LUCAS VESPA
Department of Computer Science
University of Illinois Springfield
Springfield, IL 62703
lvesp2@uis.edu

EDUCATION

Ph.D. in Electrical and Computer Engineering, May 2011
Southern Illinois University Carbondale

M.S. in Electrical and Computer Engineering, August 2008
Southern Illinois University Carbondale

B.S. in Software Engineering, November 2006
Colorado Technical University

TEACHING EXPERIENCE

Assistant Professor
Spring 2012–Present - University of Illinois at Springfield- Springfield, IL

- CSC 376 (Computer Organization and Design)
- CSC 433 (Intrusion Detection System)
- CSC 472 (Database System Concepts)
- CSC 540 (Graduate Research Seminar)
- CSC 570 (Information Security Policy)
- CSC 570 (Threat Management)

Instructor
2007–2011 - Southern Illinois University - Carbondale, IL

- ECE 222 (Digital Computation)
- ECE 493 (Special Topics)

Senior Project Design Advisor
2009 - Southern Illinois University - Carbondale, IL

- ECE 495, Project Title: *Energy Saving Adaptor for Portable Devices*

Senior Technical Instructor
2002–2007 - NovaTech Solutions, Inc. - Springfield, IL

- Developed object oriented transitional program for State Farm and the State of Illinois
- Network admin for NovaTech classrooms (about 100 computers, 15 servers)
- Created many new courses

PROFESSIONAL EXPERIENCE

Software Developer
2005–2007 - Bravura, Inc. - Springfield, IL
- Developed various business applications

Information Systems Consultant
2003–2005 - AvioPro, Inc. - Springfield, IL
- Designed custom applications and networked systems for clients

Programmer
1999–2002 - Levi, Ray & Shoup, Inc. - Springfield, IL
- Visual Basic and database development

Graduate Research Assistant
2007–2011 - Network Systems Lab, SIUC - Carbondale, IL
- Created algorithms and architectures for network security and network quality of service
- Supervised various Masters thesis projects
- Network and security performance acceleration using graphics processing units

PUBLICATIONS

Journals

J9. Yueran Gao, Haibo Wang, Ning Weng, **Lucas Vespa**, Enhancing Sensor Network Data Quality via Collaborated Circuit and Network Operations, Journal of Sensor and Actuator Networks, vol. 2, no. 2, pages 196-212, April 2013.

J8. **Lucas Vespa**, Ritam Chakrovort, and Ning Weng, Lightweight Testbed for Evaluating Worm Containing Systems, International Journal of Security and Networks (IJSN), vol. 7, no. 1, pages 6-16, August 2012.

J7. I-Hung Li, **Lucas Vespa** and Ning Weng, Information Quality Model and Optimization for 802.15.4-based Wireless Sensor Networks, Journal of Network and Computer Applications, Vol. 34, no. 6, pages 1773-1783, November 2011.

J6. Ning Weng, **Lucas Vespa**, and Benfano Soewito, Deep Packet Pre-filtering and Finite State Encoding for Adaptive Intrusion Detection System, Computer Networks vol. 55, no. 8, pages 1648-1661, June 2011.

J5. **Lucas Vespa** and Ning Weng, Deterministic Finite Automata Characterization and Optimization for Scalable Pattern Matching, ACM Transactions on Architecture and Code Optimization, vol. 8, no. 1, pages 4:1-4:31, April, 2011.

J4. **Lucas Vespa**, Ning Weng, and Ramaswamy Ramaswamy, MS-DFA: Multiple-Stride Pattern Matching for Scalable Deep Packet Inspection, The Computer Journal, vol. 54, no. 2, pages 285-303, February, 2011.

J3. Benfano Soewito, **Lucas Vespa**, Ning Weng, and Haibo Wang. Hybrid Pattern Matching for Trusted Intrusion Detection, Wiley Security and Communication Networks, vol. 2, pp. 1–13, 2009.

J2. **Lucas Vespa**, Ning Weng, and Benfano Soewito. Optimized Memory Based Accelerator for Scalable Pattern Matching, Microprocessors and Microsystems, vol. 33, issues 7/8, pp. 469–482, October, 2009.

J1. Benfano Soewito, **Lucas Vespa**, Atul Mahajan, NingWeng and HaiboWang. Self Addressable Memory-based FSM (SAM-FSM): A Scalable Intrusion Detection Engine, in IEEE Network, vol. 23, no. 1, pp. 14–21, January, 2009.

Book Chapters

B2. **Lucas Vespa** and Ning Weng. Deterministic Finite Automata Characterization for Memory-Based Pattern Matching, Information and Communications Security, ICICS 2009, Springer, Lecture Notes in Computer Science, vol. 5927, pp. 268–282, 2009.

B1. **Lucas Vespa**, Mini Mathew, Ning Weng. Predictive Pattern Matching for Scalable Network Intrusion Detection, Information and Communications Security, ICICS 2009, Springer, Lecture Notes in Computer Science, vol. 5927, pp. 254–267, 2009.

Conferences

C15. Matthew Dean and **Lucas Vespa**, Simplified Network Traffic Visualization for Real-Time Security Analysis, The 2013 International Conference on Security and Management, 2013.

C14. Mini Mathew, Ning Weng and **Lucas Vespa**, Quality-of-Information Modeling and Adapting for Delay-Sensitive Sensor Network Applications, the 31st IEEE International Performance Computing and Communications Conference (IPCCC 2012), 2012.

C13. **Lucas Vespa**, Visualization Tool for Apollonian Network and Packing Analysis, The 2012 International Conference on Modeling, Simulation and Visualization, 2012.

C12. **Lucas Vespa** and Ning Weng, SWM: Simplified Wu-Manber for GPU-based Deep Packet Inspection, The 2012 International Conference on Security and Management, 2012.

C11. **Lucas Vespa** and Ning Weng, Graphics Processing Enhanced Pattern-Matching for High- Performance Deep Packet Inspection, in the 2011 IEEE International Conference on Internet of Things (iThings 2011), pages 74-81, October 2011.

C10. **Lucas Vespa** and Ning Weng, Quality-aware Scheduling Metrics for Adaptive Sensor Networks, Proc. of the 35th Annual IEEE Conference on Local Computer Networks (LCN), pages 544–551, Denver, Colorado, Oct. 2010.

C9. Ritam Chakrovort, **Lucas Vespa** and Ning Weng, Testbed for Evaluating Worm Containing Systems, Proc. of ACM/IEEE Symposium on Architectures for Networking and Communication Systems(ANCS), pages 175–176, Princeton, NJ, Oct. 2009.

C8. **Lucas Vespa** and Ning Weng, Theoretic Analysis of Finite Automata for Memory-based Pattern Matching, Proc. of ACM/IEEE Symposium on Architectures for Networking and Communication Systems(ANCS), pages 82–83, Princeton, NJ, Oct. 2009.

C7. Ning Weng, **Lucas Vespa**, and Benfano Soewito. Multicore-based Self-adapting Pattern Detection Engine, Proc. of International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA), pages 790–796, Las Vegas, Nevada, July 2009.

C6. **Lucas Vespa**, Ning Weng and Benfano Soewito, Reconfigurable String Matching Engine for Network Intrusion Detection, Proc. of International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA), pages 756–762, Las Vegas, Nevada, July 2009.

C5. **Lucas Vespa**, Mini Mathew, and Ning Weng. P3FSM: Portable Predictive Pattern Matching Finite State Machine, in 20th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP), pages 219–222, Boston, MA, July 2009.

C4. **Lucas Vespa** and Ning Weng, Split-DFA (SDFA) for Scalable Pattern Matching in Network Security, in Proc. of The International Conference on Security and Management (SAM), pages 469–474, Las Vegas, Nevada, July 2009.

C3. **Lucas Vespa** and Ning Weng, Scalable Regular Expression Matching for Network Intrusion Detection Systems, in Proc. of International Conference on Embedded Systems and Applications (ESA), pages 39–46, Las Vegas, Nevada, July 2009.

C2. Benfano Soewito, **Lucas Vespa**, and Ning Weng, Characterize Power Consumption of Encryption/Decryption in Portable Devices, in Proc. of IEEE Region 5 Conference(PBASICS2), pages 1–6, Kansas City, MO, April 2008.

C1. **Lucas Vespa**, Keqian Mei, Rapeepan Maitree, and Ning Weng. Signal Strength Analysis for Optimal Routing in Wireless Sensor Networks, in Proc. of IEEE Region 5 Conference(PBASICS2), pages 1–5, Kansas City, MO, April 2008.

Abstracts

A1. **Lucas Vespa**, Mini Mathew, and Ning Weng. Tolapai-based Pattern Matching Acceleration, in Proc. of Intel Embedded and Communications Education Summit, Chandler, AR, February 2009.

CERTIFICATIONS & AWARDS

- UIS Competitive Summer Scholarly Research Recipient, 2013.
- UIS Faculty Scholarship Award, 2012
- SIUIS research grant, 2010
- Microsoft Certified Systems Engineer (MCSE)
- Microsoft Certified Professional (MCP)
- Microsoft Certified Systems Administrator (MCSA)
- Comptia Network +
- Comptia A+ Hardware and Operating System
- Recipient of Attendance Grant for the ACM/IEEE Symposium on Architectures for Networking and Communication Systems (ANCS), Princeton, New Jersey, 2009.
- Recipient of Attendance Grant for the Workshop on Cyber Security Experimentation and Test (CSET), Montreal, Canada, 2009.

SERVICE TO DISCIPLINE

- Reviewer:
  - ACM Transactions on Autonomous and Adaptive Systems
  - ACM Symposium on Applied Computing
  - IEEE Journal on Selected Areas in Communication
  - Workshop on Embedded Systems Security
  - Workshop on Performance Evaluation of Next-Generation Networks
  - Journal of Super Computing
  - Journal of Theoretical and Applied Computer Science
  - International Journal of Research in Computer Science

SERVICE TO COMMUNITY

- Girl Tech Volunteer and Instructor - 2012, 2013
- Security expert interviews for public awareness:
  - WICS - SOPA and PIPA Legislation - 2012
  - WICS - LinkedIn Password Theft - 2012
  - WCIA - Illinois Cyber Security Initiative - 2012
  - WICS - Internet Privacy - 2013
  - SJR - UIS Bachelor's in Information Systems Security - 2013
  - WICS - Verizon Phone Record Monitoring - 2013
  - WICS - NSA Monitoring Using PRISM - 2013
  - WCIA - Cyber Security Jobs - 2013
  - WICS - Facebook, Gmail, Twitter Key Logger Account Thefts - 2013
  - WICS - Snapchat Account Hack - 2014
- Created and coordinated the TechnoKids Computer Camp, NovaTech Solutions, Inc., 2003–2007
- SIUC Engineering Camp Volunteer, 2007–2010

- Volunteer judge for the Illinois Junior Academy of Science Region Eight Science Fair, 2009

SERVICE TO DEPARTMENT

- Created new Bachelor's of Science in Information Systems Security major, Spring 2012 - Present
- Faculty Supervisor for Computer Science Honor Society (UPE), Fall 2013 - Present
- Chair of Computer Science Search Committee, Spring 2013
- Assessment Committee, Spring 2012 - Present
- Personnel Committee, Spring 2012 - Present
- Curriculum Committee, Spring 2012 - Present

SERVICE TO UNIVERSITY

- Search Committee, Assistant Director of Pre-Award Grants and Contracts - Summer 2013
- Panel Member, New Faculty Orientation, "Balancing Faculty Roles and Responsibilities" - Summer 2013
- Viewbook: Featured for my out-of-classroom activities - 2013
- Search Committee, Associate Dean CLAS - Spring 2013
- Search Committee, Assistant Director of Enterprise Services - Summer 2012 - Fall 2012

SUPERVISION OF UNDERGRADUATE STUDENTS

- Alexander Bauman, 2013, UIS, Research Project, "Methodology for Complete Branch Elimination"
- Matthew Dean, 2012 - 2013, UIS, Research Project, "Simplified Network Traffic Visualization for Real-Time Security Analysis"
- Eric Poock, 2013, UIS, AST Project, "Accelerating Applications on GPUs"
- Angus McMullen, 2012, UIS, Independent Study, "Real-time Network Security"
- Jamie Worthy, 2012, UIS, Independent Study, "Deep Packet Inspection Hardware"
- Jeffrey Wang, 2011, UIS, AST Project, "SWM: Simplified Wu-Manber for GPU-based Deep Packet Inspection"