

Curriculum Vitae

Fr. Boniface Patrick Hicks, OSB

Notarization. I have read the following and certify that this curriculum vitae is a current and accurate statement of my professional record.

Signature: _____

Date: _____

1 Personal Information

Current Position

Assistant Professor, Department of Computing and Information Science
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Education

Penn State University, University Park, Pennsylvania. Ph.D. in Computer Science, 2007.
Saint Vincent Seminary, Latrobe, Pennsylvania. M. Divinity, *summa cum laude*, 2004; M.A. in Theology, focus on monastic studies, *summa cum laude*, 2003.
Penn State University, University Park, Pennsylvania. M.Sc. in Computer Science and Engineering, 1997; B.Sc. in Computer Science with Honors *cum laude*, minors in Mathematics, Statistics and German, 1997.

Professional Experience

Assistant Professor, Department of Computing and Information Science, Saint Vincent College, Latrobe, Pennsylvania. *August 2007–present.*

Adjunct Assistant Professor, Department of Computer Science and Engineering, Penn State, University Park, Pennsylvania. *Summer 2008–present.*

Benedictine in Residence, Bonaventure Hall, Saint Vincent College, Latrobe, Pennsylvania. *August 2007–present.*

United States Spiritual Director, Lay Missionaries of Charity, Summer 2008–present.

Research Assistant, Department of Computer Science and Engineering, Penn State, University Park, Pennsylvania. *Spring 1998, Spring 2005–Summer 2007.*

Campus minister, Penn State Catholic Campus Ministry, Penn State, University Park, Pennsylvania. *Fall 2004–Summer 2007.*

Lecturer, Department of Computing and Information Science, Saint Vincent College, Latrobe, Pennsylvania. *August 1999–May 2004.*

Campus minister, Saint Vincent College, Latrobe, Pennsylvania. *Fall 1999–Spring 2000.*

Teaching Assistant, Department of Computer Science and Engineering, Penn State, University Park, Pennsylvania. *Fall 1997.*

2 Research, Scholarly, and Creative Activities

a. Articles in Refereed Journals

- Boniface Hicks, Sandra Rueda, Luke St. Clair, Trent Jaeger, and Patrick McDaniel. A logical specification and analysis for SELinux MLS policy. *ACM Transactions on Information and System Security (TISSEC)*, to appear.
- Patrick Traynor, Michael Chien, Scott Weaver, Boniface Hicks, and Patrick McDaniel. Non-Invasive Methods for Host Certification. *ACM Transactions on Information and System Security (TISSEC)*, 11(3), 2008.
- Moreno Falaschi, Patrick Hicks, and William Winsborough. Demand transformation analysis for concurrent constraint programs. *Journal of Logic Programming*, 41(3):185–215, March 2000.
- John Hannan and Patrick Hicks. Higher-order uncurrying. *Journal of Higher Order and Symbolic Computation*, 13(3):179–216, 2000.

b. Refereed Conference Papers

- Dave King, Boniface Hicks, Trent Jaeger, Michael Hicks. Implicit Flows: Can't Live With 'Em, Can't Live Without 'Em. *Proceedings of the 4th International Conference on Information Systems Security (ICISS 2008)*, Hyderabad, India, December 16-20, 2008.
- Boniface Hicks, Timothy Misiak, and Patrick McDaniel. Channels: Runtime system infrastructure for security-typed languages. In *23rd Annual Computer Security Applications Conference (ACSAC)*, Miami, FL, December 2007.
- Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel. From trusted to secure: Building and executing applications that enforce system security. In *Proceedings of the USENIX Annual Technical Conference*, Santa Clara, CA, USA, June 2007.
- Boniface Hicks, Sandra Rueda, Luke St. Clair, Trent Jaeger, and Patrick McDaniel. A logical specification and analysis for SELinux MLS policy. In *Proceedings of the ACM Symposium on Access Control Models and Technologies (SACMAT)*, Antipolis, France, June 2007.
- Boniface Hicks, Dave King, and Patrick McDaniel. Jifclipse: Development tools for security-typed applications. In Michael Hicks, editor, *Proceedings of the 2nd ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS '07)*, San Diego, CA, June 14 2007. ACM Press.
- Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel. Integrating selinux with security-typed languages. In *Proceedings of the 3rd SELinux Symposium* (Baltimore, MD, USA, March 2007).
- Boniface Hicks, Kiyam Ahmadizadeh, and Patrick McDaniel. Understanding practical application development in security-typed languages. In *22nd Annual Computer Security Applications Conference (ACSAC)*, Miami, FL, December 2006. Awarded best student paper.
- Patrick Traynor, Mike Chien, Scott Weaver, Boniface Hicks, and Patrick McDaniel. Non-invasive host certification. In *Second IEEE Communications Society/CreateNet International Conference on Security and Privacy in Communication Networks (SecureComm '06)*, Baltimore, MD, Aug. 28 - Sep. 1 2006.
- Boniface Hicks, Dave King, Patrick McDaniel, and Michael Hicks. Trusted declassification: High-level policy for a security-typed language. In *Proceedings of the 1st ACM SIGPLAN Workshop on Programming Languages and Analysis for Security (PLAS '06)*, Ottawa, Canada, June 10 2006. ACM Press.

- Michael Hicks, Stephen Tse, Boniface Hicks, and Steve Zdancewic. Dynamic updating of information-flow policies. In *Proceedings of the Foundations of Computer Security Workshop (FCS '05)*, March 2005.
- Patrick Hicks, Matthew Walnock, and Robert Michael Owens. Analysis of power consumption in memory hierarchies. In *Proceedings of the 1997 international symposium on Low power electronics and design*, pages 239–242. ACM Press, 1997.
- John Hannan and Patrick Hicks. Higher-order arity raising. In *Proceedings of 3rd ACM SIGPLAN International Conference on Functional Programming*, pages 27–38, Baltimore, MD, September 1998.
- John Hannan and Patrick Hicks. Higher-order uncurrying. In *Proceedings of the 25th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, pages 1–10, San Diego, CA, January 1998. An extended version of this paper appears in *Higher Order and Symbolic Computation*, Vol 13, No. 3, 2000, pp 179-216.
- Moreno Falaschi, Patrick Hicks, and William H. Winsborough. Demand transformation analysis for concurrent constraint programs. In *Joint International Conference and Symposium on Logic Programming*, pages 333–347, 1996. An extended version of this paper appears in the *Journal of Logic Programming*, Vol 41, No. 3, pp 185-215.

d. Monographs, Reports, and Extension Publications

- Boniface Hicks, Sandra Rueda, Yogesh Sreenivasan, Guruprasad Jakka, Dave King, Trent Jaeger, and Patrick McDaniel. An Architecture for Enforcing End-to-End Security Over Web Applications. Technical Report NAS-TR-0104-2009, Networking and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, January 2009, submitted for publication to USENIX Annual 2009.
- Boniface Hicks, Sandra Rueda, Trent Jaeger, and Patrick McDaniel. Breaking Down the Walls of Mutual Distrust: Security-typed Email Using Labeled IPsec. Technical Report NAS-TR-0049-2006, Network and Security Research Center, Department of Computer Science and Engineering, Pennsylvania State University, University Park, PA, USA, September 2006.
- Boniface Hicks, Dave King, Patrick McDaniel, and Michael Hicks. Trusted declassification: High-level policy for a security-typed language. Technical Report NAS-TR-0033-2006, Networking and Security Research Center, Department of Computer Science, Pennsylvania State University, March 2006.
- Boniface Hicks, Dave King, and Patrick McDaniel. Declassification with Cryptographic Functions in a Security-Typed Language. Technical Report NAS-TR-0004-2005, Network and Security Center, Department of Computer Science, Pennsylvania State University, January 2005. (*updated May 2005*).
- Boniface Hicks, Patrick McDaniel, and Ali Hurson. Information flow control in database security: A case study for secure programming with jif. Technical Report NAS-TR-0011-2005, Network and Security Center, Department of Computer Science, Pennsylvania State University, April 2005.

e. Unpublished manuscripts

- Boniface Hicks. *Secure Systems Development Using Security-Typed Languages*. PhD thesis, Penn State, 2007.

Boniface Hicks. *Bridging the semantic gap in security policy definition and enforcement*. Phd Thesis Proposal, December 2005. Comprehensive Examination.

f. Invited Talks and Retreats

“Holiness and the Rule of Saint Benedict”, St. Vincent Oblates Catechesis, Latrobe, Pennsylvania, January 18, 2009.

“The Eucharist and the Unborn”, 40 Hours Devotion, Pittsburgh Oratory, January 15, 2009.

“Lectio Divina”, Invited Talk for Sisters in Formation, Missionaries of Charity, Calcutta, Dec. 15, 2008.

“Lectio Divina”, Invited Talk for Volunteers, Missionaries of Charity, Calcutta, Dec. 15, 2008.

“Language-based Security”, Invited lecture for CSE 543, Penn State, November, 2008.

“Jif”, Invited lecture for ECE 732, Carnegie Mellon University, November, 2008.

“The Eucharist”, Day of Recollection for Our Lady of the Miraculous Medal Parish, held at Passionist Nuns Convent, Pittsburgh, Pennsylvania, October 25, 2008.

Spiritual Director, Family Retreat, Farmington, Pennsylvania, September 19-21, 2008.

Annual Community Retreat Oblates of the Sacred Heart of Jesus, Youngstown Ohio, August 4-10, 2008.

Spiritual Formation Retreat, Missionaries of the Eucharist, Latrobe, Pennsylvania, June 9-13, 2008.

Solemn Vows Retreat, Missionaries of Charity, Washington D.C., May 14-24, 2008.

“All Saints”, Day of Recollection, Magdalen College, November 1, 2007.

“Security-Typed Languages: From Theory to Practice”, Poster, Industry Day, Networking and Security Research Center, University Park, Pennsylvania, October, 2006.

“Jpmail: A Verifiably Secure Email Client”, Demo, Industry Day, Networking and Security Research Center, University Park, Pennsylvania, October, 2006.

“Security-typed Languages: From Theory to Practice”, Poster, Software Engineering Research Center, Chicago, Illinois, June 7-8, 2006.

“Tutorial: Jif/Jifclipse”, Motorola Labs, Chicago, Illinois, May 8-10, 2006.

“Tutorial: Jif/Jifclipse”, Systems and Internet Infrastructure Security (SIIS) Lab, Penn State University, University Park, Pennsylvania, April, 2006.

“Bridging the Semantic Gap in Security Policy Definition and Enforcement”, Networking and Security Research Center Seminar, Penn State University, University Park, Pennsylvania, October, 2005.

“Language-based Information Flow Control”, Poster, Industry Day, Networking and Security Research Center, University Park, Pennsylvania, October 5, 2005.

“Higher-order Uncurrying”, Principles of Programming Seminar, Carnegie Mellon University, Pittsburgh, Pennsylvania, 1997.

g. Original Software

FARMHELP, Cell phone software (Google Android) for assisting farmers.

JPMail/SE, An extension of JPMail with integrated, SELinux support, at <http://siis.cse.psu.edu/jpmail.html>.

JPMAIL, A provably secure email client built in Jif, at <http://siis.cse.psu.edu/jpmail.html>.

JIFPOL, A policy system (language and compiler) for Jif, at <http://siis.cse.psu.edu/jpmail.html>

JIFCLIPSE, A development tool plug-in for Jif, at <http://siis.cse.psu.edu/jifclipse.html>.

FLOWWALL, A Jif firewall using Channels.

FLOWWOLF, A Jif secure web browser (in progress).

h. Contracts and Grants

Patrick McDaniel and Boniface Hicks, Verifiable Information Flow Security for AJAX Applications Software Engineering Research Center, Sponsor: Army Research Lab, \$23,530, (2008–2009).

Boniface Hicks, sub-award on IARPA grant, System-Wide Information Flow Enforcement,” BAA 06-11-IFKA, ”National Intelligence Community Enterprise Cyber Assurance Program, \$86,577, (Aug, 2007– Dec, 2008).

Patrick McDaniel and Boniface Hicks, Extending Developer Tools for Security-typed Languages, Software Engineering Research Center, Sponsor: Motorola, \$46,400, (2005-2007).

i. Fellowships, Prizes, and Awards

Best Student Paper, 22nd Annual Computer Security Applications Conference, 2006 for the paper *Understanding practical application development in security-typed languages*.

Research Assistantship, Department of Computer Science and Engineering, Penn State, Spring 2005–Summer 2007.

Research Assistantship, Department of Computer Science and Engineering, Penn State, Spring 1998.

Teaching Assistantship, Department of Computer Science and Engineering, Penn State, Fall 1997.

Member of Tau Beta Pi National Engineering Honors Society, 1997.

Member of Phi Beta Kappa National Honors Society, 1996.

j. Editorships, Editorial Boards, and Reviewing Activities for Journals and other Learned Publications

Journal Reviewer

- Transactions on Software Engineering, special issue on “Software Engineering for Secure Systems”, 2007.
- Elsevier Pervasive and Mobile Computing Journal, special issue on ”Security in Wireless Mobile Computing Systems”, December, 2005.

Conference reviewer

- Annual Computer Security Applications Conference (ACSAC), 2007.
- USENIX Security Symposium, 2007.
- IEEE Symposium on Security and Privacy 2007.
- Financial Cryptography and Data Security (FC) 2007.
- Network and Distributed System Security Symposium (NDSS), 2007.
- IEEE Conference on Computer Communications (INFOCOM), 2007.

- International Conference on Applied Cryptography and Network Security (ACNS), 2006.
- ACM Symposium on Access Control Models and Technologies (SACMAT), 2006.
- IEEE Computer Security Foundations Workshop (CSFW), 2006.
- Annual Computer Security Applications Conference (ACSAC), 2005.
- European Symposium On Research in Computer Security (ESORICS), 2005.

3 Teaching, Mentoring, and Advising

a. Courses Taught (at Saint Vincent College, unless otherwise noted)

i. Specialized

CS 101, Survey of Computing and Computers. Spring 2009.

CS 104, Science of Computing. Spring 2009.

CS 225, Computer and Network Security. Fall 2008.

CS 103, Animation, Security and the Web. Fall 2008.

CS 321, Data Communications. Fall, 2007.

CS 310, Programming Languages. Spring 2002, 2003 and 2004, and 2008.

CS 251, Introductory Computer Graphics. Fall 2003.

CS 111, Computing and Information Science II. Spring 2001.

CS 110, Computing and Information Science I. Spring 2000, Fall 2000, Fall 2007, Spring 2008.

CMPSC 201, Computer Programming for Engineers. TA (conducted lectures for recitation sections). Department of Computer Science and Engineering, Penn State. Fall 1997.

ii. Independent Study

CS 450 Independent Study in Computing and Information Science. Spring 2004, Fall 2007 (one student each).