

Sarah M. Diesburg

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Educational Background

Ph.D. Computer Science, Florida State University, Summer 2012 (expected), GPA: 4.0/4.0

M.S. Information Security, Florida State University, August 2008, GPA: 4.0/4.0

B.S. magna cum laude, Computer Science, University of Northern Iowa, December 2004, GPA 3.6/4.0

Dissertation

Title: TrueErase: Full-Datapath Secure Deletion on Electronic Storage

Advisor: Dr. An-I Andy Wang

Current per-file deletion solutions tend to be limited to one segment of the operating system's storage data path, and may leave behind sensitive data when interacting with storage components such as journaling, file-system caches, and certain storage media such as NAND flash. I have designed, implemented, evaluated, and verified a legacy-compatible full-storage-data-path framework that performs per-file secure deletion, works with common file systems and emerging solid-state storage, while surviving common system failures.

Publications

- 2012 Sarah Diesburg, Mark Stanovich, Christopher Meyers, An-I Andy Wang. TAP: Enabling New Capabilities in the Legacy Storage Data Path via Type/Attribute Propagation. To be submitted to the *10th USENIX Symposium on Operating Systems Design and Implementation*.
- Sarah Diesburg, Christopher Meyers, Mark Stanovich, Michael Mitchell, Justin Marshall, Julia Gould, An-I Andy Wang, and Geoff Kuenning. TrueErase: Full-storage-data-path Per-file Secure Deletion. To be submitted to *ACM Transactions on Computer Systems*.
- 2011 Sarah Diesburg, Christopher Meyers, Mark Stanovich, Michael Mitchell, Justin Marshall, Julia Gould, An-I Andy Wang, and Geoff Kuenning. TrueErase: Full-storage-data-path Per-file Secure Deletion. Technical Report TR-111020, Department of Computer Science, Florida State University, October 2011. Submitted to *Eurosys 2012*.
- 2010 Sarah Diesburg and An-I Andy Wang. A Survey of Confidential Data Storage and Deletion Methods. *ACM Computing Surveys*, 43(1), 2010.
- 2008 Sarah Diesburg, Christopher Meyers, David Lary, and An-I Andy Wang. When cryptography meets storage. In *Proceedings of the 4th ACM International Workshop on Storage Security and Survivability*, Alexandria, Virginia, USA, 11-20, October 2008.
- 2005 Sarah Diesburg, Paul Gray, and David Joiner. High Performance Computing Environments Without the Fuss: The Bootable Cluster CD. *Proceedings of the 19th IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, 252.1, April 2005.
- 2004 Sarah Diesburg. Monitoring Network Sludge: Using Intrusion Detection to Monitor Network Traffic. Honors Thesis, University of Northern Iowa, December 2004.
- Paul Gray and Sarah Miller (Diesburg). In Search of Clusters for High Performance Computing Education. *Proceedings of the Linux Clusters Institute Conference*, May 2004.
- Paul Gray and Sarah Miller (Diesburg). The Bootable Cluster CD for High Performance Computing Education. *Proceedings of the Midwest Instruction and Computing Symposium*, April 2004.

Honors and Awards (attracted \$97,325 total)

- 2011 Departmental grant to attend Grace Hopper Celebration of Women in Computing (\$550)
- 2010 - 2011 Recipient of departmental Outstanding Teaching Assistant Award
Nomination for FSU Outstanding Teaching Assistant Award
- 2010 Student Travel Grant to attend Grace Hopper Celebration of Women in Computing (\$775)
- 2009 Philanthropic Educational Organization (PEO) Scholar Award (\$15,000)
Student Travel Grant to attend Grace Hopper Celebration of Women in Computing (\$775)
Student Travel Grant to attend the *18th USENIX Security Symposium* (\$1,000)
Invited Talk Travel Grant for the University of Northern Iowa (\$300)
- 2006-2008 Department of Education Graduate Assistance in Areas of National Need Fellowship (DoE GAANN), (\$64,000)
- 2007 Student Travel Grants to attend the *16th USENIX Security Symposium* (\$2,650)
National Science Foundation (NSF) Student Travel Grant to attend the *21st ACM Symposium on Operating Systems Principles* (\$1,750)

Student Travel Grant to attend Students & Technology in Academia, Research & Service (STARS) Summer Workshop 2007 (\$500)
 2006 Student Travel Grant to attend STARS Summer Workshop (\$500)
 2004 Pell Grant (\$400)
 2002-2003 NSF Computer Science, Engineering, and Mathematics Scholarship, University of Northern Iowa (\$5,625)
 2000-2003 E. Larsen & E. Larsen Scholarship, University of Northern Iowa (\$3,500)

Experience

2005-present **Graduate Research Assistantship**, Florida State University, Tallahassee, Florida. Explored secure deletion file system paradigms. Examined two-time-pad weaknesses of certain encryption modes in the context of storage implementations. Currently investigating future secure storage and deletion methods with NAND-based flash media.

2011 **Lead Lecturer**, Florida State University, Tallahassee, Florida. Taught the undergraduate Introduction to Operating Systems course. Managed course material and prepared lectures and assignments for 35 students. Supervised recitation TA and project development.

2010 **Teaching Assistant**, Florida State University, Tallahassee, Florida. Taught undergraduate Introduction to Operating Systems recitation. Prepared and graded projects for 40 students.

2008 **Information Security Auditor**, Southeastern Community Blood Center, Tallahassee, Florida. Evaluated a medium-sized organization against the BS7799.2 security policy audit checklist, tested employees' resistance to social engineering, verified HIPPA compliance, and examined network vulnerability.

Lead Lecturer, Florida State University, Tallahassee, Florida. Taught the Macintosh computer literacy course, both online and classroom edition. Supervised 200 online students, 3 class graders, and 2 recitation instructors. Prepared and delivered weekly lectures to 40 classroom students.

2007 **Teaching Assistant**, Florida State University, Tallahassee, Florida. Taught the PC computer literacy recitation and assisted with administrative duties for x students.

2003-2004 **Undergraduate Research Assistantship**, University of Northern Iowa, Cedar Falls, Iowa, 2003-2004. Developed new application packages, configured new boot-up modes and scripts, co-authored papers, and maintained various parts of the Bootable Cluster CD (BCCD) project, which is a clustering/parallel-computing operating system on a CD.

2002-2003 **Part-Time Web Developer**, Dyton Creative, Cedar Falls, Iowa, 2002-2003. Built educational online learning centers and interactive textbook CDs. Changed manual document conversion process to automatic by using perl and bash scripts.

Service

2011 **ACM Nomination Committee Member**, local chapter.

2010 **ACM Programming Organizer**, developed two questions used in the Spring FSU ACM Programming Contest, March 2010.

Panel Participant, FSU Graduate Research & Creativity Award, March 2010.

Panel Participant, FSU Workshop for Undergraduates Interested in Graduate School, March 2010.

2009-2010 **Secretary/Webmaster**, ACM-Women, Florida State University, 2009-2010. Invited two business women to give talks and advice in our "Tech Talk" series.

2009 **Shadow Program Committee**, 22nd ACM Symposium on Operating System Principles.

Student Participant, Revitalizing Computer Science Education Through the Science of Digital Media, Workshop 3, Florida State University, April 2009.

2008-2009 **President**, Women in Computer Science, converted to ACM-Women, Florida State University.

2007-2008 **Secretary**, FSU Student Leadership Corps STARS Alliance.

2007 **Secretary**, Women in Computer Science, Florida State University.

Scribe, the 21st ACM Symposium on Operating Systems Principles.

Scribe, the 16th USENIX Security Symposium.

2006-2007 **Logistical Coordinator** (2007), **Logistical Assistant** (2006), STARS Computing Careers Night. Led and assisted with the logistical preparation team for this event, which was part of an NSF initiative to broaden participation in computing. Introduced high school students, their parents, and guidance counselors to computing careers and education.

2006 **Mentor**, STARS, 2006. Mentored middle-school gifted students from the School of Arts and Science, as part of an NSF initiative to broaden participation in computing. Assisted local middle-school students in making interactive games and movies using the Alice 3D programming environment.

2003-2004 **Vice President**, Cedar Valley Linux Users Group, University of Northern Iowa.

2002-2004 **President** (2004), **Vice President** (2003), **Secretary** (2002), UNI Computer Club

Presentations

2009 Sarah Diesburg. TrueErase: Secure Deletion on Flash Storage. Presented at the *Feed Your Brain Symposium at the Florida State University College of Communication and Information*, November 2009.

- Sarah Diesburg. TrueErase: Secure Deletion on Electronic Media, FSU Board of Trustees, August 2009.
- Sarah Diesburg. Full-Datapath Secure Deletion, Work-in-Progress Report, *The 18th USENIX Security Symposium*, August 2009.
- Sarah Diesburg. Full-Datapath Secure Data Deletion, Invited Talk, University of Northern Iowa, May 2009.
- Sarah Diesburg. Full-Datapath Secure Data Deletion, *FSU ACM Student Research Conference*, April 2009.
- Sarah Diesburg. Security Technologies, Invited Talk, Florida State University, April 2009.
- 2008 Sarah Diesburg, When Cryptography Meets Storage, in *the 4th International Workshop on Storage Security and Survivability (StorageSS)*, October 2008.
- 2007 Sarah Diesburg. Organizing a Computing Mentorship for Middle School Students: What Did I Get Myself Into? In *Students & Technology in Academia, Research & Service Summer Workshop 2007*, August 2007.

Posters

- 2010 Sarah Diesburg, Christopher Meyers, and An-I Andy Wang. Full-Datapath Per-file Secure Deletion. *2010 Grace Hopper Celebration*, General Poster Session, September 2010.
- 2008 Kristin Norena, Sabrina Fontaine, Matthew Small, April Johnson, Monika Achury, and Sarah Diesburg. CCN on the Road. *STARS Summer Workshop*, August 2008.
- 2007 Sarah Diesburg. Organizing a Computing Mentorship for Middle School Students. *STARS Summer Workshop, August 2007*. (2nd place in the retention category)
- 2006 Johnnie Birch, Sarah Diesburg, Corey Latislaw, Anthony Miller, and Sharon Wynn. Florida State University's Bridging with Big Bend Gifted Students. *STARS Summer Workshop*, August 2006.
- 2004 Paul Gray, David Joiner, and Sarah Diesburg. The Bootable Cluster CD. *Oklahoma Supercomputing Symposium*, October 2004.

Press Coverage

- 2009 Kaylani Levine. Florida State Standouts: Sarah Diesburg. Florida State Headlines, October 13, 2009. <http://www.fsu.com/Radio-News/Florida-State-Standouts-Sarah-Diesburg>
- Doug Blackburn. FSU student tackles 'flash' issues, Tallahassee Democrat, front page article, October 4th, 2009. <http://pqasb.pqarchiver.com/tallahassee/access/1871784351.html?FMT=ABS&date=Oct+04,+2009>
- Doug Blackburn. FSU student develops software prototype to erase electronic files, Tallahassee Democrat, October 3, 2009. <http://pqasb.pqarchiver.com/tallahassee/access/1871398611.html?FMT=ABS&date=Oct+03,+2009>
- Florida State University Star Student designation, profile, October 1st, 2009. <https://campus.fsu.edu/profiles/diesburg/>
- Susan Hellstrom. Florida State Doctoral Students Win Top Research Scholarships, May 2nd, 2009. <http://www.fsu.com/News-Archive/2009/May2/Florida-State-Doctoral-Students-Win-Top-Research-Scholarships>

Graduate Coursework

- Computer and Network Administration
- Analytic Methods
- Cryptography
- Advanced Unix Programming
- Software Engineering
- Computer Security
- Theory of Automata and Formal Languages
- Kernel/Device Drivers
- Computer Architecture
- Network Security
- Operating Systems

Professional Society Memberships

- Student ACM member
- Upsilon Pi Epsilon, The International Computer Science Honorary Society
- Golden Key International Honour Society

References

- **Dr. Andy Wang**, Computer Science Department, Florida State University, Tallahassee, FL 32306, (850) 645-1562, awang@cs.fsu.edu.
- **Dr. Lois Hawkes**, Associate Dean, College of Arts & Sciences, 110 Longmire Building, Florida State University, Tallahassee, FL 32306, (850) 644-1083, lhawkes@fsu.edu.
- **Dr. Theodore Baker**, Computer Science Department, Florida State University, Tallahassee, FL 32306, (850) 644-5452, baker@cs.fsu.edu. Currently on leave to National Science Foundation, phone (703) 292-8608.
- **Mr. Ken Baldauf**, Director of Program in Interdisciplinary Computing, Florida State University, Tallahassee, FL 32306, (850) 645-5832, kbaldauf@fsu.edu.
- **Dr. Paul Gray**, Computer Science Department, University of Northern Iowa, Cedar Falls, IA 50614, (319) 273-2618, gray@cs.uni.edu.