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Professional Preparation

1979	S.B. Massachusetts Institute of Technology	Computer Science and Engineering
1979	S.M. Massachusetts Institute of Technology	Electrical Engineering and Computer Science
1983	Ph.D. Massachusetts Institute of Technology	Computer Science

Appointments

2017–	Avanessians Director of the Data Science Institute, Columbia University
2017–	Professor, Computer Science, Columbia University
2013-2017	Corporate Vice President, Microsoft Research
2004–2007, 2010–2012	Head, Computer Science Department, Carnegie Mellon University
2007-2010	Assistant Director, Computer and Information Science and Engineering, National Science Foundation
1999–2004	Associate Dean for Academic Affairs, School of Computer Science, Carnegie Mellon University
1996–2004	Associate Dept. Head for the Ph.D. Program, Computer Science Dept., CMU
1996–	Professor, Computer Science Dept., CMU
2002–2003	Visiting Researcher, Microsoft Research, Redmond, WA
1998–1999	Associate Dean for Doctoral Programs, School of Computer Science, CMU
1992	Visiting Associate Professor, Massachusetts Institute of Technology
1990–1996	Associate Professor, Computer Science Dept., CMU
1985–1990	Assistant Professor, Computer Science Dept., CMU
1983–1985	Assistant Professor, Computer Science Dept., University of Southern California

Publications Related to Proposed Project

1. Y. Gurevich, E. Hudis, and J.M. Wing, "Inverse Privacy," *Communications of the ACM*, Vol. 59, No. 7, July 2016, pp. 38–42.

2. M.C. Tschantz, A. Datta, A. Datta, and J.M. Wing, "A Methodology for Information Flow Experiments," *IEEE Computer Security Foundations Symposium*, Verona, Italy, July 13–17, 2015.

3. S. Sen, S. Guha, A. Datta, S. Rajamani, J. Tsai, and J.M. Wing, "Bootstrapping Privacy Compliance in Big Data Systems," in *35th IEEE Symposium on Security and Privacy ("Oakland")*, San Francisco, CA, May 18–21, 2014. Best Student Paper Award.

4. M.C. Tschantz, A. Datta, and J.M. Wing, "Formalizing and Enforcing Purpose Restrictions of Privacy Policies," in *Proceedings of IEEE Symposium on Security and Privacy*, San Francisco, CA, May 20–23, 2012. Also CMU-CS-12-106 (full version), March 2012.

5. O. Sheyner, J. Haines, S. Jha, R. Lippmann, and J.M. Wing, "Automated Generation and Analysis of Attack Graphs," *Proceedings of the IEEE Symposium on Security and Privacy*, Oakland, CA, May 2002.

Five Other Significant Publications

1. E.M. Clarke and J.M. Wing, "Formal Methods: State of the Art and Future Directions," *ACM Computing Surveys*, vol. 28, no. 4, December 1996, pp. 626–643. Available as CMU-CS-96-178.

2. A.M. Zaremski and J.M. Wing, "Specification Matching of Software Components," *ACM Trans. on Software Engineering and Methodology*, vol. 6, no. 4, October 1997, pp. 333-369. SIGSOFT Retrospective ("test of time") Paper Award, 2012.

3. B.H. Liskov and J.M. Wing, "A Behavioral Notion of Subtyping," *ACM Trans. on Prog. Lang. and Systems*, 16(6), Nov. 1994, pp. 1811–1841.

4. M.P. Herlihy and J.M. Wing, "Linearizability: A Correctness Condition for Concurrent Objects," *ACM Trans. on Prog. Lang. and Systems*, 12(3), July 1990, pp. 463–492;

5. J.M. Wing, "Writing Larch Interface Language Specifications," *ACM Trans. on Prog. Lang. and Systems*, 9(1), Jan. 1987, pp. 1–24.

Synergistic Activities

1. Formal Methods, Privacy, and Data Science Leadership (select)

   - Academic Data Science Leadership Summit, sponsored by NSF, Moore Foundation, and Sloan Foundation, New York, NY, March 26, 2018. Inaugural event.
   - Privacy Workshop, sponsored by CCC, ITIF, and CMU, co-chair with Daniel Castro, Washington, DC, March 4, 2013.
   - "Formal Methods for Privacy," *Formal Methods 2009*, Eindhoven, The Netherlands, November 4, 2009. Keynote Speaker.
   - Guest Editor: (a) Three special issues on FM'99: *Formal Aspects of Computing Journal*, vol. 12, no. 3, September 2000, *Formal Methods in System Design*, vol. 17, no. 3, December 2000, *IEEE Transactions on Software Engineering*, vol. 26, no. 8, August 2000; with Jim Woodcock; (b) Special issue on Software Specification and Verification, *Formal Methods in System Design*, vol. 8, no. 2, March 1996.
   - Technical Program Committee Co-Chair, *Formal Methods '99*, Toulouse, France, Sept. 1999.

2. Editorial Board Member (select): *Communications of the ACM*, 2007–; *Journal of the Association for Computing Machinery*, 1999-; *IEEE Transactions on Dependable and Secure Computing*, 2006-; *Software Tools for Technology Transfer*, 2001–2016; *Formal Aspects of Computing*, North American Associate Editor (since 1997), Springer-Verlag, 1988-; *Formal Methods in System Design*, Kluwer Press, 1994-; *ACM Trans. on Prog. Lang. and Systems*, 1992-1999; and *ACM Trans. on Soft. Eng. and Methodology*, 1989-1999.

3. Honors and Awards (select): ACM Fellow, American Academy of Arts and Sciences Fellow, AAAS Fellow, IEEE Fellow; ACM Distinguished Service Award, CRA Distinguished Service Award; SIGSOFT Retrospective Paper Award (2012). Columbia College of Dental Medicine Birnberg Research Award.

4. *Committee Member (select):* National Library of Medicine Blue Ribbon Panel, 2018–. NSF Accountable Decision Systems Advisory Board, 2017–. American Academy of Arts and Sciences, Class I Section 6 (Computer Science), Chair 2017–. American Association for the Advancement of Science, Section T (Information, Computing and Communication), Chair, 2016–2017. Association for Women in Mathematics, Advisory Board, 2017–. Institute for Pure and Applied Mathematics, member of Board of Trustees, 2016–. NSA Board of Judges, Best Scientific Cybersecurity Paper, 2012–. NITRD co-chair, 2007–2010, Computer Science and Telecommunications Board, member: 2001-2004, co-chair: 2004–2005. ACM Council, 2006–2007. Microsoft Trustworthy Computing Academic Advisory Board, 2003–2007, 2010–. DARPA Information and Science Technology Panel (ISAT), Vice Chair, 2012–2014; Chair, 2014–2016; Steering Committee, 2012–. NSF CISE Advisory Committee, 1995-1998.

5. *Industry Research:* (1) The privacy compliance checker tool described in the Sen et al. paper is used within Microsoft nightly on a huge code base; (2) As CVP of Microsoft Research, I sponsored the research teams in MSR Bangalore, Cambridge (UK), and Redmond that provided technology for Azure Confidential Computing and I helped support the FATE (fairness, accountability, transparency, and ethics) group at MSR NYC.