

January 6, 2012

Dr. Kevin W. Hamlen

Assistant Professor
Department of Computer Science
The University of Texas at Dallas

Educational History:

Ph.D.	2006	Cornell University	Computer Science
M.S.	2002	Cornell University	Computer Science
B.S.	1998	Carnegie Mellon University	Computer Science and Mathematical Science

Security Policy Enforcement by Program-rewriting

Ph.D. Dissertation
Computer Science Department, Cornell University
Advisors: Greg Morrisett and Fred B. Schneider

Proof-Carrying Code for x86 Architectures

Senior Honors Thesis
School of Computer Science, Carnegie Mellon University
Advisor: Peter Lee

Employment History – principal positions since the Bachelor’s degree:

Assistant Professor
August 2006 – present
Department of Computer Science, The University of Texas at Dallas

Research Assistant
January 2003 – August 2006
Computer Science Department, Cornell University

Research Intern
September 2002 – December 2002
Microsoft Research, Cambridge, UK

Technical Consultant
June 2001 – August 2001
Microsoft Research, Redmond, WA

Professional recognitions and honors:

Best Paper Award, IEEE International Conference on Tools with Artificial Intelligence (ICTAI), Special Session on Stream Data Mining, 2011

Career Award, 2011, National Science Foundation

Young Investigator (Career) Award, 2008, U.S. Air Force Office of Scientific Research

Ph.D. Fellowship Award, 2004, Intel Foundation

Ph.D. Fellowship Award, 1998, Lockheed Martin

Allen Newell Award for Excellence in Undergraduate Research, 1998, Carnegie Mellon University

Professional memberships:

Institute of Electrical and Electronics Engineers (IEEE), 2010—present

Association of Computing Machinery (ACM), 2008—present

Grants/contracts awarded:

Total for UTD: \$1.9 million as PI + \$2.1 million as Co-PI = \$4.0 million total awarded

TC: Medium: Collaborative Research: *Securing Web Advertisements: Fixing the Short-term Crisis and Addressing Long-term Challenges*

PI: Kevin Hamlen

National Science Foundation

9/1/11—8/31/14, \$1.2M total (\$560K for UTD)

CAREER: *Language-based Security for Polymorphic Malware Protection*

PI: Kevin Hamlen

National Science Foundation

8/1/11—7/31/16, \$504K

Adaptive Malware Detection over Evolving Malwares: Attacks and Defenses

PI: Latifur Khan; Co-PIs: Kevin Hamlen, Bhavani Thuraisingham

U.S. Army

9/1/11—9/30/12, \$350K

Federal Cyber Service: *Scholarship for Service Program at UTD*

PI: Kamil Sarac; Co-PIs: Kevin Hamlen, Murat Kantarcioglu, Edwin H. Sha, Bhavani Thuraisingham

National Science Foundation

9/1/10—8/31/14, \$1.7M

Reactively Adaptive Malware: Attacks and Defenses

PI: Kevin Hamlen; Co-PI: Latifur Khan

U.S. Air Force Office of Scientific Research (AFOSR)

4/1/11—2/28/14, \$450K

EAGER: *Secure Peer-to-peer Data Management*

PI: Kevin Hamlen; Co-PI: Bhavani Thuraisingham

National Science Foundation

9/15/09—8/31/11, \$80K

IASP: *Information Assurance Education at UTD*

PI: Kevin Hamlen

U.S. Department of Defense (DoD)

9/1/08—8/31/09, \$42K

YIP: *Automated, Certified Program-rewriting for Software Security Enforcement*

PI: Kevin Hamlen

U.S. Air Force Office of Scientific Research (AFOSR)

1/1/08—11/30/11, \$280K (+ \$52K in matching funds)

Achievements in original investigation:

Articles in refereed journals:

- K. W. Hamlen and B. Thuraisingham. Secure Semantic Computing. *International Journal of Semantic Computing (IJSC)*, **5**(2):121-131, June 2011.
- M. M. Masud, T. M. Al-Khateeb, K. W. Hamlen, J. Gao, L. Khan, J. Han, and B. Thuraisingham. Cloud-based Malware Detection for Evolving Data Streams. *ACM Transactions on Management Information Systems (TMIS)*, **2**(3), October 2011.
- K. W. Hamlen, M. Kantarcioglu, L. Khan, and B. Thuraisingham. Security Issues for Cloud Computing. *International Journal of Information Security and Privacy (IJISP)*, **4**(2):39-51, April-June 2010.
- K. W. Hamlen, V. Mohan, M. M. Masud, L. Khan, and B. Thuraisingham. Exploiting an Antivirus Interface. *Computer Standards & Interfaces Journal*, **31**(6):1182-1189, April 2009.
- W. Hamlen and K. W. Hamlen. A Closed System of Production Possibility and Social Welfare. *Computers in Higher Education Economics Review (CHEER)*, **18**, December 2006.
- K. W. Hamlen, G. Morrisett, and F. B. Schneider. Computability Classes for Enforcement Mechanisms. *ACM Transactions on Programming Languages and Systems (TOPLAS)*, **28**(1):175-205, January 2006.

Articles accepted for publication in refereed journals (publication pending):

- R. Natarajan, B. Thuraisingham, B. Prabhakaran, L. Khan, and K. W. Hamlen. A Database Inference Controller for 3D Motion Capture Databases. *International Journal of Information Security and Privacy (IJISP)*, accepted August 2011.
- M. M. Masud, C. Woolam, J. Gao, L. Khan, J. Han, K. W. Hamlen, and N. C. Oza. Facing the Reality of Data Stream Classification: Coping with Scarcity of Labeled Data. *Knowledge and Information Systems (KAIS)*, accepted June 2011.
- B. Hamlen and K. Hamlen. An Interactive Computer Model of Two-country Trade. *Computers in Higher Education Economics Review (CHEER)*, accepted August 2011.

Refereed Conference Publications:

- K. W. Hamlen, M. M. Jones, and M. Sridhar. Aspect-oriented Runtime Monitor Certification. In *Proc. 18th International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS)*, March-April 2012, forthcoming. [acceptance rate: 24%]
- P. Parveen, Z. R. Weger, B. Thuraisingham, K. W. Hamlen, and L. Khan. Supervised Learning for Insider Threat Detection Using Stream Mining. In *Proc. 23rd IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, November 2011. (Best Paper Award) [acceptance rate: 30%]

- P. Parveen, J. Evans, B. Thuraisingham, K. W. Hamlen, and L. Khan. Insider Threat Detection Using Stream Mining and Graph Mining. In *Proc. 3rd IEEE International Conference on Privacy, Security, Risk and Trust (PASSAT)*, October 2011. [acceptance rate: 8%]
- R. Wartell, Y. Zhou, K. W. Hamlen, M. Kantarcioglu, and B. Thuraisingham. Differentiating Code from Data in x86 Binaries. In *Proc. European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD)*, Vol. 3, pp. 522-536, 2011. [acceptance rate: 20%]
- M. Jones and K. W. Hamlen. A Service-oriented Approach to Mobile Code Security. In *Proc. 8th International Conference on Mobile Web Information Systems (MobiWIS)*, pp. 531-538, September 2011. [acceptance rate: 36%]
- M. Sridhar and K. W. Hamlen. Flexible In-lined Reference Monitor Certification: Challenges and Future Directions. In *Proc. 5th ACM SIGPLAN Workshop on Programming Languages meets Program Verification (PLPV)*, pp. 55-60, January 2011.
- A. Khaled, M. F. Husain, L. Khan, K. W. Hamlen, and B. Thuraisingham. A Token-based Access Control System for RDF Data in the Clouds. In *Proc. 2nd IEEE International Conference on Cloud Computing Technology and Science (CloudCom)*, pp. 104-111, November/December 2010. [acceptance rate: <25%]
- A. Patwardhan, K. W. Hamlen, and K. Cooper. Towards Security-aware Program Visualization for Analyzing In-lined Reference Monitors. In *Proc. International Workshop on Visual Languages and Computing (VLC)*, pp. 257-260, October 2010. [acceptance rate: 36.5%]
- B. Thuraisingham and K. W. Hamlen. Challenges and Future Directions of Software Technology: Secure Software Development, Invited Paper. In *Proc. 34th IEEE Annual International Computer Security and Applications Conference (COMPSAC)*, pp. 17-20, July 2010.
- B. Thuraisingham and K. W. Hamlen. Secure Semantic Sensor Web and Pervasive Computing. In *Proc. IEEE International Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC)*, pp. 5-10, June 2010.
- M. Jones and K. W. Hamlen. Disambiguating Aspect-oriented Security Policies. In *Proc. 9th International Conference on Aspect-Oriented Software Development (AOSD)*, pp. 193-204, March 2010. [acceptance rate: 22%]
- M. Sridhar and K. W. Hamlen. ActionScript In-lined Reference Monitoring in Prolog. In *Proc. 12th International Symposium on Practical Aspects of Declarative Languages (PADL)*, pp. 149-151, January 2010. [acceptance rate: 37.9%]
- M. Sridhar and K. W. Hamlen. Model-checking In-lined Reference Monitors. In *Proc. 11th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI)*, pp. 312-327, January 2010. [acceptance rate: 36.8%]

- B. W. DeVries, G. Gupta, K. W. Hamlen, S. Moore, and M. Sridhar. ActionScript Bytecode Verification with Co-Logic Programming. In *Proc. ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS)*, pp. 9-15, June 2009.
- M. Jones and K. W. Hamlen. Enforcing IRM Security Policies: Two Case Studies. In *Proc. IEEE Intelligence and Security Informatics Conference (ISI)*, pp. 214-216, June 2009.
- B. Thuraisingham, L. Khan, M. M. Masud, and K. W. Hamlen. Data Mining for Security Applications. In *Proc. IEEE/IFIP International Conference on Embedded and Ubiquitous Computing (EUC)*, pp. 585-589, December 2008. [acceptance rate: 30%]
- M. M. Masud, T. Al-khateeb, L. Khan, B. Thuraisingham, and K. W. Hamlen. Flow-based Identification of Botnet Traffic by Mining Multiple Log Files. In *Proc. 1st International Conference on Distributed Framework and Applications (DFmA)*, pp. 200-206, October 2008.
- K. W. Hamlen and M. Jones. Aspect-oriented In-lined Reference Monitors. In *Proc. ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS)*, pp. 11-20, June 2008.
- K. W. Hamlen and B. Thuraisingham. Secure Peer-to-peer Networks for Trusted Collaboration, Invited Paper. In *Proc. 2nd IEEE International Workshop on Trusted Collaboration (TrustCol)*, pp. 58-63, November 2007.
- N. Tsybulnik, K. W. Hamlen, and B. Thuraisingham. Centralized Security Labels in Decentralized P2P Networks. In *Proc. 23rd Annual Computer Security Applications Conference (ACSAC)*, pp. 315-324, December 2007. [acceptance rate: 20.9%]
- K. W. Hamlen, G. Morrisett, and F. B. Schneider. Certified In-lined Reference Monitoring on .NET. In *Proc. ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS)*, pp. 7-16, June 2006.

Technical reports:

- B. Thuraisingham, V. Khadilkar, J. Rachapalli, T. Cadenhead, M. Kantarcioglu, K. Hamlen, L. Khan, and F. Husain. Towards the Design and Implementation of a Cloud-centric Assured Information Sharing System. Tech. Rep. UTDCS-27-11, Comp. Sci. Dept., U. Texas at Dallas, September 2011.
- K. W. Hamlen, M. M. Jones, and M. Sridhar. Chekov: Aspect-oriented Runtime Monitor Certification via Model-checking (extended version). Tech. Rep. UTDCS-16-11, Comp. Sci. Dept., U. Texas at Dallas, May 2011.
- K. W. Hamlen, V. Mohan, and R. Wartell. Reining in Windows API Abuses with In-lined Reference Monitors. Tech. Rep. UTDCS-18-10, Comp. Sci. Dept., U. Texas at Dallas, June 2010.
- K. W. Hamlen, G. Morrisett, and F. B. Schneider. Certified In-lined Reference Monitoring on .NET. Tech. Rep. TR-2005-2003, Comp. Sci. Dept., Cornell University, November 2005.

Teaching:

Graduated PhD students supervised:

2011 Micah Jones: *Declarative Aspect-oriented Security Policies for In-lined Reference Monitors*

2011 Sunitha Ramanujam: *Towards an Integrated Semantic Web: Interoperability Between Data Models*

Graduated Masters students supervised:

2010 Aditi Patwardhan: *Security-aware Program Visualization for Analyzing In-lined Reference Monitors*

2009 Scott Moore, graduation based on coursework (non-thesis)

Undergraduate honors theses supervised:

2009 Jonathan Cooke: *A Comparison of the Effectiveness of Denial-of-Service Attacks against Structured Peer-to-peer Networks*

Classroom teaching:

Median student evaluation: 4.50 / 5 = Excellent

<u>semester</u>	<u>course</u>	<u>student evaluation</u>
2011 Fall	CS4384 Automata Theory	4.50 / 5 = Excellent
2011 Spring	CS6371 Advanced Programming Languages	4.19 / 5 = Very Good
2011 Spring	CS7301 Language-based Security	4.75 / 5 = Excellent
2010 Fall	CS4384 Automata Theory	4.33 / 5 = Very Good
2010 Spring	CS6371 Advanced Programming Languages	4.58 / 5 = Excellent
2009 Fall	CS4485 Computer Science Project	4.50 / 5 = Excellent
2009 Fall	CS6371 Advanced Programming Languages	4.81 / 5 = Excellent
2009 Spring	CS4485 Computer Science Project	4.83 / 5 = Excellent
2009 Spring	CS6371 Advanced Programming Languages	3.22 / 5 = Good
2008 Fall	CS6371 Advanced Programming Languages	4.25 / 5 = Very Good
2008 Spring	CS6V81 Language-based Security	4.92 / 5 = Excellent
2007 Fall	CS6371 Advanced Programming Languages	4.08 / 5 = Very Good
2007 Spring	CS7301 Seminar on Language-based Security	4.75 / 5 = Excellent

Service:

External Service:

2010 Program Committee Member for the *International Workshop on Visual Languages and Computing (VLC)*

2009 General Chair and Program Committee Member of the 11th *ACM International Symposium on Practical Aspects of Declarative Languages (PADL)*

2009 Program Committee Member for the *ACM SIGPLAN 4th Workshop on Programming Languages and Analysis for Security (PLAS)*

2007 Registration Chair for the *10th IEEE High Assurance Systems Engineering Symposium (HASE)*

External reviewer for:

- 2011, 2009 Practical Aspects of Declarative Languages (PADL)
- 2011 Journal of Machine Learning Research (JMLR)
- 2010 Information Processing Letters (IPL)
- 2010 Air Force Research Laboratory (AFRL)
- 2010 International Journal of Information Security (IJIS)
- 2010 Mathematical Structures in Computer Science Journal (MSCS)
- 2007, 2008, 2009 IEEE Transactions on Dependable and Secure Computing (TDSC)
- 2007, 2008, 2009 Science of Computer Programming
- 2007, 2008, 2009 ACM Transactions on Information and System Security (TISSEC)
- 2009 International Journal of Computer Mathematics
- 2008, 2009 Encyclopedia of Computer Science and Engineering
- 2007, 2008 Fundamenta Informaticae
- 2008 The European Symposium On Programming (ESOP)
- 2007 The Nordic Workshop on Secure IT Systems (NordSec)

University/Department Service:

2009—present TA Committee, Computer Science Department

2006—present Computer Systems Group Committee, Computer Science Department

2009, 2007 Outside chair for Doctoral Final Oral Exam (2 Ph.D. students)

2008 Committee on UTD Computer Science Senior Design course objectives

2006—present Faculty co-advisor for the UTD Graduate Christian Fellowship