

Sharoda A. Paul

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INTERESTS

My interests lie in the fields of human-computer interaction (HCI), computer-supported cooperative work (CSCW), social computing, and social mobile applications. I apply user-centered design techniques to develop collaboration and social software for industrial and enterprise domains.

EDUCATION

Ph.D., Information Sciences & Technology (specializing in HCI/CSCW) May 2010
The Pennsylvania State University, University Park, PA.
Dissertation: *Understanding Together: Sensemaking in Collaborative Information Seeking*

Bachelor of Engineering, Computer Science and Engineering May 2004
Birla Institute of Technology, MESRA, India

INDUSTRY EXPERIENCE

GE Global Research, San Ramon, CA. Oct 2011 – Present
Collaboration and UX Researcher

I lead the user experience of collaboration and mobile applications for GE employees and customers across businesses such as transportation, energy, and healthcare. Responsibilities include:

- Interviewing and conducting design workshops with internal stakeholders and GE customers.
- Leading user research, design, and usability evaluation of collaboration and mobile applications.

Palo Alto Research Center (PARC), Palo Alto, CA. Sep 2010 – Oct 2011
Computing Innovation Fellow

I studied social computing and social search in consumer social networks.

- Collected, analyzed, and modeled large-scale social network data from Twitter and Quora to examine users' question-answering behavior.
- Triangulated user interviews with statistical data to understand design implications for Q&A systems.
- Resulted in 4 publications – [C.6], [C.7], [W.11], [W.12].

Microsoft Research, Redmond, WA. Oct 2009 – Jan 2010
Research Intern

I studied how people make sense of information during collaborative search tasks on a table-top surface.

- Analyzed video clips of pairs perform a lab search task on the Microsoft surface.
- Modeled collaborative search and interaction patterns for co-located table-top search.
- Resulted in publication [J.4].

Microsoft Research, Redmond, WA. Jun – Aug 2008
Research Intern

I designed and developed a visualization tool for sensemaking during collaborative Web search tasks.

- Conducted formative lab studies of how groups use collaborative Web search tools.

- Designed, developed and evaluated a collaborative sensemaking tool, CoSense, for making sense of information found during collaborative Web search tasks.
- Resulted in 3 publications – [J.3], [C.5], [W.6].

Tata Steel, Jamshedpur, India

May – Jul 2002

Information Technology Intern

I evaluated and recommended data security tools for the company Intranet.

ACADEMIC EXPERIENCE

College of IST and Hershey Medical Center, Penn State University.

Research Associate

Supporting Collaborative Clinical Decision-Making in Patient Care Teams

May – Aug 2010

I led the user research for a multi-disciplinary project to design an intelligent agent-based collaborative clinical decision support system.

- Conducted knowledge elicitation interviews and focus groups with healthcare providers in the emergency department (ED).
- Mapped collaborative user flows for different personas like physicians, nurses, technicians etc.

Research Assistant

Collaborative Sensemaking in the Emergency Department

Jan 2008 – Apr 2010

I studied how healthcare providers in the emergency department together make sense of patient information using hospital information systems.

- Conducted observations, shadowing, and interviews, to understand information flows in the ED.
- Provided design recommendations to enhance information seeking systems to support them.
- Resulted in publication [C.5].

Intelligent-agent Decision Support for Emergency Medical Decision Making

Jan – Dec 2007

I conducted user research to help design an intelligent-agent decision support system for multidisciplinary emergency medical teams.

- Conducted literature surveys, observations, and interviews to examine the role of technology in aiding medical disaster response personnel.
- Resulted in 4 publications – [J.1], [C.1], [C.2], [C.3].

Penn State Partnership to Transform Hospital Emergency Care

May – Dec 2006

I examined how systems theories and information and communication tools can improve the quality of patient care in the emergency department.

- Conducted focus groups with medical staff to examine the role of technology in disaster response.
- Resulted in publication [J.2].

TECHNICAL SKILLS

Programming: C++, C#, Java, SQL, PHP, MySql, Objective-C and iOS (beginner).

Statistical analysis: MATLAB, Minitab, JMP, R (beginner).

Qualitative analysis packages: ATLAS, NVivo.

Others: SQL Server, Microsoft Visual Studio, Eclipse, XCode.

Operating systems: Windows, Unix/Linux, Mac OS X.

UX SKILLS

User research: Contextual inquiry, interviews, focus groups, ethnography, observations, personas, task analysis, cognitive walkthroughs.

UX design: Interaction design, paper prototyping, wireframing (desktop and mobile)
Data analysis: Event log analysis, regression analysis, open coding of qualitative data.

PEER-REVIEWED PUBLICATIONS (Copies can be accessed at <http://www.sharoda.net>)

Journals

[J.4] Isenberg, P. Fisher, D., **Paul, S.A.**, Morris, M.R., Inkpen, K., and Czerwinski, M. (2012). Co-located Collaborative Visual Analytics Around a Tabletop Display. *IEEE Transactions on Visualizations and Computer Graphics*, 18(5), 689-702. (Impact factor 1.92)

[J.3] **Paul, S.A.** and Morris, M.R. (2011). Sensemaking in Collaborative Web Search. *Human Computer Interaction Special Issue on Sensemaking*, 26(1), 38-71. (Impact factor 6.19)

[J.2] **Paul, S.A.**, Reddy, M., & deFlitch, C.J. (2010). A Systematic Review of Simulation Studies Investigating Emergency Department Overcrowding. *Simulation: Transactions on the Society for Modeling and Simulation International*, Special Issue on Simulation in Healthcare, 86(8-9), 559-571. (Impact factor 0.78)

[J.1] Reddy, M., **Paul, S.A.**, Abraham, J., McNeese, M.D., deFlitch, C.J., and Yen, J. (2009). Challenges to Effective Crisis Management: Using Information and Communication Tools to Coordinate Emergency Medical Services and Emergency Department Teams. *The International Journal of Medical Informatics*, 78(4), 259-269. (Impact factor 1.5) **2010 Diana Forsythe Award**

Conference Full and Short Papers

[C.7] **Paul, S.A.**, Hong, L., and Chi, E.H. (2011). Who is Authoritative? Understanding Reputation Mechanisms in Quora. *Collective Intelligence (CI '12)*, Cambridge, MA. (Acceptance rate 33%).

[C.6] **Paul, S.A.**, Hong, L., and Chi, E.H. (2011). Is Twitter a Good Place for Asking Questions? AAAI International Conference on Weblogs and Social Media, Barcelona, Spain. (*ICWSM '11*). (Acceptance rate 23%).

[C.5] **Paul, S.A.** and Reddy, M. (2010). Understanding Together: Sensemaking in Collaborative Information Seeking. Proceedings of the *ACM Conference on Computer Supported Cooperative Work (CSCW '10)*, Savannah, GA. (Acceptance rate 20%). **Best paper nominee**

[C.4] **Paul, S.A.**, and Morris, M.R. (2009). CoSense: Enhancing Sensemaking for Collaborative Web Search. Proceedings of the *Conference on Human Factors in Computing Systems (CHI '09)*, Boston, MA. (Acceptance rate 24.5%) **Best paper nominee**

[C.3] **Paul, S.A.**, Reddy, M. and deFlitch, C.J. (2008). The Usefulness of Information and Communication Tools in Crisis Response. Proceedings of the *Fall Symposium of the American Medical Informatics Association (AMIA '08)*, Washington, D.C. (Acceptance rate 20%)

[C.2] **Paul, S.A.**, Reddy, M., and deFlitch, C.J. (2008). Information and Communication Tools as Aids to Collaborative Sensemaking. In *Extended Abstracts of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '08)*. (Acceptance rate 38%)

[C.1] Zhu, S., Abraham, J., **Paul, S.A.**, Reddy, M., Yen, J., Pfaff, M., and deFlitch, C.J. (2007). RCAST-MED: Applying Intelligent Agents to Support Emergency Medical Decision Making Teams. *Proceedings of the 11th Artificial Intelligence in Medicine Conference (AIME '07)*, Amsterdam, the Netherlands. (Acceptance rate 20%)

Workshops, Posters, Panels, Videos

[W.12] Dent, K. and **Paul, S.A.** (2011). Through the Twitter Glass: Detecting Questions on Twitter Using NLP Techniques. AAAI 2011 Workshop on Analyzing MicroText.

[W.11] **Paul, S.A.**, Hong, L., and Chi, E.H. (2011). What is a Question? Crowdsourcing Tweet Categorization. Position paper at the *CHI 2011 workshop on Crowdsourcing and Human Computation*.

[W.10] Sarcevic, A., **Paul, S.A.**, Hilligoss, B., and Scupelli, P. (2011) Assessing the Practical Impacts of Healthcare Research. Panel at *iConference 2011*, Seattle, WA.

[W.9] **Paul, S.A.**, and Reddy, M.C., (2010) A Framework for Sensemaking in Collaborative Information Seeking. Position paper at the *2nd International Workshop on Collaborative Information Seeking at the ACM Conference on Computer Supported Cooperative Work (CSCW '10)*, Savannah, GA.

[W.8] **Paul, S.A.**, Reddy, M.C., Jansen, B.J., and Foster, J. (2009) Workshop on Collaborative Information Behavior at the *ACM Conference on Supporting Group Work (GROUP '09)*, Sanibel Island, FL.

[W.7] Bernstein, M, André, P., Luther, K., Solovey, E.T., Poole, E.S., **Paul, S.A.**, Kane, S., and Grudin, J. (2009). CHistory. In the CHI Video Showcase at the *Conference on Human Factors in Computing Systems (CHI '09)*, Boston, MA. **Golden Mouse Award for the Best Entertaining Video.**

[W.6] **Paul, S.A.** and Morris, M.R. (2009). Understanding and Supporting Sensemaking in Collaborative Web Search. Position paper presented at the *Sensemaking workshop at the Conference on Human Factors in Computing Systems (CHI '09)*, Boston, MA. (Acceptance rate 66%)

[W.5] **Paul, S.A.**, Reddy, M.C., and deFlicht, C.J. (2008). Collaborative Sensemaking: A Field-Study in the Emergency Department. Position paper at the *Sensemaking workshop at the Conference on Human Factors in Computing Systems (CHI '08)*, Florence, Italy. (Acceptance rate 50%)

[W.4] **Paul, S.A.**, Reddy, M.C., and deFlicht, C.J. (2008). Supporting Collaborative Sensemaking in the Emergency Department. Poster presented at the *Third Annual iConference*, Los Angeles, CA.

[W.3] **Paul, S.A.**, Reddy, M.C., and Abraham, J. (2007). Collaborative Sensemaking during Emergency Crisis Response: How do ICTs Help? Poster presented at the *ACM SIGGROUP Conference on Supporting Group Work (GROUP '07)*, Sanibel Island, FL.

[W.2] Puroo, S., **Paul, S.A.**, and Smith, S. (2007). Understanding Enterprise Integration Project Risks: A Focus Group Study. Workshop paper presented at the *18th International Conference on Databases and Expert Systems Applications (DEXA '07)*, Regensburg, Germany.

[W.1] Zhu, S., Abraham, J., **Paul, S.A.**, Reddy, M.C., Yen, J., Pfaff, M., and deFlicht, C.J. (2007). RCAST-MED: Applying Intelligent Agents to Support Emergency Medical Decision Making Teams. Poster presented at the *2nd North East Student Colloquium on Artificial Intelligence (NESCAI '07)*, Ithaca, NY.

AWARDS

- GE Silver Award for External Focus, 2012.
- NSF Computing Innovation Fellowship 2010 to pursue post-doc at PARC (Acceptance rate 11%).
- AMIA Diana Forsythe Award 2010.
- Google Graduate Researchers in Academia of Diverse backgrounds (GRAD) Forum 2010.

- Best paper nominee at CSCW 2010 and CHI 2009 (top 10% of papers nominated)
- Golden Mouse Award for Best Entertaining Video, CHI 2009.
- Doctoral Consortium iConference 2008
- Doctoral Consortium at AMIA 2008 (declined).
- Women in Sciences and Engineering Institute grant (\$3400) for teaching summer camp 2007.

PRESENTATIONS

UX Research in Industry

- Human Computer Interaction for Supporting Collaboration: From the Enterprise to Online Social Networks. Invited Talk at *United Technologies Research Center*, Hartford, CT.

Social Computing

- Collaborative Information Seeking and Sensemaking: From Small Groups to Social Networks. Invited talk at *GE Global Research*, San Ramon, CA.
- Social Information Seeking and Sensemaking: Research Stories from Multiple Domains. Invited talk at *Google*, Mountain View, CA.
- Social Q&A on Twitter. Presentation at *PARC*, Palo Alto, CA.

Collaborative Sensemaking and Collaborative Web Search

- Collaborative Information Seeking and Sensemaking. Invited talk at *IBM Almaden*, San Jose, CA.
- Understanding Together: Sensemaking in Collaborative Information Seeking. Presented at *PARC*, Palo Alto, CA.
- Towards a Model of Collaborative Information Seeking. Presented at *Microsoft Research*, Redmond, WA.
- CoSense: Enhancing Sensemaking for Collaborative Web Search. Presented at *CHI 2009*, Boston, MA.
- Understanding and Supporting Sensemaking for Collaborative Web Search. Presented at the Sensemaking workshop at *CHI 2009*, Boston, MA.
- CoSense: Collaborative Sensemaking Using SearchTogether. Presented at *Microsoft Research*, Redmond, WA.

Collaboration in Healthcare

- Studying Collaborative Information Behavior in a Hospital ED. Panel presentation at *iConference 2011*, Seattle, WA.
- Understanding Together: Sensemaking in Collaborative Information Seeking. Paper presented at *CSCW 2010*, Savannah, GA.
- Understanding Together: Collaborative Sensemaking in Emergency Care. Presented at the *4th Annual IST Graduate Symposium*, Penn State University, University Park, PA.
- The Usefulness of Information and Communication Technologies in Crisis Response. Presented at *AMIA '08*, Washington, D.C.
- Collaborative Sensemaking: A Field Study in an Emergency Department. Presented at the Sensemaking workshop at *CHI 2008*, Florence, Italy.
- Supporting Collaborative Sensemaking in an Emergency Department. Presented at the Doctoral Colloquium of the *Third Annual i-conference*, Los Angeles, CA.
- The Role of Information and Communication Technologies in Alleviating Emergency Department Overcrowding. Presented at *Connections 2007 Doctoral Consortium*, Philadelphia, PA.

PROFESSIONAL SERVICE

Program Committees

- ACM CSCW 2013.
- ACM CHI 2012 and CHI 2011.
- Workshop on Collaborative Information Retrieval (CIR 2011), co-located with CIKM 2011.
- Grace Hopper 2011 Birds of a Feather Selection Committee.
- ACM Conference on Group work (GROUP 2010).

Reviewer

ACM Transactions on Computer-Human Interaction (ToCHI)
Computer Supported Cooperative Work (CSCW Journal)
ACM UIST
ACM CHI
ACM CSCW
ACM IUI
ACM GROUP
INTERACT
International Journal of Medical Informatics
IEEE Computer Graphics and Applications

Student Volunteer

CHI 2008
CSCW 2008
CHI 2009
GROUP 2009

Affiliations

- Member of the Association for Computing Machinery (ACM).
- Member of BayCHI (Bay Area ACM Special Interest Group on CHI).

Other professional activities

- GE recruiting booth at Grace Hopper Conference 2011 & 2012.
- Panelist in the “Remote usability and user studies” panel at Grace Hopper Conference 2011.
- Panelist on the “Peer production systems” panel at Wikisym 2011.
- Session chair at CHI 2011 and CHI 2009.
- Coordinator for the PARC Intelligent Systems Lab weekly Dialog for Spring 2011.
- Co-organizer of GROUP 2009 workshop on Collaborative Information Behavior.

TEACHING EXPERIENCE

Penn State University, UP.

Instructor for Women in Sciences and Engineering Institute

Conducted a cross-cultural summer camp project involving high school girls from the US and India. I introduced students to technology careers and helped them share their experiences using wikis and blogs.

Teaching assistant

IST 331: Organization and Design of Information Systems – User and System Principles.

IST 311: Object Oriented Design and Software Applications.

IST 301: Information and Organizations.

IST 240: Introduction to Computer Languages.

7/8/2013

REFERENCES

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