

Curriculum Vitae for

William H. Winsborough

December, 2007

Department of Computer Science
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1623 Hawks Ridge, San Antonio, TX 78248, USA

Education:

Ph.D., 1989 University of Wisconsin -- Madison, Computer Sciences Department
Dissertation Title: Automatic, Transparent Parallelization of Logic Programs at Compile Time
Advisor: Charles N. Fischer
Minor: mathematics

MS, 1984 University of Wisconsin -- Madison, Computer Sciences Department

BA, 1982 University of Wisconsin -- Madison, College of Letters and Sciences

Major: mathematics

Reed College, Portland, Oregon, 1978 - 1980

Employment History:

Associate Professor, Department of Computer Science, University of Texas at San Antonio
San Antonio, TX
August 2005 – Present

Research Associate Professor, Center for Secure Information Systems, George Mason University
Fairfax, VA
August 2003 – July 2005

Senior Research Scientist, Network Associates Laboratories, Network Associates, Inc.
Rockville, MD
May 2000 – August 2003

Manager of Research, Transarc Corporation (Became IBM Transarc Lab in 1999)
Pittsburgh, Pennsylvania
September 1998 – May 2000

Member of Technical Staff, Transarc Corporation
Pittsburgh, Pennsylvania
July 1996 - September 1998

Assistant Professor, Computer Science Department, Pennsylvania State University
(Became Department of Computer Science and Engineering in 1993)
University Park, Pennsylvania
August 1990 - June 1996

Research Associate, Department of Computer Science, University of Chicago
Chicago, Illinois

September 1988 - August 1990

Supervisor: Michael J. O'Donnell

Joint Appointment: Argonne National Laboratory, Mathematics and Computer Science Division

Research Assistant, Computer Sciences Department, University of Wisconsin -- Madison
Madison, Wisconsin

1986 - 1988

Supervisor: Charles N. Fischer

Research Specialist, Wisconsin Genetics Computer Group, University of Wisconsin -- Madison
Madison, Wisconsin

1984 - 1987

Supervisor: John R. Devereux

Lecturer, Computer Science Department, University of Wisconsin -- Madison
Madison, Wisconsin

1984 - 1985

Teaching Assistant, Computer Science Department, University of Wisconsin -- Madison
Madison, Wisconsin

1983 - 1986

Project Assistant, Sociology Department, University of Wisconsin -- Madison
Madison, Wisconsin

1982

Refereed Journal Articles:

1. Pontual, M., Feitosa, D., Vanderlei, I., Valadares, F., de Queiroz, R., Barros, R., Winsborough, W.H.: 2006, 'A framework for private statistics between two participants', *Scientia* (ISSN 0104-1770), 17(2): 58-66, July/December 2007.
2. Somesh Jha, Ninghui Li, Mahesh V. Tripunitara, Qihua Wang, William H. Winsborough. Towards Formal Verification of Role-Based Access Control Policies. Submitted to *IEEE Transactions on Dependable and Secure Computing*, Accepted spring 2007.
3. Saket Kaushik, William Winsborough, Duminda Wijesekera and Paul Ammann. A Policy-based Approach to Solving Information Asymmetry Problem in Email Systems. Submitted to *Journal of Computer Security*, Accepted August 2007.
4. Jiangtao Li, Ninghui Li, and William Winsborough. Automated Trust Negotiation Using Cryptographic Credentials. Accepted February, 2007 to appear in *ACM Transactions in Information and System Security*, 33 pages.
5. W. H. Winsborough and N. Li. Safety in Automated Trust Negotiation. *ACM Transactions in Information and System Security*, 9(3):352-390. August 2006.
6. N. Li, J. C. Mitchell, W. H. Winsborough. Beyond Proof of Compliance: Security Analysis in Trust Management. *Journal of the ACM*, 52(3):474-514. May 2005.
7. N. Li, W. H. Winsborough, and J. C. Mitchell. Distributed Credential Chain Discovery in Trust Management. *Journal of Computer Security*, 11(1):35-86. February 2003.
8. M. Falaschi, P. Hicks, W. Winsborough. Demand Transformation Analysis for Concurrent Constraint Programs. *Journal of Logic Programming*, 41(3):185-215. March 2000.

9. G. Gudjonsson, W. Winsborough. Compile-Time Memory Reuse in Logic Programming Languages through Update in Place. *ACM Transactions on Programming Languages and Systems*, 21(3):431-502. May 1999.
10. A. Cortesi, G. Filé, W. Winsborough. The Quotient of an Abstract Interpretation. *Theoretical Computer Science*, 202(1-2):163-192. July 1998.
11. M. Codish, M. Falaschi, K. Marriott, W. Winsborough. A Confluent Semantic Basis for the Analysis of Concurrent Constraint Logic Programs. *Journal of Logic Programming*, 30(1):53-81. January 1997.
12. A. Cortesi, G. Filé, W. Winsborough. Optimal Groundness Analysis Using Propositional Formulas. *Journal of Logic Programming*, 27(2):137-167. May 1996.
13. A. Mulkers, W. Winsborough, M. Bruynooghe. A Live-Structure Data-Flow Analysis for Prolog. *ACM Transactions on Programming Languages and Systems*, 16(2):205-258. March 1994.
14. W. Winsborough. Multiple Specialization Using Minimal-Function Graph Semantics. *Journal of Logic Programming*, 13(2/3):259-290. July 1992.

Refereed Conference and Workshop Articles:

15. William H. Winsborough, Anna Cinzia Squicciarini, Elisa Bertino. Information Carrying Identity Proof Trees. *Workshop on Privacy in the Electronic Society (WPES 2007)*, Alexandria, VA, pp. 76-79, October 2007.
16. Sandro Etalle and William H. Winsborough. A Posteriori Policy Enforcement. *Proceedings of the ACM Symposium on Access Control Models and Technologies (SACMAT 2007)*, Nice-Sopha Antipolis, France, pp.11–20, June 2007.
17. Mark Reith, Jianwei Niu and William Winsborough. Engineering Trust Management into Software Models. *Workshop on Modeling in Software Engineering (MISE 2007)*, Minneapolis, p.9, May 2007.
18. Mark Reith, Jianwei Niu and William Winsborough. Applying Model Checking to Security Analysis in Trust Management. *First International Workshop on Security Technologies for Next Generation Collaborative Business Applications (SECOBAP'07)*, Istanbul, Turkey, April 2007.
19. Ziqing Mao, Ninghui Li and William H. Winsborough. Distributed Credential Chain Discovery in Trust Management with Parameterized Roles and Constraints. *2006 International Conference on Information and Communications Security (ICICS 2006)*, Raleigh, NC, pp.159-173, December 2006.
20. K. Irwin, T. Yu, and W. H. Winsborough. On the Modeling and Analysis of Obligations. *Proceedings of the ACM Conference on Computer and Communications Security*. ACM Press, pp.134-143. Alexandria, VA, November 2006.
21. S. Kaushik, W. H. Winsborough, D. Wijesekera and P. Ammann. Policy Transformations for Preventing Leakage of Sensitive Information in Email Systems. *20th Annual IFIP WG 11.3 Working Conference on Data and Applications Security (DBSec 06)*, Sophia Antipolis, France, August, 2006.
22. C. Yao, W. H. Winsborough, and S. Jajodia. A Hierarchical Release Control Policy Framework. *IFIP 11.1 & 11.5 Joint Working Conference*. Fairfax, VA, December 2005.
23. J. Li, N. Li, and W. H. Winsborough. Automated Trust Negotiation Using Cryptographic Credentials. *ACM Conference on Computer and Communications Security*. ACM Press, pp. 46-57. Alexandria, VA, November 2005.

24. S. Kaushik, W. H. Winsborough, D. Wijesekera, and P. Ammann. Email Feedback: A Policy-based Approach to Overcoming False Positives. *Proceedings of the 2005 ACM Workshop on Formal Methods in Security Engineering*. ACM Press, pp.73-82. Alexandria, VA, November 2005.
25. Danfeng Yao, Michael Shin, Roberto Tamassia, and William H. Winsborough. Visualization of Automated Trust Negotiation. *IEEE Workshop on Visualization for Computer Security (VizSEC 2005)*. IEEE Press, pp. 65-74. Minneapolis, MN, October 2005.
26. S. Etalle and W. H. Winsborough. Integrity Constraints in Trust Management (Extended Abstract). *Proceedings 10th ACM Symp. on Access Control Models and Technologies (SACMAT)*, G-J. Ahn (eds.), Stockholm, Sweden. June 2005. ACM Press, New York.
27. S. Kaushik, P. Ammann, D. Wijesekera, W. H. Winsborough, and R. Ritchey. A policy driven approach to email services. *IEEE 5th International Workshop on Policies for Distributed Systems and Networks*. IEEE Press, pp. 169-178. Yorktown Heights, NY, June 2004.
28. R. Tamassia, D. Yao, and W. H. Winsborough. Role-Based Cascaded Delegation. *Proceedings of the ACM Symposium on Access Control Models and Technologies*. ACM Press, pp. 146-155. Yorktown Heights, NY, June 2004.
29. W. Winsborough and N. Li. Safety in Automated Trust Negotiation. *Proceedings of the 2004 IEEE Symposium on Security and Privacy*. IEEE Press, pp. 147-160. Oakland, CA, May, 2004.
30. M. T. Goodrich, M. Shin, R. Tamassia, and W. H. Winsborough. Authenticated Dictionaries for Fresh Attribute Credentials. *First International Conference on Trust Management*. Springer-Verlag, pp. 332-347. Heraklion, Crete, May, 2003.
31. N. Li, W. Winsborough, J. C. Mitchell. Beyond Proof of Compliance: Safety and Availability Analysis in Trust Management. *Proceedings of the 2003 IEEE Symposium on Security and Privacy*. IEEE Press, pp. 123-139. Oakland, CA, May, 2003.
32. W. Winsborough and N. Li. Protecting Sensitive Attributes in Automated Trust Negotiation. *Workshop on Privacy in the Electronic Society*. ACM Press, pp. 41-51. Washington, DC, November, 2002.
33. W. Winsborough and N. Li. Towards Practical Automated Trust Negotiation. *IEEE 3rd Intl. Workshop on Policies for Distributed Systems and Networks*. IEEE Press, pp. 92-103. June 2002.
34. E. Cohen, R. Thomas, W. Winsborough, D. Shands. Models for Coalition-based Access Control. *7th ACM Symposium on Access Control Models and Technologies (SACMAT 2002)*, ACM Press, pp. 97-163. June 2002.
35. N. Li, J. C. Mitchell, and W. Winsborough. Design of a Role-Based Trust Management Framework. *Proceedings of the 2002 IEEE Symposium on Security and Privacy*. IEEE Press, pp. 114-130. May 2002.
36. N. Li, W. Winsborough, J. C. Mitchell. Distributed Credential Chain Discovery in Trust Management. *ACM Computer and Communications Security Conference, (CCS'01)*. ACM Press, pp. 156-165. November, 2001.
37. W. Winsborough, K. Seamons, V. Jones. Negotiating Disclosure of Sensitive Credentials. *Second conference on Security in Communication Networks (SCN'99)*. <http://www.dia.unisa.it/SCN99>. Amalfi, Italy. September 1999.
38. K.E. Seamons, W. Winsborough, and M. Winslett. Internet Credential Acceptance Policies. *Proceedings of the 2nd International Workshop on Logic Programming Tools for Internet Applications*. <http://clip.dia.fi.upm.es/lpnet/proceedings97/proceedings.html>. Leuven, Belgium. July 1997.

39. G. Weyer, W. Winsborough. Annotated Structure Shape Graphs for Abstract Analysis of Prolog. *Programming Languages: Implementations, Logics, and Programs. Proceedings of the Eighth International Symposium, (PLILP'96)*. Springer-Verlag LNCS 1140:92-106. September 1996.
40. M. Falaschi, P. Hicks, W. Winsborough. Demand Transformation Analysis for Concurrent Constraint Programs. *Proceedings of the 1996 Joint International Conference and Symposium on Logic Programming (JICSLP'96)*. MIT Press, pp. 333-347. September 1996.
41. G. Gudjonsson, W. Winsborough. Update in Place: Overview of the Siva Project. *Logic Programming: Proceedings of the 1993 International Symposium (ILPS'93)*. MIT Press, pp. 94-113. October 1993.
42. M. Codish, M. Falaschi, K. Marriott, W. Winsborough. Efficient Analysis of Concurrent Constraint Logic Programs. *Proceedings of the Twentieth International Colloquium on Automata, Languages, and Programming (ICALP 93)*. Springer-Verlag LNCS 700:633-644. July 1993.
43. A. Cortesi, G. Filé, W. Winsborough. Comparison of Abstract Interpretations. *Proceedings of the Nineteenth International Colloquium on Automata, Languages, and Programming (ICALP 92)*. Springer-Verlag LNCS 623:521-532. July 1992.
44. A. Mulkers, W. Winsborough, M. Bruynooghe. Static Analysis of Logic Programs to Detect Run-Time Garbage Collection. *Proceedings of the International Conference on Computer Systems and Software Engineering (CompEuro'92)*. IEEE Computer Society Press. May 1992.
45. I. Foster, W. Winsborough. Copy Avoidance through Local Reuse. *International Logic Programming Symposium (ILPS'91)*. MIT Press. October 1991.
46. A. Cortesi, G. Filé, W. Winsborough. Prop revisited: Propositional Formulas as Abstract Domain for Groundness Analysis. *IEEE Symposium on Logic in Computer Science (LICS'91)*. IEEE Computer Society Press. July 1991.
47. A. Mulkers, W. Winsborough, M. Bruynooghe. Analysis of Shared Data Structures for Compile-Time Garbage Collection in Logic Programs. *Seventh International Conference on Logic Programming (ICLP'90)*. MIT Press. June 1990.
48. D. Jacobs, A. Langen, W. Winsborough. Multiple Specialization of Logic Programs with Run-Time Tests. *Seventh International Conference on Logic Programming (ICLP'90)*. MIT Press. June 1990.
49. W. Winsborough. Path-Dependent Reachability Analysis for Multiple Specialization. *North American Conference on Logic Programming (NACLP'89)*. MIT Press. October 1989.
50. W. Winsborough and A. Waern. Transparent And-Parallelism in the Presence of Shared Free Variables. *Fifth International Conference on Logic Programming (ICLP'88)*. MIT Press. August 1988.
51. W. Winsborough. Semantically Transparent Selective Reset for AND-Parallel Interpreters Based on the Origin of Failures. *Proceedings of the 1987 IEEE Symposium on Logic Programming (SLP'87)*. IEEE Computer Society Press. September 1987.

Book Chapters:

52. Marcin Czenko, Sandro Etalle, Dongyi Li and William H. Winsborough. An Introduction to the Role Based Trust Management Framework RT. In: Alessandro Aldini and Roberto Gorrieri (eds.), *Foundations of Security Analysis and Design: FOSAD 2006/2007 Tutorial Lectures*. Lecture Notes in Computer Science, Vol. 4677, Springer-Verlag, pp. 246-281, 2007. ISBN: 978-3-540-74809-0.
53. Dongyi Li, William Winsborough, Marianne Winslett and Ragib Hasan. Database Issues in Trust Management and Trust Negotiation. In: *Handbook of Database Security Applications and Trends*, Michael Gertz and Sushil Jajodia (eds.), 36 pages, Springer US, December 2007. ISBN: 978-0-387-48532-4.

Invited Papers:

54. W. Winsborough. A Logic Programming View of Authorization in Distributed Systems. *International Conference on Logic Programming (ICLP'03)*. Springer-Verlag, LNCS Volume 2916, pp. 20-46. December, 2003.
55. W. Winsborough and J. Jacobs. Automated Trust Negotiation in Attribute-based Access Control. *DARPA Information Survivability Conference and Exposition (DISCEX III)*, Vol. 2, IEEE Press, pp.252-257. April, 2003.
56. W. Winsborough, K. Seamons, V. Jones. Automated Trust Negotiation. *DARPA Information Survivability Conference and Exposition (DISCEX 2000)*, IEEE Press, pp.88-102. January, 2000.

Submitted Journal Articles:

57. K. Irwin, T. Yu, and W. H. Winsborough. On the Modeling and Analysis of Obligations. Submitted to *ACM Transactions in Information and System Security*, November 2007.
58. S. Etalle and W. H. Winsborough. Integrity Constraints in Trust Management. Submitted to *ACM Transactions in Information and System Security*, November, 2006.
59. Saket Kaushik, William Winsborough, Duminda Wijesekera and Paul Ammann. A Policy Transformation Approach Towards Preventing Leakage of Sensitive Email Information. Submitted to *Journal of Computer Security*, June, 2006.

Recent Invited Conference Presentations:

A Logic Programming View of Authorization in Distributed Systems. *International Conference on Logic Programming (ICLP'03)*. LNCS 2916, Springer-Verlag. Mumbai, India. December, 2003.

Current Doctoral Advisees:

Dongyi Li. Third year.
Mark Reith. Third year. ABD.
Murillo Pontual. First year.

Doctoral Advisees Graduated:

Gudjon Gudjonsson, Ph.D., Penn State, May 1996

Patents

1. Co-inventor: Tamper-resistant Communication Layer for Attack Mitigation and Reliable Intrusion Detection in Wireless Networks, UTSA, patent application filed June 18, 2007.
2. Co-inventor: Automated Trust Negotiation, IBM Corporation, patent application filed March 7, 2000.
3. Co-inventor: Trust Negotiation in a Client/Server Data Processing Network Using Automatic Incremental Credential Disclosure, IBM Corporation, patent application filed March 2, 1999.

Recent Awards:

Runner up (one of two) for the Award for Outstanding Research in Privacy Enhancing Technologies for the year 2007: "Automated Trust Negotiation Using Cryptographic Credentials." By Jiangtao Li, Ninghui Li, William H. Winsborough. Proceedings of the 12th ACM conference on Computer and Communications Security

DARPA Award for Excellence in Industrial Research. Presented by DARPA Dynamic Coalitions Program Manager, Douglas Maughan, January 2003.

General Co-Chair:

Joint iTrust and PST Conferences on Privacy, Trust Management, and Security (IFIPTM 2007).

Program Committee Co-Chair:

1. Fourth International Conference on Trust Management (iTrust 2006).
2. IEEE Workshop on Policy for Distributed Systems and Networks, 2005.

Recent Program Committees:

1. ACM Conference on Computer and Communication Security (CCS), 2007.
2. IEEE Workshop on Policy for Distributed Systems and Networks, 2003, 2004, 2005, 2006, 2007, 2008.
3. International Workshop on Formal Aspects in Security & Trust (FAST) 2004, 2005, 2006.
4. Annual PKI R&D Workshop, 2005, 2006.
5. Workshop on Policy Management for the Web, 2005.
6. Semantic Web and Policy Workshop, 2005, 2006.
7. Security and Trust Management, 2006, 2007.
8. Models of Trust (MTW), Workshop at the WWW 2006 Conference.
9. IEEE Consumer Communications and Networking Conference - Wireless Networking Track, 2006.
10. First International Workshop on Security Technologies for Next Generation Collaborative Business Applications. In conjunction with the 23rd International Conference on Data Engineering (ICDE'07), 2007
11. Workshop on Privacy Enforcement and Accountability with Semantics (PEAS). In conjunction with the 6th International Semantic Web Conference (ISWC) and the 2nd Asian Semantic Web Conference (ASWC), 2007.

Memberships:

ACM, IEEE Computer Society.

Sponsored Research Projects:

1. 9/2007-8/2010 CT-ISG: A Framework for the Modeling and Management of Obligations in Security Policies
NSF Grant No. 0716750,
\$180,000 co-PI (UTSA PI)
2. 9/2005-8/2008 Flexible, Decentralized Information-flow Control for Dynamic Environments
NSF
\$242,945 PI
3. 9/2003-8/2008 ITR: Automated Trust Negotiation in Open Systems
NSF
\$1,750,000 co-PI (UTSA PI)
4. 5/2002-10/2003 Extension and Integration of Attribute-Based Access Control
DARPA
\$149,955 PI
5. 1/2001-7/2003 Attribute-Based Access Control
DARPA
\$1,116,448 PI
6. 7/2000-6/2001 Advances in Trust Negotiation
DARPA
\$300,000 PI
7. 7/98-12/99 Trust Management in Open Systems
DARPA subcontract through NCSU
\$336,000 co-PI
8. 3/97-5/97 Digital Credentials
DARPA subcontract through UIUC
\$66,000 Participant
9. 6/95-3/96
Dataflow Analysis and Compiler Support for Concurrent Logic Languages
NSF REU Supplement to RIA below
\$5,000 PI
10. 6/94-6/95
Dataflow Analysis and Compiler Support for Concurrent Logic Languages
NSF REU Supplement to RIA below
\$5,000 PI
11. 6/92-11/95 Program Analysis and Compilation Techniques for Logic Programming and Concurrent Logic Languages
NSF Research Initiation Award (RIA)
\$99,945 PI
12. 1/92-12/92 Research in Parallel Program Design and Architecture Synthesis
NSF REU Supplement to CISE/SIIP below
\$5,000 PI
13. 10/89-9/94 Research in Parallel Program Design and Architecture Synthesis
NSF CISE/SIIP
\$1,250,000 Participant