation, WR-400.

**Revisiting US-VISIT: U.S. Immigration Processes, Concerns, and Consequences.** David S. Ortiz, Shari L. Pfleeger, Aruna D. Balakrishnan, Merril Miceli, (2006). Santa Monica, Calif.: RAND Corporation, OP-140-RC.

**Science and Technology Research and Development Capacity in Japan: Observations from Leading U.S. Researchers and Scientists.** Anny Wong, Aruna D. Balakrishnan, James Garluski, Thor Hogan, Eric Landree, Maureen McArthur, (2004). Santa Monica, Calif.: RAND Corporation, TR-211-MRI.

**Finger joint impedance during tapping on a computer keyswitch.** Devin Jindrach, Aruna D. Balakrishnan, Jack T. Dennerlein, (2004). *Journal of Biomechanics*, 37(10): 1589–96.

**Effects of keyswitch design and finger posture on finger joint kinematics and dynamics during tapping on computer key-switches.** Devin Jindrach, Aruna D. Balakrishnan, Jack T. Dennerlein, (2004). *Journal of Clinical Biomechanics* (Bristol, Avon), 19(6): 600–8.

## TEACHING EXPERIENCE

**Graduate Teaching Assistant, Human Factors** Fall 2011

Carnegie Mellon University, HCI Institute | Instructor: Sara Kiesler

**Graduate Teaching Assistant, Human Computer Interaction Methods** Fall 2008

Carnegie Mellon University, HCI Institute | Instructors: Bonnie John & John Zimmerman

**Guest Lecturer, Qualitative research methods in Applied Research Methods** Fall 2007

Carnegie Mellon University, HCI Institute | Instructor: Sara Kiesler

## PROFESSIONAL SERVICE & ACTIVITIES

**ACM Conference on Computer Supported Cooperative Work (CSCW) Doctoral Consortium** 2011

**OurCS 2011 Conference Papers and Posters Submission Committee**

**ACM CHI Conference Student Volunteer** 2007, 2009

**ACM CHI Conference Reviewer** 2009, 2010, 2011

**ACM Conference on Computer Supported Cooperative Work (CSCW) Reviewer** 2010, 2011

**Student Member, Association of Computing Machinery**

## COMMUNITY SERVICE

**Carnegie Mellon Women in Computer Science**

Graduate Mentor Program Coordinator | 2007 – present  
Undergraduate Mentor | 2006 – present

**Planned Parenthood of Western Pennsylvania** 2007 – present

Outreach Volunteer. Educate underprivileged women and youth about reproductive health.

**Carnegie Mellon Human Computer Interaction Institute**

PhD Student Seminar Coordinator | 2007 – 2009  
Graduate Student Association Representative | 2008 – 2009

**Women and Youth Supporting Each Other (WYSE)** 2000 – 2003

Director. Organized a curriculum-based mentorship program for at-risk middle school girls.

**Ann Radcliffe Trust Advisory Committee** 1999 – 2003

Founding Member. Participated in the Trust founding after the closing of Radcliffe College.