2018 BOARD NOMINEE

Maria Ebling

Director, Academic and External Partnerships, Computing, IBM Research AI
IBM T. J. Watson Research Center

CRA
Computing Research Association

Awards and Honors and Year Received

- ACM Distinguished Scientist, November 2013 (Senior Member, September 2006)
- Member, IBM Academy of Technology, June 2011
- IEEE Senior Member, July 2010
- N.E.W. Face of Engineering, February 2004

Involvement in CRA Activities

- Distinguished Lecture: Maria R. Ebling, “Helping Doctors Find New Ways.” CRA-W Distinguished Lecture, Kentucky Celebration of Women in Computing, February 2012.

- Panel Member: Ming Lin (moderator), Nancy Amato, Angela Dalton, Maria R. Ebling, Kelly Ward, Michele Clark Weigle. CRAW Panel on “Pursuing Graduate School and Computer Science Research career.” University of North Carolina, November 2002.

Other Relevant Experience

- IBM Research Director, Academic and External Partnerships
- EIC, IEEE Pervasive Computing (January 2014-December 2017)
- Panel Member: Judith Olson (moderator), Aisling Kelliher, Susan Sim, Martha Pollack, Beth Mynatt, Maria R. Ebling. “Opportunities and Challenges of Interdisciplinary Research.” Grace Hopper Celebration of Women in Computing, October 2009.
- Member, IBM Power-Up Committee (Group of IBM executives working to increase the retention and career advancement of female researchers)

Research Interests

Pervasive computing, Internet of Things, Artificial Intelligence, Healthcare, Context-aware computing, Sensors and actuators, Mobile computing, Distributed systems, Cloud computing, Privacy, Human-computer interaction.

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Personal Statement

As I conclude my term as Editor in Chief for IEEE Pervasive Computing, I plan to re-focus my professional service activities primarily into two areas: (1) on improving the representation of women in computing, including increasing the pipeline, retaining mid-career women, and increasing the number of women in leadership roles, and (2) on improving the relationship, and effective collaborations, between academics and industrial researchers.

Maria Ebling

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Interests

Pervasive computing, Internet of Things, Artificial Intelligence, Healthcare, Context-aware computing, Sensors and actuators, Mobile computing, Distributed systems, Cloud computing, Privacy, Human-computer interaction.

Education

Carnegie Mellon University, Pittsburgh, PA 9/1988—5/1998

Ph.D. in Computer Science, 1998
Dissertation: *Translucent Cache Management for Mobile Computing*
Advisor: M. Satyanarayanan
Committee: Bonnie E. John (Bloomberg), James H. Morris, Douglas B. Terry (Amazon)

M.S. in Computer Science, 1992

Harvey Mudd College, Claremont, CA 8/1984—5/1988

B.S. in Mathematics (with Honors in Computer Science), 1988

Professional Employment

IBM T. J. Watson Research Center, Yorktown Heights, NY

Director 9/2013—present
Research Staff Member, Senior Manager 10/2006—9/2013
Research Staff Member, Manager 4/2002—10/2006
Research Staff Member 8/1998—3/2002
Duties include computer science research, supervising research staff, supervising M.S.- and Ph.D.-level student interns in the areas of mobile computing, distributed computing, ubiquitous/pervasive computing, and artificial intelligence.

Xerox Palo Alto Research Center, Palo Alto, CA

Research Intern 5/1992—8/1992
Implemented mail service on the ParcTab device to allow access to Tapestry (D. Goldberg, D. Nichols, B. Oki, D. Terry, "Using collaborative filtering to weave an information tapestry," Communications of the ACM, Volume 35 Issue 12, Dec. 1992 Pages 61-70 ACM New York, NY, USA) messages. Supervised by Doug Terry.

Jet Propulsion Laboratory, Pasadena, CA

Research Intern 5/1988—8/1988
Enhanced and evaluated ant foraging simulation running on the Time Warp Operating System (D. Jefferson , B. Beckman , F. Wieland , L. Blume , M. Diloreto, "Time warp operating system", Proceedings of the eleventh ACM Symposium on Operating systems principles, p.77-93, November 08-11, 1987, Austin, Texas, United States). Supervised by David Jefferson.

Teaching Experience

Student ratings are given, where available, evaluating the course and my performance as an instructor, showing (instructor rating/median department rating) for that course. Ratings range from 1-5 (5 is high).

United States Military Academy, West Point

Guest lecturer: Computer Science Seminar (CS400) Various

Carnegie Mellon University

Graduate Student Instructor:
CS312: Programming Languages (4.35/3.85) Fall 1990
CS712: Advanced Operating Systems & Distributed Systems Spring 1992

Harvey Mudd College

Tutor/Grader: Introduction to Computer Science (CS5) Fall 1987

Research Advising

PhD Review Committees

External member, Sarah Clinch, *Supporting User Appropriation of Public Displays*, Lancaster University, Viva, February 2014.

External member, Pravin Shankar, *Improving Performance, Privacy and Cost in Location-Based Mobile Computing*. Rutgers University, Thesis Defense, April 2011.

External member, Angela Dalton, *The Data Fidelity Space: Mechanisms for Enhanced Energy Management and Privacy in Context-aware Computing Applications*. Duke University, Thesis Defense, December 2006.

Graduate Intern Supervision and Mentoring

Gillian Hayes (from Georgia Institute of Technology), Summer 2006
Currently, Professor, University of California, Irvine Department of Informatics

Iqbal Mohomed (from University of Toronto), Summer 2006
Currently, Senior Staff Researcher, Samsung Research America

Rajesh Krishna Balan (from Carnegie Mellon University), Summer 2005
Currently, Associate Professor, Singapore Management University, School of Information Systems

Angela Dalton (from Duke University), Summer 2004
Currently, Principal Professional Staff Member at The Johns Hopkins University Applied Physics Laboratory.

Joel Branch (from Rensselaer Polytechnic Institute), Summer 2003
Currently, Manager and Staff Software Engineer, ESPN Advanced Technology Group.

Current Position

Academic and External Partnerships **October 2017-present**
As the Director for Academic and External Partnerships, I lead the Cognitive Horizons Network as well as our collaborations with customers. Within the CHN, my focus is on making sure that IBM extracts value from our investments with academic partners. This value comes in many forms, ranging from recruiting strong students to writing joint publications to transitioning academic research into product offerings. With our customer collaborations, my role is to ensure that we define collaborations that satisfy customer needs and also push our research agenda forward.

Research

Embodied Cognition & Conversational Systems **June 2016-September 2017**
The Embodied Cognition & Conversational Systems team investigated and evolved how Watson and people interact, both in the physical world and in the virtual one. Our research was

driven by, and validated with, internal deployments and customer engagements. We worked with a large equipment manufacturer to give operators of their equipment a cognitive assistant to help with unexpected emergency situations. We also worked with numerous internal partners to build cognitive assistants to support employee populations, both with mundane tasks (such as helping employees find information about benefits or career development) as well as highly-specialized tasks (such as our business development teams working on mergers and acquisitions). The lessons we learned during these engagements have driven enhancements to our Watson product offerings.

Cognitive Platform, Tools and Experiences **2014-May 2016**
The Cognitive Platform, Tools and Experiences team investigated the next generation platform to support the development of cognitive computing solutions. Our mission included platform runtimes and tooling to support the full lifecycle of cognitive computing experiences. One key project explored how to incorporate trained models into the software lifecycle, including DevOps, to ensure that models and services built around them would be managed and deployed as a matched set.

Services Innovation Lab **2011-2013**
This project focused on cloud application services, helping to address the gaps and challenges experienced by IBM services teams in the deployment and operation of clouds and by IBM customers in their adoption of the technology. My team successfully optimized IBM's Global Technology Services' use of third-party software licenses, saving more than $5m in less than a year.

Smarter Cities Big Bet **2010-2011**
This project focused on IBM's Smarter Cities initiative. My contribution to this effort examined existing customer engagements to understand the customer's requirements and how the IBM solution was architected in order to identify gaps in the IBM Research portfolio as well as gaps in IBM's product offerings. As a result of this work, we initiated a number of new projects within Research. In addition to this effort, I was selected as one of six employees to represent IBM on the Smarter Cities Challenge team for Providence, Rhode Island. While there, the team interviewed more than 85 stakeholders to understand the challenges facing Providence's land use management system and make recommendations for improvement as they look to redevelop 19.5 acres of land in the heart of the city.

Online Healthcare Analytics **2008-2010**
This research project focused on online data analysis to help healthcare practitioners cope with the high quantity of data available in an intensive care environment. The goal was to build an analysis engine that could identify significant healthcare situations that warrant a nurse's or a doctor's attention. An initial prototype of this work was used to monitor a small number of cardiac patients in Asia while a second study, monitoring premature infants in a neonatal intensive care unit, began in August 2009 and continues to present.

Remote Health Monitoring **2005–2007**
The aging population presents numerous challenges to our healthcare systems around the world. One of those challenges is managing chronic conditions, such as high blood pressure,

congestive heart failure, and diabetes. My group explored how information technology can help to address this challenge. We developed a solution that collected data from medical devices that patients use in their homes. These devices, such as blood pressure cuffs, pulse oximeters, and weight scales, were all enabled with Bluetooth. After the patient took a reading, the device transmitted that reading to a mobile communications hub. The communications hub then transmitted the reading to a backend database, where healthcare professionals could access it. This technology was used in a number of pilot studies around the world.

Context Technologies and Solutions **2003–2006**

My group researched the applications and middleware required to achieve the vision of context-aware applications and services. Our efforts focused on showing the value of context and on making context-aware applications easier to develop. We built a number of context-aware applications. *Scout* helped people better manage their tasks by automatically identifying tasks within emails generated by business processes and then using context to help users prioritize and satisfy those tasks. *Coltrane* reminded people of important events or tasks at appropriate times. For example, it reminded a user to stop by the mailroom or by a colleague's office when the user happened to be in the vicinity of those places. In addition, we investigated how to use these technologies in a hospital setting—one helped hospitals certify compliance with resident work schedules, another helped hospitals prevent operations on the wrong patient, and a third examined how to improve hospital efficiency by detecting when a patient left the hospital after discharge

Intelligent Notification Services **1998–2003**

My group designed, developed, and delivered a system for context-aware notification, which was eventually transferred from the Research Division to the Pervasive Computing Division and integrated into two IBM products: WebSphere Everyplace Suite and WebSphere Everyplace Access. As designed by the Research team, the Intelligent Notification Services (INS) offered users the ability to be notified of events in which they had previously expressed interest. It used context information to determine the best means of notification and used a context-aware privacy manager to control access to potentially sensitive information. In 2003, the Research team received Technical Group Awards for these achievements..

Coda File System **1989–1998**

File systems cannot maintain the illusion of connectivity in the face of weakly connected or disconnected operation because of lengthy data transfer delays or the complete inability to retrieve data from the servers. When this illusion of connectivity breaks down, the usability of the system is undermined. My work with the Coda file system identified and addressed these problems. My approach was to make cache management *translucent* to users. I built an interface that exposes critical aspects of caching to support availability while hiding non-critical details to preserve usability. For example, the interface showed users the availability of their tasks, but did not bother them with the minutiae of cache consistency. The interface also offered users the opportunity to control how precious network resources were spent. As part of this work, I showed that novice Coda users could learn to use Coda in about one hour and that they were able to understand the problems indicated by the interface and what actions they could take to resolve those problems. Perhaps the most surprising result of this work is that novice Coda users performed almost as well as expert Coda users.

Publications

Journals

Mahadev Satyanarayanan, Rolf Schuster, Maria Ebling, Gerhard Fettweis, Hannu Flinck, Kaustubh Joshi, and Krishan Sabnani. "An Open Ecosystem for Mobile-Cloud Convergence," IEEE Communications Magazine, 53(3), 63-70.

Maria R. Ebling and Mary Baker. "Pervasive Tabs, Pads, and Boards: Are we there yet?" Special Issue of *IEEE Pervasive Magazine*, January-March 2012.

Nadja Bressan, Carolyn McGregor, Marion Blount, Maria Ebling, Daby Sow, Andrew James. "1618 Identification of Noxious Events for Newborn Infants with a Neural Network", *Archives of Disease in Childhood*, 97(Suppl 2): A458-A458, October 2012.

Carolyn McGregor, Andrew James, Michael Eklund, Daby Sow, Maria Ebling, Marion Blount. "Real-time Multidimensional Temporal Analysis of Complex High Volume Physiological Data Streams in the Neonatal Intensive Care Unit", 192:362-366, 2012.

Marion Blount, Maria Ebling, Mikael Eklund, Andrew James, Carolyn McGregor, Nathan Percival, Kathleen Smith, Daby Sow. "A Framework for Analysis of Physiological Data Streams in Intensive Care Environments". Special Issue of *IEEE Engineering in Medicine and Biology Magazine*, March/April 2010.

Marion Blount, Virinder Batra, Andrew Capella, Maria R. Ebling, William Jerome, Sherri Martin, Michael Nidd, Michael Niemi, Steve Wright. "Remote Healthcare Monitoring using Personal Care Connect", *IBM Systems Journal*, 46(1), 2007.

Daby M. Sow, John S. Davis II, Maria R. Ebling, Archan Misra, Lawrence Bergman. "Uncovering the To-Dos Hidden in your Inbox", *IBM Systems Journal*, 45(4):739, 2006.

Maria R. Ebling. "HotMobile 2006: Workshop on Mobile Computing Systems and Applications: Overview of Workshop", *ACM SIGMOBILE Mobile Computing and Communications Review*, 10(3):70-78, 2006. (Also appears in *;login:* 31(4):95-103, August 2006 and similar article appears as *IEEE Pervasive Comptuing,* 5(4):102-105.)

Guruduth Banavar, Jay Black, Ramón Cáceres, Maria R. Ebling, Edie Stern, Joseph Kannry. "Deriving Long-Term Value from Context-Aware Computing", *Information Systems Management*, 22(4):32-42, September 2005.

Hui Lei, Daby M. Sow, John S. Davis II, Guruduth Banavar, Maria R. Ebling. "The Design and Applications of a Context Service", *ACM Mobile Computing and Communications Review*, 6(4):45-55, October 2002.

Maria R. Ebling, Bonnie E. John, and M. Satyanarayanan. "The Importance of Translucence in Mobile Computing Systems". *ACM Transactions on Computer-Human Interaction*, 9(1):42-67, March 2002.

M. Satyanarayanan, James J. Kistler, Puneet Kumar, Maria E. Okasaki (nee Ebling), Ellen H. Siegel, and David C. Steere. "Coda: A Highly Available File System for a Distributed Workstation Environment." *IEEE Transactions on Computers*, 39(4):447-459, April 1990.

Conferences

(† indicates "Best Paper" award)

Carolyn McGregor, Andrew James, Mike Eklund, Daby M. Sow, Maria Ebling, Marion Blount. "Real-time Multidimensional Temporal Analysis of Complex High Volume Physiological Data Streams in the Neonatal Intensive Care Unit." Proceedings of the 14th World Congress on Medical and Health Informations (MedInfo 2013), 362-366.

Alain Biem, Marion Blount, Maria R. Ebling, Daby Sow, Olivier Verscheure. "Body Sensor Data Processing using Stream Computing." *Proceedings of the 2010 International Conference on Multimedia Information Retrieval (MIR),* March 2010.

Carolyn McGregor, Daby Sow, Andrew James, Marion Blount, Maria Ebling, J. Mikael Eklund, and Kathleen Smith. "Collaborative Research on an Intensive Care Decision Support System Utilizing Physiological Data Streams." *Proceedings of the AMIA 2009 Annual Symposium.* November 2009.

† Marion Blount, John Davis, Maria R. Ebling, William Jerome, Barry Leiba, Xuan Liu, and Archan Misra. "Privacy Engine for Context-Aware Enterprise Application Services." *2008 IEEE/IFIP International Symposium on Trust, Security, and Privacy for Pervasive Applications (TSP 2008),* December 2008.

Iqbal Mohomed, Archan Misra, Maria R. Ebling, William Jerome. "Context-Aware and Personalized Event Filtering for Low-Overhead Continuous Remote Health Monitoring" (invited paper). *Proceedings of the 9th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks.* June 2008.

Gillian Hayes, Gregory Abowd, Maria R. Ebling, John Davis, Marion Blount, Elizabeth Mynatt. "Opportunities for Pervasive Computing in Chronic Cancer Care." *Proceedings of the Sixth International Conference on Pervasive Computing*. May 2008.

Iqbal Mohomed, Archan Misra, Maria Ebling, and William Jerome. "HARMONI: Context-aware Filtering of Sensor Data for Continuous Remote Health Monitoring" (short paper). *Proceedings of the Sixth Annual IEEE International Conference on Pervasive Computing and Communications (PerCom2008)*. May 2008

Joseph Kannry, MD, Susan Emro, Marion Blount, and Maria R. Ebling. "Small-scale Tesing of RFID in a Hospital Setting: RFID as Bed Trigger." *Proceedings of the AMIA 2007 Annual Symposium.* November 2007.

Marion Blount, John S. Davis II, Andrew Kim, Archan Misra, Sehun Park, Daby M. Sow, Young Ju Tak, Min Wang, Karen Witting, KangYoon Lee, and Maria R. Ebling. "Century: Automated Aspects of Patient Care." *Proceedings of the 13th IEEE Conference on Real-Time Computing Systems and Applications."* August 2007.

Erin Belinsky, Maria R. Ebling, William F. Jerome, Natalia Marmasse, Archan Misra, Eyal Sonsino, Vladimar Soroka, and Daby M. Sow. "PASTA: Deriving Rich Presence for Applications in a Converged Telecommunications Network" (invited paper). *Proceedings of the Second IEEE International Conference on Communication System Software and Middleware* (COMSWARE 2007), January 2007.

Rajesh Balan, Maria R. Ebling, Paul Castro, and Archan Misra. "Matrix: Adaptive Middleware for Distributed Multiplayer Games", *Proceedings of the 6th ACM/IFIP/USENIX International Middleware Conference (Middleware)* (short paper), November 2005.

Daby Sow, Maria R. Ebling, Rene-Pierre Lehmann, John S. Davis II, and Larry Bergman. "SCOUT Contextually Organizes User Tasks", *IEEE International Conference on e-Business Engineering* (ICEBE 2005), October 2005.

Maria R. Ebling and Bonnie E. John. "On the Contributions of Different Empirical Data in Usability Testing." *Proceedings of Designing Interactive Systems* (DIS 2000), August 2000.

Maria R. Ebling and Guerney D. H. Hunt. "Privacy Issues with Pervasive Computing." *IBM Academy of Technology Pervasive Computing Conference*, November 1999.

Lily B. Mummert, Maria R. Ebling, and M. Satyanarayanan. "Exploiting Weak Connectivity for Mobile File Access." *Proceedings of the 15th ACM Symposium on Operating Systems Principles* (SOSP), pages 143-155, December 1995. (Also appears as a chapter in *Mobile Computing*, T. Imielinski and H. Korth, Kluwer Academic Pub., 1996)

Maria R. Ebling and M. Satyanarayanan. "SynRGen: An Extensible File Reference Generator." *Proceedings of the 1994 ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems*, pages 108-117, May 1994.

M. Satyanarayanan, James J. Kistler, Lily B. Mummert, Maria R. Ebling, Puneet Kumar, and Qi Lu. "Experience with Disconnected Operation in a Mobile Environment." *Proceedings of the USENIX Symposium on Mobile & Location Independent Computing*, pages 11-28, August 1993.

Maria Ebling, Michael Di Loreto, Matthew Presley, Frederick Wieland, and David Jefferson. "An Ant Foraging Model Implemented on the Time Warp Operating System." *Proceedings of the SCS Multiconference on Distributed Simulation*, pages 21-26, March 1989.

Matthew Presley, Maria Ebling, Frederick Wieland, and David Jefferson. "Benchmarking the Time Warp Operating System with a Computer Network Simulation." *Proceedings of the SCS Multiconference on Distributed Simulation*, pages 8-13, March 1989.

Refereed Workshops

Minkyong Kim, Marcio Silva, Liangzhao Zeng, Salman Baset, Upendra Sharma, Maria Ebling, and Nicholas Fuller. "White-Box Benchmarking of IaaS Clouds: An OpenStack Case Study." Submitted to the Fifth USENIX Workshop on Hot Topics in Cloud Computing, 2013.

Iqbal Mohomed, Maria R. Ebling, William Jerome, and Archan Misra. "HARMONI: Motivation for a Health-oriented Adaptive Remote Monitoring Middlware", In *Proceedings of UbiHealth 2006: The 4th International Workshop on Ubiquitous Computing for Pervasive Healthcare Applications*, October 2006

Joel Branch, Boleslaw Szymanski, Chatschik Bisdikian, Norman Cohen, John Davis, Maria Ebling, Daby Sow. "Towards Middleware Components for Distributed Actuator Coordination", Proceedings of the Third IEEE Workshop on Embedded Networked Sensors (EmNets06), May 2006.

J. P. Black, W. Segmuller, N. Cohen, B. Leiba, A. Misra, M. R. Ebling, and E. Stern. "Pervasive Computing in Health Care: Smart Spaces and Enterprise Information Systems." *Workshop on Context Awareness*, held in conjunction with The Second International Conference on Mobile Systems, Applications, and Service (MobiSys 2004), May 2004.

John S. Davis II, Daby M. Sow, Angela B. Dalton, Maria R. Ebling. "Context-Sensitive Invocation Using the Context Tailor Infrastructure." *Online Proceedings of the Workshop on System Support for Ubiquitous Computing* (UbiSys 2003), October 2003.

John S. Davis II, Daby Sow, Marion Blount, Maria R. Ebling. "Context Tailor: Towards a Programming Model for Context-Aware Computing." *Proceedings of the First International ACM Workshop on Middleware for Pervasive and Ad-Hoc Computing*, pages 68-75, June 2003.

Maria R. Ebling, Guerney D. H. Hunt, and Hui Lei. "Issues for Context Services for Pervasive Computing." *Middleware 2001 Advanced Workshop on Middleware for Mobile Computing*, November 2001. Also available as IBM RC #22104. Recommended for publication in *Mobile Computing and Communications Review* together with another paper (see journal listing above).

Chatschik Bisdikian, Jim Christensen, John S. Davis II, Maria R. Ebling, Guerney D. H. Hunt, William Jerome, Hui Lei, Stéphane Maes, and Daby Sow. "Enabling Location-Based Applications." *Proceedings of the First International Workshop on Mobile Commerce* (WMC 2001), pages 38-42, July 2001.

Maria R. Ebling and M. Satyanarayanan. "On the Importance of Translucence for Mobile Computing." *Proceedings of First Workshop on Human-Computer Interaction for Mobile Devices*, pages 69-72, 1998, Glasgow, UK.

Maria R. Ebling and M. Satyanarayanan. "Translucent Cache Management for Mobile Computing." *Online Proceedings for the CHI97 Workshop on Ubiquitous Computing: The Impact on Future Interaction Paradigms and HCI Research*, March 1997.

Maria R. Ebling, Lily B. Mummert, and David C. Steere. "Overcoming the Network Bottleneck in Mobile Computing". *Proceedings of the IEEE Workshop on Mobile Computing Systems and Applications*, pages 34-36, December 1994.

Invited Talks

Maria R. Ebling, "Cognitive Computing Meets the Pervasive Internet-of-Things," Keynote Lecture, 6th International Joint Conference on Pervasive and Embedded Computing and Communication Systems, July 2016. Lisbon, Portugal. Similar talk given at the 2017 PowerUp Lecture at IBM Albany.

Maria R. Ebling, "Helping Doctors Find New Ways." CRA-W Distinguished Lecture, Kentucky Celebration of Women in Computing, February 2012.

Maria R. Ebling, "Software License Management." United States Military Academy. Invited Talk, January 2012.

Maria R. Ebling, "Helping Doctors Find New Ways: Using Stream Computing in Healthcare." United States Military Academy. Guest Lecture, January 2012.

Maria R. Ebling, "Helping Doctors Find New Ways: What If We Could Detect Disease Early." Technical Keynote, Grace Hopper Celebration of Women in Computing. November 2011.

Maria R. Ebling, "Helping Doctors Find New Ways: A Framework for Analysis of Physiological Data Streams." Keynote at IBM Canada's TechConnect Conference. May 2010

Maria R. Ebling, "Open Innovation Methods: Healthcare." Invited Talk. Medical Device & Manufacturing Conference. February 2010.

Maria R. Ebling. "The Impact of Context Awareness on Society." United States Military Academy. Guest Lecture February 2007, with similar talks given in March 2005, March 2004, February 2003, and April 2002.

Maria R. Ebling. "Context Aware Career: The Harvey Mudd Mission in the real world." Fiftieth Anniversary Distinguished Speaker Series, Harvey Mudd College. February 2006.

Maria R. Ebling. "Context Awareness *Without* Privacy Destruction." Distinguished Speaker Series, Society of Women Engineer's 2005 Region H Conference, University of Notre Dame, February 2005.

Maria R. Ebling and John M. Cohn. "Inventors Like You." S.U.N.Y. New Paltz National Engineer's Week Event, February 2004. Presentation was the keynote event for an all-day conference attended by 500 students from a 4 county region. Similar talks presented at IBM Research's Take Your Children To Work Day (June 2004), the New York Hall of Science La Familia Technology Week in October 2004, the Native American Family Technology Journey (November 2005), and various elementary and middle schools in the New York City area (March 2005, February 2006).

Maria R. Ebling. "Privacy Issues in Context-Aware Pervasive Computing." IBM Almaden Institute on Privacy, April 2002.

Maria R. Ebling and Guerney D. H. Hunt. "Privacy Issues in Ubiquitous Computing." Dartmouth College, Computer Science Seminar, February 2000.

Maria R. Ebling, Vivek Chhabra, Guerney D. H. Hunt, Peter Malkin, and Robert Schloss. "Awareness Services for Ubiquitous Computing." Dartmouth College, Senior Seminar, February 2000.

Journals Guest Edited

IEEE Pervasive Computing, Volume 16, Number 3, October-December 2017
Special Issue on Pervasive Computing Revisited

IEEE Pervasive Computing, Volume 12, Number 4, October-December 2013
Special Issue on Edge of the Cloud

IEEE Pervasive Computing, Volume 11, Number 4, October-December 2012
Special Issue on Healthcare.

IEEE Pervasive Computing, Volume 8, Number 1, January-March 2009.
Special Issue on Environmental Sustainability.

IEEE Pervasive Computing, Volume 1, Number 3, September 2002.
IEEE Wireless Communications, Volume 9, Number 5, October 2002.
Special Joint Issue on Context-Aware Pervasive Computing.

Panels

Anne Tate (Moderator), Maria Ebling, Kaja Kuhl, Willem Van Lancker. "Smarter Cities By Design". A Better World By Design, September 2011.

Susan Schwartz (Moderator), Rachel Borhauer, Maria R. Ebling, and Tanya T. Markow. "Group Project Management: Academic, Government, and Private Sector Approaches." 21st Annual Consortium for Computing Sciences in Colleges, Eastern Conference, October 2005. Also appears in *Journal of Computing Sciences in Colleges*, 21(2):204-206.

Maria R. Ebling (moderator) and Guerney D. H. Hunt. "Panel: Privacy Issues with Pervasive Computing." Participants: Malcolm Crompton, Federal Privacy Commissioner, Australia; Zaheer Baber, Assistant Professor of Sociology at the National University of Singapore; Goh Seow Hiong, Deputy Director (Development Policy) of the National Computer Board, Singapore; Masao Horibe, Professor of Law at Chuo University, Tokyo, Japan, Professor Emeritus at Hitotsubashi University. IBM Academy of Technology Pervasive Computing Conference, November 1999.

Patents

Method and Apparatus for Providing a Scalable Pervasive Notification Service. Chhabra, Maria R. Ebling, Guerney D. H. Hunt, and Peter Malkin. Republic of Korea Patent #386642, issued 23 May 2003. (Also, U. S. Application #10/198,283, filed 18 July 2002. U. S. Publication #2003/0018692 A1, published 23 January 2003.)

Method and Apparatus for Providing a Flexible and Scalable Context Service. Maria R. Ebling, Guerney D. H. Hunt, and Hui Lei. U.S. Patent #6,970,947, issued 29 November 2005.

Method and Apparatus for Providing Dynamic User Alert. Maria R. Ebling and Guerney D. H. Hunt. US Patent #7,250,846, issued 31 July 2007.

Method and Apparatus for Providing Extensible Scalable Transcoding of Multimedia Content. Maria R. Ebling, Guerney D. H. Hunt, Hui Lei, Gregory Stewart, and Li Xu. Taiwan Patent #I239180, issued 1 September 2005. U.S. Patent #7,383,347, issued 3 June 2008.

Methods and Apparatus for Discovering Data Providers Satisfying Provider Queries. Marion Blount, Paul Castro, Norman H. Cohen, John S. Davis II, Maria R. Ebling, Barry Leiba, Archan Misra, Apratim Purakayastha, Wolfgang Segmuller. U.S. Patent #7496585, issued 24 February 2009.

System and Method for Maintaining Communication Channels Through Gaps in Coverage. Guruduth Banavar and Maria R. Ebling. U. S. 7603115, issued 13 October 2009.

A Proactive Mechanism for Supporting the Global Management of Vehicle Traffic Flow. Chatschik Bisdikian, Joel W. Branch, Norman H. Cohen, John S. Davis, Maria R. Ebling, Daby M. Sow. U. S. Patent #7725250, issued 25 May 2010.

Method and Apparatus for Maintaining and Processing Provenance Data in Data Stream Processing System. Marion Blount, John S. Davis II, Maria R. Ebling, Archan Misra, Daby M. Sow, Min Wang. Republic of Korea Patent #968187, issued 29 June 2010; U.S. Patent #8301626, issued 30 October 2012.

Method and Apparatus for Determining and Validating Provenance Data in Data Stream Processing System. Marion Blount, John S. Davis II, Maria R. Ebling, Archan Misra, Daby M. Sow, Min Wang. Republic of Korea Patent #1006116, issued 29 December 2010. U.S. Patent #8775344, issued 8 July 2014.

Method and Apparatus for Localized Adaptation of Client Devices Based on Correlation or Learning at Remote Server. Maria Rene Ebling, William Francis Jerome, Archan Misra, and Iqbal I. Mohomed. Japan Patent #5147839, issued 7 December 2012. U.S. Patent #8775573, issued 8 July 2014. German Patent #602007050198.9, issued 14 March 2017. EP Patent #2039120, issued 14 March 2017. United Kingdom Patent #2039120, issued 14 March 2017.

Method and System for Call to Role. Maria R. Ebling, William F. Jerome, Barry Leiba, Edith H. Stern. U. S. Patent #8351596, issued 8 January 2013. U.S. Patent #8917857B2, issued 23 December 2014.

System and Method for Provenance Function Window Optimization. John S. Davis II, Maria R. Ebling, Chitra Venkatramani, Min Wang. U.S. Patent #8392397, issued 5 March 2013. U.S. Patent #9323805, issued 26 April 2016.

Method and Apparatus for Content Pre-fetching and Preparation. Guruduth Banavar, Maria R. Ebling, Guerney D. H. Hunt, Hui Lei, Daby M. Sow. U. S. Patent #8516114, issued 20 August 2013. U.S. Patent #8949420B2, issued 3 February 2015.

Methods and Apparatus for Complementing User Entries Associated with Events of Interest Through Context. Maria R. Ebling, Edith H. Stern, and Pnina Vortman. U. S. Patent #8494928 , issued 23 July 2013. U.S. Patent #8688549, issued 31 March 2014.

Adapting Compression Techniques over Data Based on Context. Maria R. Ebling, William F. Jerome, Iqbal I. Mohomed, Archan Misra. U.S. Patent #8904044B2, issued 2 December 2014.

Methods and Apparatus for Efficient and Adaptive Transmission of Data in Data Collection Networks. Maria Rene Ebling, William Francis Jerome, Archan Misra, Iqbal I. Mohomed. U.S. Patent #9109928, issued 17 August 2015.

Method and Apparatus for Providing Contextual Information with Telephone Calls. Arup Acharya, Maria R. Ebling, Zon-Yin Shae, Edith H. Stern, and Dinesh Verma. U.S. Patent #8576835, issued 5 November 2013.

Service

Disciplinary

Editorial Board

IEEE Pervasive Computing

- Editor-in-Chief, January 2014 – present
- Associate Editor, January 2011 – December 2013
- New Products Department Chair, December 2006–2010
- Member, September 2006 – 2010

Steering Committee

Member, Workshop on Mobile Computing Systems and Applications (HotMobile), February 2006 – March 2013.

Program Committees

(* indicates program chair)

Grace Hopper Celebration of Women in Computing, Career Track (GHC 2016)
Grace Hopper Celebration of Women in Computing, Posters (GHC 2016)
Grace Hopper Celebration of Women in Computing, Careers Track (GHC 2015)
Grace Hopper Celebration of Women in Computing, Posters (GHC 2014)
*Grace Hopper Celebration of Women in Computing, Medical Track (GHC 2013)
Fourteenth Workshop on Mobile Computing Systems and Applications (HotMobile 2013)
Tenth Int'l Conference on Mobile Systems, Applications, and Services (MobiSys 2012)
Ninth Int'l Conference on Mobile Systems, Applications, and Services (MobiSys 2011)
Twelfth Workshop on Mobile Computing Systems and Applications (HotMobile 2011)
Eighth Int'l Conference on Mobile Systems, Applications, and Services (MobiSys 2010)
Eleventh Workshop on Mobile Computing Systems & Applications (HotMobile 2010)
Seventh Int'l Conference on Mobile Systems, Applications, and Services (MobiSys 2009)
Tenth Workshop on Mobile Computing Systems & Applications (HotMobile 2009)
Sixth Int'l Conference on Mobile Systems, Applications, and Services (MobiSys 2008)
Ninth Workshop on Mobile Computing Systems & Applications (HotMobile 2008)
*Second Int'l Workshop on Systems and Networking Support for Healthcare and Assisted Living Environments (HealthNet 2008)
Fifth Int'l Conference on Mobile Systems, Applications, and Services (MobiSys 2007)
Sixteeth Int'l World Wide Web Conference, Pervasive Web and Mobility Track (WWW 2007)
Fifth Int'l Conference on Pervasive Computing (Pervasive 2007)
*Seventh IEEE Workshop on Mobile Computing Systems & Applications (HotMobile 2006)
Fifth Int'l and Interdisciplinary Conference on Modeling & Using Context (Context 2005)
Third Int'l Conference on Mobile Systems, Applications, & Services (MobiSys 2005)

Third Int'l Conference on Pervasive Computing (Pervasive 2005)
Sixth IEEE Workshop on Mobile Computing Systems & Applications (WMCSA 2004)
*MobiSys 2004 Workshop on Context Awareness
First Int'l Workshop on Context Modeling and Reasoning (CoMoRea 2004), associated with PerCom'04
First Int'l Workshop on Pervasive Computing and Communication Security (PerSec 2004), associated with PerCom'04
Ninth Annual Int'l Conference on Mobile Computing & Networking (MobiCom 2003)
First Int'l Conference on Mobile Systems, Applications, & Services (MobiSys 2003)
Eighth Annual Int'l Conference on Mobile Computing & Networking (MobiCom 2002)

Publicity Chair

Second Int'l Conference on Mobile Systems, Applications & Services (MobiSys 2004)
Third IEEE Workshop on Mobile Computing Systems & Applications (WMCSA 2000)

Institutional

PowerUp Committee, 2016-present
Senior Technical Staff Member Research Review Board, 2014-2017
Chair, IBM.Next Architecture Board, 2015-2016
Chair, IBM.Next Asset Review Board, 2015-2016
Co-organizer, Cognitive Computing Hackathon 2015
Member, Smarter Planet Invention Review Board, 2012-2013
Research Relationship Manager to various IBM executives
Contributor, Service Innovation TT Study, 2013
Contributor, Instrumented Smarter Planet TT Study, 2011
Voting Member, Industry Frameworks and Solutions Architecture Board, 2010–2012
Instructor, IBM Research's Family Science Program, 2006-2014

- Lead instructor for Scratch Session, 2009 and 2010
  - Led the design of the Scratch programming course
  - Served as primary instructor and trainer
- Lead instructor for Algorithms Session, 2011-2014
  - Served as lead instructor, stepping in to fill unexpected absence of predecessor
  - Re-designed course to make it more hands' on

Contributor, IBM Academy of Technology's Study on University Relations, 2005
Program Committee Member, IBM Academy of Technology Conference on Real-Time and Safety-Critical Systems, 2005
National Engineer's Week Volunteer, 2004–2006
Campus Relationship Manager, Carnegie Mellon University, 2002–2005
Contributor, IBM Academy of Technology's Hitchhiker's Guide to IBM, 2003–2004
Seminar Series Coordinator, Mobile Professional Interest Group, 2000-2001
Summer Student Coordinator, Feldman and Karasick, 1999

Community

Mentoring

Various Research employees and former IBM Research interns, on-going.

MentorNet, 1999-2005.

Career Development Panels

Judith Olson (moderator), Aisling Kelliher, Susan Sim, Martha Pollack, Beth Mynatt, Maria R. Ebling. "Opportunities and Challenges of Interdisciplinary Research." Grace Hopper Celebration of Women in Computing, October 2009.

Ming Lin (moderator), Nancy Amato, Angela Dalton, Maria R. Ebling, Kelly Ward, Michele Clark Weigle. CRAW Panel on "Pursuing Graduate School and Computer Science Research career." University of North Carolina, November 2002.

Maria R. Ebling and Lily Mummert. "Research Career Discussion." Women@SCS event, Carnegie Mellon, November 1999.

Maria R. Ebling, Guerney D. H. Hunt, Lily B. Mummert, William Tetzlaff, and John S. Davis II. "The N Things I Wished I Knew Before the Job Search." IBM T. J. Watson Research Center, Summer Student Panel Session, July 2001; CMU Emigration Course Seminar, November 1999.

Honors and Awards

Distinguished Scientist, ACM, November 2013.
Member, IBM Academy of Technology, June 2011.
Outstanding Technical Achievement Award for contributions to Context-Aware Computing, May 2011.
Research Division Award for contributions to Online Healthcare Analytics, October 2010.
Senior Member, IEEE, July 2010
Senior Member, ACM, September 2006
N.E.W. Face of Engineering, February 2004.
Technical Group Award and Research Accomplishment for contributions to the Intelligent Notification System, December 2003.

Continuing Education

Executive Presence: May 2016
Design for Business Leaders: September 2015

AccEL (Executive training): May 2014
Strategic Alignment: September 2008
MicroMBA: November 2004
Basic Blue for Managers: October 2002