ATUL PRAKASH

Contact Information

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Education

- Ph.D., Dept. of EECS, University of California, Berkeley, 1989.

- M.S. in Computer Science. University of California, Berkeley, 1984.

- B.Tech. in Electrical Engineering. Indian Institute of Technology, New Delhi, 1982.

Professional Experience

2001-present University of Michigan, Ann Arbor. Professor, Computer Science Division, Department of EECS.

1995-2001 University of Michigan, Ann Arbor. Associate Professor, Computer Science Division, Department of EECS.

5/99-6/99 Visiting Research Scientist, GMD-IPSI, Darmstadt, Germany.

10/95-5/96 IBM T.J. Watson Research Center, Yorktown Heights, Visiting Research Scientist (on sabbatical leave from the University of Michigan).

1989-1995 University of Michigan. Assistant Professor, Computer Science Division, Department of EECS.

Awards and Honors

- ITR Award from the National Science Foundation, 2000.

- Inclusion of the the Upper Atmospheric Research Collaboratory project in the Smithsonian Permanent Collections and selection as one of the finalists in the 1998 Smithsonian/Computerworld award for the best Science project.

- Research Excellence Award, Department of EECS, University of Michigan, 1996-97.

- Irving and Lucille Smith Fellowship, Computer Science, University of California, Berkeley, 1988-89.

- Passed with distinction, Ph.D. thesis qualifying examination presentation, University of California, Berkeley, 1988.

- Honored for participating in the Centennial Issue of IEEE Computer, 1984.

- Regents Fellowship, University of California, 1983-84.

- Rajiv Bambawale Memorial Award for the best B.Tech. Electrical Engineering project, IIT Delhi, 1982.

- Merit Prizes, IIT Delhi, 1977, 78, 79, 80, 81 and 82.

- Merit Prize for 4th rank in the All India Joint Entrance Examination for admission to the five IITs (among approximately 100,000 students), 1977.

- Merit Scholarship, All India Board of Higher Secondary Education, 1977.

Research in the News

Our study on vulnerabilities in online banking systems (July 2008) received a lot of press. It was quoted in Barron's, BusinessWeek, NPR, Associated Press, BBC, and many other publications. Several banks, including Chase and LaSalle Bank, changed their web sites for improved security shortly after publication of the work.

Publications

Book Chapters

- Hyong-Sop Shim, Atul Prakash, and Jang Ho Lee. Distributed and Collaborative Development. Wiley Encyclopedia of Computer Science and Engineering, DOI: 10.1002/9780470050118.ecse116, John Wiley & Sons, Dec. 14, 2007.

- L. Opyrchal and A. Prakash, Publish Subscribe Middleware, Chapter in *Scalable Enterprise Systems: An Introduction to Recent Advances*, ed. V. Prabhu, S. Kumara, and M. Kamath, Kluwer Academic Publishers, July 2003.

- Atul Prakash, Group Editors, Chapter in *Trends in Computer-Supported Cooperative Work*, John Wiley & Sons. (Editor: M. Beaudouin-Lafon), 1998.

- C.R. Clauer, D.E. Atkins, T.E. Weymouth, G.M. Olson, R. Niciejewski, T.A. Finholt, A. Prakash, C.E. Rasmussen, T. Killeen, T.J. Rosenberg, D. Detrick, J.D. Kelly, Y. Zambre, C. Heinselman, P. Stauning, E. Friis-Christtensen, and S.B. Mende, A Prototype Atmospheric Research Collaboratory (UARC), in *Applications of Data Handling and Visualization Technique in Space Atmospheric Sciences*, E. Szuszczewicz (ed), NASA SP-519, pp. 105-112.

- C.V. Ramamoorthy, A. Prakash, V. Garg, T. Yamaura, and A. Bhide, Issues in the Development of Large, Distributed, and Reliable Software, *Advances in Computers*, Vol. 26, 1987, pp. 396-443.

- C. V. Ramamoorthy, A. Prakash, W.-T. Tsai and Y. Usuda, Software Reliability: Its Nature, Models, and Improvement Techniques, in *Theory of Reliability*, ed. A. Serra and R.E. Barlow, Proceedings of the International School of Physics "Enrico Fermi", North-Holland, 1986, pp. 287-320.

Journal Publications

- Akula, M., Sandur, A., Kamat, V.R., and Prakash, A. "Evaluation of Context-Aware Computing for Improved Bridge Inspections", *Journal of Computing in Civil Engineering*, American Society of Civil Engineers, Reston, VA. Accepted for publication.

- Sharad Sharma, Harpreet Singh, Atul Prakash. Multi-agent modelinhg and simulation of human behavior in aircraft evacuations. *IEEE Transactions on Aerospace and Electronic Systems*, Oct. 2008, Vol. 44, No. 4, pp. 1477-1488.

- Xin Zhao, Kevin Borders, and Atul Prakash. Using a virtual machine to protect sensitive Grid resources. *Concurrency and Computation: Practice and Experience*. Special issue on Middleware for Grid Computing: A Possible Future. Vol. 19, No. 14, Sept. 2007, pages: 1917-1935.

- Patrick McDaniel and Atul Prakash, Enforcing provisioning and authorization policy in the Antigone system, *Journal of Computer Security*. 14(6):483-511, 2006.

- Patrick McDaniel and Atul Prakash, Methods and Limitations of Security Policy Reconciliation. *ACM Transactions on Information and System Security (TISSEC)*, Association for Computing Machinery, 9(3):259-291, August, 2006.

- Trent Jaeger, Atul Prakash, Jochen Liedtke and Nayeem Islam, Flexible control of downloaded executable content, *ACM Transactions on Information and System Security*, Vol. 2, Issue 2, May 1999, pp. 177-228.

- S. Subramanian, G.R. Malan, H.S. Shim, J.H. Lee, P. Knoop, T.E. Weymouth, F. Jahanian, A. Prakash, Software architecture for the UARC Web-based collaboratory, *IEEE Internet Computing*, Mar-Apr. 1999, Vol. 3, Issue 2, pp. 46-54.

- A. Prakash, H.S. Shim, and J.H. Lee, Issues and Trade-offs in CSCW Systems, *IEEE Transactions on Data and Knowledge Engineering*, Jan.-Feb. 1999, Vol. 11, Issue 1, pp. 213-227.

- G. Olson, D.E. Atkins, R. Clauer, T. Finholt, F. Jahanian, T.L. Killeen, A. Prakash, and T. Weymouth, The Upper Atmospheric Research Collaboratory, *ACM Interactions*, Vol. 3, May-June 1998, pp. 48-55.

- R. Strom, G. Banavar, K. Miller, A. Prakash, and M. Ward, Concurrency Control and View Notification Algorithms for Collaborative Replicated Objects, *IEEE Transactions on Computers*, Vol. 47, No. 8, April 1998, pp. 458-471.

- S. Paul and A. Prakash, A Query Algebra for Program Databases, *IEEE Transactions on Software Engineering*, Vol. 22, No. 1, March 1996, Vol. 22, No. 3, pp. 202-217.

- R. Al-Zoubi and A. Prakash, Program View Generation and Change Analysis Using Attributed Dependency Graphs, *Journal of Software Maintenance — Research and Practice*, Volume 7, No. 4, July-August 1995.

- A. Prakash and M. Knister, A Framework for Undoing Actions in Collaborative Systems, *ACM Transactions on Computer-Human Interaction*. December 1994.

- C. R. Clauer, J. D. Kelly, T. J. Rosenberg, C. E. Rasmussen, P. Stauning, E. Friis-Christensen, R. J. Niciejewski, T. L. Killeen, S. B. Mende, Y. Zambre, T. E. Weymouth, A. Prakash, S. E. McDaniel, G. M. Olson, T. A. Finholt, and D. E. Atkins, A New Project to Support Scientific Collaboration Electronically, *EOS Trans. Amer. Geophys. Union*, Vol. 75, June 28, 1994.

- E. Buss, R. De Mori, M. Gentleman, J. Henshaw, H. Johnson, K. Kontogiannis, E. Merlo, H. Muller, J. Mylopoulos, S. Paul, A. Prakash, M. Stanley, S. Tilley, J. Troster and K. Wong, Investigating Reverse Engineering Technologies: The CAS Program Understanding Project, *IBM Systems Journal*, Vol. 33, No. 3, August 1994, pp. 477-500.

- S. Paul and A. Prakash, Supporting Queries on Source Code: A Formal Framework, *International Journal of Software Engineering and Knowledge Engineering* (Special Issue on Reverse Engineering), Vol. 4, No. 3, September 1994, pp. 325-348.

- S. Paul and A. Prakash, Framework for Source Code Search Using Program Patterns, *IEEE Transactions on Software Engineering*, Volume 20, Number 6, June 1994, pp. 463-475.

- C.R. Clauer, D.E. Atkins, T.E. Weymouth, G.M. Olson, R. Niciejewski, T. Finholt, A. Prakash, C.E. Rasmussen, T.J. Rosenberg, J.D. Kelly, Y. Zambre, P. Stauning, E. Friis-Christensen, and S.B. Mende, A Prototype Upper Atmospheric Research Collaboratory (UARC) **(Abstract)**, *EOS, Transactions on American Geophysical Union*, Vol. 74, 1993.

- M. Knister and A. Prakash, Issues in the Design of a Toolkit for Supporting Multiple Group Editors, *Computing Systems*, Journal of the Usenix Association, Vol. 6, No. 2, Spring 1993, pp. 135-166.

- C.V. Ramamoorthy, Y. Usuda, A. Prakash, and W.T. Tsai, The Evolution Support Environment System, *IEEE Trans. on Software Engineering*, Vol. 16, No. 11, November 1990, pp. 1225-1234.

- C.V. Ramamoorthy, V. Garg, and A. Prakash, Support for Reusability in Genesis, *IEEE Transactions in Software Engineering*, Vol 14, No. 8, August 1988, pp. 1145-1154.

- C.V. Ramamoorthy, V. Garg, and A. Prakash, Programming in the Large, *IEEE Transactions on Software Engineering*, Vol. 12, No. 7, July 1986, pp. 769-783.

- C. V. Ramamoorthy, A. Prakash, W.-T. Tsai, and Y. Usuda, Software Engineering: Status and Perspectives, *IEEE Computer*, Vol. 17, No. 10, October 1984, pp. 191-209.

Conference and Workshop Publications

- Beng Heng Ng and Atul Prakash, Let the Right One In: Discovering and Mitigating Permission Gaps, *Proc. Intl. Conf. on Information Security and Systems*, Kolkata, India, 2013.

- Beng Heng Ng and Atul Prakash, Expose: Discovering Potential Binary Code Re-Use, *Proc. 37th IEEE Conference on Computers, Software, and Applications (COMPSAC)*, Kyoto, Japan, 2013.

- Beng Heng Ng, Earlence Fernandes, Ajit Aluri, Jijiang James, and Atul Prakash, Beyond Instruction Level Taint Propagation, presented at *6th European Workshop on Systems Security (EuroSec'13)*, Prague, Czech Republic, April 2013.

- Beng Heng Ng, Alexander Crowell, Atul Prakash: Adaptive semi-private email aliases. *Proc. of 7th ACM Symposium on Information, Computer and Communications Security (ASIACCS)*, Seoul, Korea, 2012.

- Yilan Zhang, Masahiro Kurata, Jerome P. Lynch, Gwendolyn Van Der Linden, Hassan Sadarat, and Atul Prakash. Distributed cyberinfrastructure tools for automated data processing of structural monitoring data. *Proceedings of SPIE - The International Society for Optical Engineering*, 8347, 2012.

- Biswajit Panja, Atul Prakash, Priyanka Meharia, Bradley Schneider: Security in sensor network based SCADA system for adaptive traffic signal operation. International Conference on Collaboration Technologies and Systems (CTS), 2012, 195-202.

- Tzeng, HM, Yin, CY, Anderson, A, and Prakash, A (2012). Nursing staffs awareness of keeping beds in the lowest position to prevent falls and fall injuries in an adult acute surgical inpatient care setting. MedSurg Nursing, 21(5), 271274.

- Akula, M., Sandur, A., Kamat, V.R., and Prakash, A. (2012). "Context-Aware Computing Framework for Improved Bridge Inspections", Proceedings of the 2012 Construction Research Congress, American Society of Civil Engineers, Reston, VA, 698-707.

- Heqing Huang, Su Zhang, Xinming Ou, Atul Prakash, and Karem Sakallah. 2011. Distilling critical attack graph surface iteratively through minimum-cost SAT solving. In *Proceedings of the 27th Annual Computer Security Applications Conference (ACSAC '11)*. ACM, New York, NY, USA, 31-40.

- Mark W. Newman, Mark S. Ackerman, Jungwoo Kim, Atul Prakash, Zhenan Hong, Jacob Mandel, and Tao Dong. 2010. Bringing the field into the lab: supporting capture and replay of contextual data for the design of context-aware applications. In *Proceedings of the 23nd annual ACM symposium on User interface software and technology (UIST '10)*. ACM, New York, NY, USA, 105-108.

- Mark S. Ackerman, Tao Dong, Scott Gifford, Jungwoo Kim, Mark W. Newman, Atul Prakash, Sarah Qidwai, David Garcia, Paulo Villegas, Alejandro Cadenas, Antonio Sanchez-Esguevillas, Javier Aguiar, B. Carro, Sean Mailander, Ronald Schroeter, Marcus Foth, Amiya Bhattacharya, and Partha Dasgupta. 2009. Location-Aware Computing, Virtual Networks. *IEEE Pervasive Computing*, Vol. 8, No. 4 (October 2009), 28-32.

- Prakash, Atul, Ng, Beng Heng, Lau, Billy, and Kamat, Vineet (2009). "Dependable Opportunistic Communication in a MultiTier Sensor Network Architecture", Proceedings of the 2009 Workshop on Research Directions in Situational Self-managed Proactive Computing in Wireless Ad-Hoc Networks, Air Force Research Laboratory, St. Louis, MO.

- Swati Gupta, Kristen LeFevre, and Atul Prakash. SPAN: a unified framework and toolkit for querying heterogeneous access policies. In *Proceedings of the 4th USENIX conference on Hot topics in security (HotSec'09)*, 2009, Usenix Association.

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- Kevin Borders, Eric Vander Weele, Billy Lau, and Atul Prakash. 2009. Protecting confidential data on personal computers with storage capsules. In Proceedings of the 18th conference on USENIX security symposium. USENIX Association, Berkeley, CA, USA, 367-382.

- Kevin Borders and Atul Prakash. 2009. Quantifying Information Leaks in Outbound Web Traffic. In Proceedings of the 2009 30th IEEE Symposium on Security and Privacy (SP '09). IEEE Computer Society, Washington, DC, USA, 129-140.

- Xin Zhao, Atul Prakash, and Kevin Borders. Prism: Providing flexible and fast filesystem cloning service for virtual servers, *Proc. of the 9th ACM/IFIP/USENIX Internaltional Conference on Middleware (Middleware 2008)*, Springer-Verlag, pp. 388-407.

- Garrett Brown, Travis Howe, Michael Ihbe, Atul Prakash, and Kevin Borders. Social Networks and Context-Aware Spam, *Proc. of the ACM Conference on Computer-supported Cooperative Work*, Nov. 8-12, 2008.

- Kevin Borders and Atul Prakash, Towards Quantification of Network-based Information Leaks via HTTP. *Proc. 3rd Usenix Workshop on Hot Topics in Security (HOTSEC)*, July 29, 2008, San Jose, CA.

- Laura Falk, Atul Prakash, Kevin Borders, Analyzing Websites for User-visible Security Design Flaws, *Proc. Symposium on Usable Security and Privacy (SOUPS)*, July 23-25th, 2008.

- Atul Prakash. Security in Practice: Security-Usability Chasm. *Proc. of Third International Conference on Information Systems Security (ICISS)*, December 2007. Invited paper.

- Kevin Borders, Atul Prakash, and Mark Zielinski, Spector: Automatically Analyzing Shell Code. *Proc. of the 23rd Annual Computer Security Applications Conference (ACSAC '07)*, Dec. 2007, 501-513.

- Kevin Borders and Atul Prakash, Securing Network Input via a Trusted Input Proxy. *Proceedings of the 2nd USENIX Workshop on Hot Topics in Security (HOTSEC '07)*, Aug. 2007.

- Kevin Borders, Xin Zhao, and Atul Prakash, Sting: Detecting Evasive Malware (short paper), *IEEE Oakland Symposium on Security and Privacy*, 2006.

- L. Opyrchal, A. Prakash, and A. Agrawal, Designing a Publish-Subscribe Substrate for Privacy/Security in Pervasive Environments, *Proc. of the 2006 ACS/IEEE International Conference on Pervasive Services*, June 26-29, 2006, pages 313-316.

- Kevin Borders, Xin Zhao, and Atul Prakash, Sting: Detecting Evasive Malware (short paper), *IEEE Symposium on Security and Privacy*, 2006.

- Xin Zhao and Atul Prakash. WSF: An HTTP-level firewall for hardening web servers. *The 17th IASTED International Conference on Parallel and Distributed Computing Systems*, Nov. 2005, Phoenix, AZ.

- Xin Zhao, Kevin Borders, and Atul Prakash. SVGrid: a secure virtual environment for untrusted grid applications. *Proc. of the 3rd International workshop on Middleware for Grid Computing (MGC'05)*, Grenoble, France, 2005.

- Kevin Borders, Xin Zhao, and Atul Prakash, CPOL: High-Performance Policy Evaluation. *Proc. of the 12th ACM Conference on Computer and Communications Security (CCS)*, 2005.

- Kevin Borders and Atul Prakash, Web Tap: Detecting Covert Web Traffic. *Proceedings of the 11th ACM Conference on Computer and Communications Security (CCS)*, Oct. 2004, 110-120.

- Lukasz Opyrchal, Atul Prakash, and Amit Agrawal, Designing a Publish-Subscribe Substrate for Privacy/Security in Pervasive Environments, presented at the *First Workshop on Pervasive Security (PSPT)*, Boston, MA, August 2004. (refereed, only electronic proceedings).

- Xin Zhao and Atul Prakash. Source authentication in group communication systems. *Proceedings of the 14th International Workshop on Database and Expert Systems Applications*, Sept 2003. pp. 455 -459

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