

Dr. Dakshi Agrawal

IBM Thomas J. Watson Research Center
19 Skyline Drive
Hawthorne, NY, 10952
US

Phone: 914-784-6016

FAX: 914-784-6205

Email: agrawal@us.ibm.com

<http://www.research.ibm.com/people/a/agrawal>

Education:

- Ph.D. in Electrical Engineering, [University of Illinois](#) (Urbana-Champaign, IL) 1999
- M.S. in Electrical Engineering, [Washington University](#) (St. Louis, MO) 1995
- B.Tech. in Electrical Engineering, [Indian Institute of Technology–Kanpur](#) (Kanpur, India) 1993

Experience:

- Research Staff Member, [IBM's T J Watson Research Center](#) (Hawthorne, NY), 06/00-present. Lead transition of IBM Research's policy technologies into the [Policy Management for Autonomic Computing](#) for IBM Tivoli. Investigated and developed all aspects of policy based management systems. Other work includes theoretical limits and practical assessment techniques for determining the risk of communication relationship disclosures in an anonymity MIX.
- Visiting Assistant Professor, [University of Illinois](#) (Urbana-Champaign, IL) 08/99-06/00. Developed new algorithms for turbo-coded continuous phase modulation and taught graduate and undergraduate courses in digital communications.

Awards:

- IBM Research Division Award for contributing to the architecture of IBM Autonomic Computing Policy Infrastructure and Products, 12/03.
- [Ross J. Martin Memorial Award](#) for outstanding research achievement by a graduate student in the College of Engineering at University of Illinois (Urbana-Champaign, IL), 06/00.
- [Robert T. Chen Memorial Award](#) for excellence in doctoral research in the Department of Electrical and Computer Engineering at University of Illinois (Urbana-Champaign, IL), 06/99.
- [Certificate of Merit](#) for securing second rank in the Indian National Mathematical Olympiads 1988.

Invited Presentations:

- "The Turbo Decoding Algorithm and Its Phase Trajectories," 4-th UCSD/UCLA/Stanford Winter School in Chaotic Communications, San Diego, CA, USA, 01/02.
- "The Turbo Decoding Algorithm and Its Phase Trajectories," HRL seminar series at Harvard University, Cambridge, Massachusetts, 03/02.

Selected Publications:

- [Templates as master keys](#). Dakshi Agrawal, Josyula R Rao, Pankaj Rohatgi, and Kai Schramm. In *Proceedings of Workshop on Cryptographic Hardware and Embedded Systems (CHES 2005)*, 2005.
- [Policy ratification](#). Dakshi Agrawal, James Giles, Kang-Won Lee, and Jorge Lobo. In *Proceedings of IEEE International Workshop on Policies for Distributed Systems and Networks (Policy 2005)*, June 2005.

- [Policy-based validation of SAN configuration](#). Dakshi Agrawal, James Giles, Kang-Won Lee, Kaladhar Voruganti, and Khalid Filali-Adib. In *Proceedings of IEEE International Workshop on Policies for Distributed Systems and Networks (Policy 2004)*, June 2004.
- [Using CERTES to infer client response time at the web server](#). David Olshefski, Jason Nieh, and Dakshi Agrawal. *ACM Trans. Comput. Syst.*, 22(1):49-93, 2004.
- [Joint noncoherent demodulation and decoding for the block fading channel: A practical framework for approaching Shannon capacity](#). Rong-Rong Chen, Ralf Koetter, Upamanyu Madhow, and Dakshi Agrawal. *IEEE Transaction on Communications*, 51:1676-1689, October 2003.
- [Probabilistic treatment of MIXes to hamper traffic analysis](#). Dakshi Agrawal, Dogan Kesdogan, and Stefan Penz. In *Proceedings of IEEE 2003 Symposium on Security and Privacy*, pages 16-27, May 2003.
- [On nearest neighbor indexing of nonlinear trajectories](#). Charu C. Aggarwal and Dakshi Agrawal. In *Proceedings of the twenty-second ACM SIGMOD-SIGACT-SIGART symposium on Principles of database systems*, pages 252-259. ACM Press, 2003.
- [Multi-channel attacks](#). Dakshi Agrawal and Pankaj Rohatgi Josyula R Rao. In *Proceedings of Workshop on cryptographic hardware and embedded systems, CHES 2003*, 2003.
- [The EM side-channel\(s\)](#). Dakshi Agrawal, Bruce Archambeault, and Josyula R Rao, and Pankaj Rohatgi. In *Proceedings of Workshop on Cryptographic Hardware and Embedded Systems (CHES 2002)*, 2002.
- [Multiple-antenna signal constellations for fading channels](#). Dakshi Agrawal, Thomas J Richardson, and Ruediger L. Urbanke. *IEEE Transaction on Information Theory*, 47:2618-2626, September 2001.
- [The turbo decoding algorithm and its phase trajectories](#). Dakshi Agrawal and Alexander Vardy. *IEEE Transaction on Information Theory*, 47:699-722, February 2001.
- [On the design and quantification of privacy preserving data mining algorithms](#). Dakshi Agrawal and Charu C. Aggarwal. In *Proceedings of the twentieth ACM SIGMOD-SIGACT-SIGART symposium on Principles of database systems*, pages 247-255. ACM Press, 2001.
- [On the performance of content distribution networks](#). Dakshi Agrawal, James Giles, and Dinesh C. Verma. In *Proceedings of International Symposium on Performance Evaluation of Computer and Telecommunication Systems*, 2001.
- [Generalized minimum distance decoding in Euclidean space: Performance analysis](#). Dakshi Agrawal and Alexander Vardy. *IEEE Transaction on Information Theory*, 46:60-83, January 2000.
- [Space-time coded OFDM for high data-rate wireless communication over wideband channels](#). Dakshi Agrawal, Vahid Tarokh, Ayman Naguib, and Nambi Seshadri. In *Proceedings of IEEE Vehicular Technology Conference, 1998*, pages 2232-2236, 1998.
- [A counterexample to a Voronoi region conjecture](#). Ruediger L. Urbanke and Dakshi Agrawal. *IEEE Transaction on Information Theory*, 41:1195-1196, July 1995.

Selected Patents:

- “A diversity coded OFDM for high data-rate communication,” Dakshi Agrawal, Ayman F. Naguib, Nambirajan Seshadri, and Vahid Tarokh. United State Patent 6,618,454.
- “A system for protecting against leakage of sensitive information from compromising electromagnetic emissions from computing,” Dakshi Agrawal, Bruce R. Archambeault, Josyula R Rao, and Pankaj Rohatgi. United States Patent 6,870,090.
- “Cost conversant classification of objects,” Dakshi Agrawal, David P Olshefski, and Dinesh C Verma. United States Patent 6,928,445.