

Curriculum Vitae

Mark Allan Gondree

Sonoma State University
Computer Science Department
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Current Position

Assistant Professor, Computer Science Department, Sonoma State University, Rohnert Park, CA
Visiting Research Scholar, California Polytechnic State University, San Luis Obispo, CA.

Education

- PhD 2009 University of California, Davis, Computer Science
Dissertation: Communication-Efficient Multiparty Oblivious Transfer and Applications
Research: Designing and modeling secure systems with special privacy requirements. Developing new methods of computing with encrypted data using secure interactive multiparty protocols.
Advisor: Professor Matthew Franklin
- 2004 Fulbright Scholar at the Independent University of Moscow, studying mathematics.
- MS 2003 Case Western Reserve University, Computer Science
Research: Homomorphic encryption and database security.
Advisors: Professors David Singer and Gultekin Ozsoyoglu
- BS 2003 Case Western Reserve University, Computer Science
Computer science major, graduated Summa Cum Laude.

Employment History

- 2012–16 **Naval Postgraduate School**, *Research Assistant Professor*, Computer Science Dept., Monterey, CA.
- 2013–16 **Naval Postgraduate School**, *Affiliate Faculty*, Cyber Academic Group, Monterey, CA.
- 2009–11 **Naval Postgraduate School**, *Research Associate*, Computer Science Dept., Monterey, CA.
- 2008 **DoD**, *intern*, Laboratory for Telecommunications Sciences (LTS), College Park, MD.
- 2007 **US Army**, *intern*, AMC/C-E LCMC Software Engineering Center, Monmouth, NJ.
- 2004–09 **University of California, Davis**, *Research Assistant*, Computer Science Dept., Davis, CA.
- 2002–03 **Case Western Reserve University**, *Graduate Researcher*, EECS Dept., Cleveland, OH.

Publications

Refereed Conferences, Workshops and Journals

1. Francisco Tacliad, Thuy D. Nguyen, and Mark Gondree. DoS exploitation of Allen-Bradley’s legacy protocol through fuzz testing. In *Annual Industrial Control System Security (ICSS) Workshop*, Orlando, Florida, December 2017.
2. Peyton Price, Nicholas Leyba, Mark Gondree, Zachary Staples, and Thomas Parker. Asset criticality in mission reconfigurable cyber systems and its contribution to key cyber terrain. In *Hawaii International Conference on System Sciences (HICSS)*, Waikoloa Village, HI, 2017. <https://goo.gl/AFkbdg>.

3. Mark Gondree, Zachary Peterson, and Portia Pusey. Talking about talking about cybersecurity games. *USENIX ;login;*, 41(1):36–39, Spring 2016.
4. Thuy D. Nguyen and Mark Gondree. Teaching industrial control system security using collaborative projects. In *Conference on Cybersecurity of Industrial Control Systems (CyberICS)*, pages 16–30, Vienna, Austria, 2015. http://doi.org/10.1007/978-3-319-40385-4_2.
5. Tanya Flushman, Mark Gondree, and Zachary N.J. Peterson. This is not a game: Early observations on using alternate reality games for teaching security concepts to first-year undergraduates. In *8th USENIX Workshop on Cyber Security Experimentation and Test (CSET'15)*, Washington, DC, 2015. USENIX. <https://goo.gl/jZwMFe>. *Acceptance rate: 30.76%*.
6. Timothy M. Peters, Mark Gondree, and Zachary N. J. Peterson. DEFY: A deniable, encrypted file system for log-structured storage. In *Network and Distributed System Security Symposium (NDSS)*, San Diego, CA, 2015. The Internet Society. <http://goo.gl/yTVtLI>. *Acceptance rate: 16.9%*.
7. Thuy D. Nguyen, Mark Gondree, Jean Khosalim, and Cynthia Irvine. Re-thinking kernelized MLS database architectures in the context of cloud-scale data stores. In *Engineering Secure Software and Systems (ESSoS)*, pages 86–101, Milan, Italy, 2015. Springer International Publishing. http://dx.doi.org/10.1007/978-3-319-15618-7_7.
8. Mark Gondree. Capturing capture the flag: Further discussions. *USENIX ;login;*, 39(6):26–30, December 2014. <https://goo.gl/2UGnoS>.
9. Mark Gondree and Zachary N.J. Peterson. Valuing security by getting [d0x3d!]: Experiences with a network security board game. In *6th USENIX Workshop on Cyber Security Experimentation and Test (CSET'13)*, Washington, DC, 2013. USENIX. <https://goo.gl/OhcYcZ>. *Acceptance rate: 31% (9/29)*.
10. Mark Gondree, Zachary N.J. Peterson, and Tamara Denning. Security through play. *IEEE Security & Privacy*, 11(3):64–67, May/June 2013. <http://dx.doi.org/10.1109/MSP.2013.69>.
11. Thuy D. Nguyen, Mark Gondree, Jean Khosalim, and Cynthia E. Irvine. Towards a cross-domain MapReduce framework. In *IEEE Military Communications Conference (MILCOM 2013)*, pages 1436–1441, San Diego, CA, USA, November 2013. <http://dx.doi.org/10.1109/MILCOM.2013.243>.
12. Mark Gondree and Zachary N.J. Peterson. Geolocation of data in the cloud. In *Proceedings of the Third ACM Conference on Data and Application Security and Privacy (CODASPY '13)*, pages 25–36, San Antonio, TX, 2013. ACM. <http://dx.doi.org/10.1145/2435349.2435353>. *Acceptance rate: 22% (24/107)*.
13. Thuy D. Nguyen, Mark Gondree, Jean Khosalim, David J. Shifflett, Timothy Levin, and Cynthia E. Irvine. An approach for cross-domain intrusion detection. In *Proceedings of the 7th International Conference on Information Warfare and Security (ICIW 2012)*, pages 203–212, Seattle, WA, 2012. <http://calhoun.nps.edu/public/handle/10945/7175>. *Acceptance rate: 30%*.
14. Zachary N. J. Peterson, Mark Gondree, and Robert Beverly. A position paper on data sovereignty: The importance of geolocating data in the cloud. In *3rd USENIX Workshop on Hot Topics in Cloud Computing (Hot-Cloud'11)*, Portland, OR, 2011. USENIX. http://www.usenix.org/events/hotcloud11/tech/final_files/Peterson.pdf. *Acceptance rate: 32% (23/72)*.
15. Thuy D. Nguyen, Mark Gondree, David J. Shifflett, Jean Khosalim, Timothy E. Levin, and Cynthia E. Irvine. A cloud-oriented cross-domain security architecture. In *IEEE Military Communications Conference (MILCOM 2010)*, pages 441–447, San Jose, CA, Oct 2010. <http://dx.doi.org/10.1109/MILCOM.2010.5680360>.
16. Cynthia E. Irvine, Thuy D. Nguyen, David J. Shifflett, Timothy E. Levin, Jean Khosalim, Charles Prince, Paul C. Clark, and Mark Gondree. MYSEA: The Monterey security architecture. In *Proceedings of the 2009 ACM Workshop on Scalable Trusted Computing*, pages 39–48, Chicago, IL, 2009. <http://doi.acm.org/10.1145/1655108.1655115>.
17. Mark Gondree and Payman Mohassel. Longest common subsequence as private search. In *Proceedings of the 8th ACM Workshop on Privacy in the Electronic Society (WPES'09)*, pages 81–90, Chicago, IL, 2009. ACM. <http://doi.acm.org/10.1145/1655188.1655200>. *Full paper acceptance rate: 27%*.

18. Matthew Franklin, Mark Gondree, and Payman Mohassel. Communication-efficient private protocols for longest common subsequence. In *Topics in Cryptology – CT-RSA 2009*, pages 265–278. Springer Berlin Heidelberg, 2009. http://dx.doi.org/10.1007/978-3-642-00862-7_18. *Acceptance rate: 33% (31/93)*.
19. Earl Barr, Matt Bishop, and Mark Gondree. Fixing federal e-voting standards. *Communications of the ACM*, 50(3):19–24, March 2007. <http://doi.acm.org/10.1145/1226736.1226754>.
20. Matthew Franklin, Mark Gondree, and Payman Mohassel. Multi-party indirect indexing and applications. In *Proceedings of ASIACRYPT 2007*, pages 283–297, Kuching, Sarawak, Malaysia, 2007. Springer Berlin Heidelberg. http://dx.doi.org/10.1007/978-3-540-76900-2_17. *Acceptance rate: 15% (33/223)*.
21. Matthew Franklin, Mark Gondree, and Payman Mohassel. Improved efficiency for private stable matching. In *Topics in Cryptology – CT-RSA 2007*, pages 163–177, San Francisco, CA, 2006. Springer Berlin Heidelberg. http://dx.doi.org/10.1007/11967668_11. *Acceptance rate: 34% (25/73)*.

Technical Reports

1. Earl Barr, Matt Bishop, Dimitri DeFigueiredo, Mark Gondree, and Patrick Wheeler. Toward clarifying election systems standards. Technical Report CSE-2005-21, University of California, Davis, September 2005.
2. Mark Gondree, Patrick Wheeler, and Dimitri DeFigueiredo. A critique of the 2002 FEC VSPT e-voting standards. Technical Report CSE-2005-20, University of California, Davis, September 2005.

Research Artifacts

Moki ICS. <https://github.com/moki-ics/moki>.

An open-source pen-testing distribution with tools for the industrial control domain, based on Kali.

[d0x3d!]: a network security game. <http://d0x3d.com>.

An open-source, non-digital game for teaching simple security concepts.

libpdp. <https://github.com/gondree/libpdp>.

An open-source library for cryptographic proofs of data possession, written in C.

NPS pthread pool library. <https://github.com/gondree/nps-tpool>.

A small, manager-free, cancellation-safe and asynchronous signal-safe POSIX thread pool library, written in C.

Course Instruction

Sp 2018, F 2017, Sp 2017	Sonoma State University, CS115: Programming I.
Sp 2018, F 2016	Sonoma State University, CS210: Introduction to Unix.
F 2016	Sonoma State University, CS242: Discrete Structures.
Sp 2018	Sonoma State University, CS365: Computer Networking & the Internet.
F 2016, F 2015, F 2014	Naval Postgraduate School, CS3040: Low-Level Programming.
F 2016, F 2015, Su 2012	Naval Postgraduate School, CS3600: Intro. to Computer Security.
W 2015, Sp 2014, W 2014	Naval Postgraduate School, CY4650: Cyber Data Management and Analytics.
W 2012, Su 2011	Naval Postgraduate School, CS2140: Low-Level Programming.
F 2011	Naval Postgraduate School, Social Media in an Intelligence Context (ind. study).
Su 2006	UC Davis, <i>VIGRE REU Co-advisor</i> , Broadcast Encryption (ind. study).

Thesis Advising

1. Francisco Tacliad. ENIP FUZZ: a SCAPY-based EtherNet/IP fuzzer for security testing. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2016.
2. Zhibin Zhang. A multi-threaded cryptographic pseudorandom number generator test suite. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2016.
3. Derek Swenningsen. Automatic inference of cryptographic key length based on analysis of proof of tightness. Master's thesis, Naval Postgraduate School, Monterey, CA, June 2016. <http://calhoun.nps.edu/handle/10945/49395>.
4. Abdallah Bakir. Empirical analysis of using erasure coding in outsourcing data storage with provable security. Master's thesis, Naval Postgraduate School, Monterey, CA, June 2016. <http://calhoun.nps.edu/handle/10945/49341>.
5. Stephen Bremer. Cost comparison among provable data possession schemes. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2016. <http://calhoun.nps.edu/10945/48485>.
6. Peyton Price and Nicholas Leyba. Tactical key cyber terrain and its application in cyber situational awareness. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2016.
7. Joseph Vanbruaene. Large scale cross-drive correlation of digital media. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2016. <http://calhoun.nps.edu/10945/48487>.
8. Lawrence Keener. Evaluating the generality and limits of blind return-oriented programming attacks. Master's thesis, Naval Postgraduate School, Monterey, CA, December 2015. <http://calhoun.nps.edu/10945/47979>.
9. Katherine K. Sheridan-Barbian. A survey of real-time operating systems and virtualization solutions for space systems. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2015. <http://hdl.handle.net/10945/45256>.
10. Nathan Desso. Designing a machinery control system (MCS) security testbed. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2014. <http://hdl.handle.net/10945/43902>.
11. Edgar Jatho. A survey of distributed capability file systems and their application to cloud environments. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2014. <http://hdl.handle.net/10945/43930>.
12. Mark Javate. Study of adversarial and defensive components in an experimental machinery control systems laboratory environment. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2014. <http://hdl.handle.net/10945/43931>.
13. Sean Nelson. An architectural analysis of modern machinery control systems. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2014.
14. Brandon Pontius. Information security considerations for applications using Apache Accumulo. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2014. <http://hdl.handle.net/10945/43980>.
15. William Parker. Evaluation of data processing techniques for unobtrusive gait authentication. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2014. <http://hdl.handle.net/10945/41429>.
16. Vincent Nguyen. Authentication of smartphone users using RSSI geolocation. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2014. <http://hdl.handle.net/10945/41424>.
17. Nick Lange. A survey of client geolocation using Wi-Fi positioning services. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2014. <http://hdl.handle.net/10945/41409>.
18. Miguel Cueva. Impact study of machinery control system (MCS) data on U.S. Navy ships. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2014.
19. Jose Coria. Curriculum modules in support of tabletop cybersecurity games. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2013. <http://hdl.handle.net/10945/37604>.
20. Javon Burden, Deyan Dontchev, Rachel Doucet, and Thomas Leo Skoff. Big data analytics test bed. M.S. capstone project, Naval Postgraduate School, Monterey, CA, September 2013. <http://hdl.handle.net/10945/37615>.

21. Arthur L. Zepf. Cyber-security curricula for basic users. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2013. <http://hdl.handle.net/10945/37750>.
22. Krisztina Riebel-Charity. Developing a library for proofs of data possession in Charm. Master's thesis, Naval Postgraduate School, Monterey, CA, June 2013. <http://hdl.handle.net/10945/34728>.
23. Chua Kai Ping. Performance analysis of MYSEA. Master's thesis, Naval Postgraduate School, Monterey, CA, September 2012.
24. Avner Biblarz. Web syndication in a multilevel security environment. Master's thesis, Naval Postgraduate School, Monterey, CA, March 2012. <http://hdl.handle.net/10945/38482>.
25. Yeow Cheng Ng. An application for normal and critical operations in a tactical MLS system. Master's thesis, Naval Postgraduate School, Monterey, CA, December 2010.

Talks

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| 2016 | “Panel on Security Education,” Los Angeles, CA. Panelist at ACSAC 2016. |
| 2016 | “Host and Data Geolocation in Adversarial Settings,” Workshop on Political Space and Cyber Space. Georgia Tech School of Public Policy, Atlanta, GA. |
| 2015 | “Adding L ^A T _E X to your Academic Toolset,” Naval Postgraduate School, Monterey, CA. <i>Host</i> : NPS Graduate Writing Center. |
| 2014 | “Secure TCB composition for trustworthy control systems,” DHS 2014 R&D Showcase and Technical Workshop, Washington, DC. |
| 2014 | “Capturing Capture the Flag,” San Diego, CA. Panel moderator at USENIX 3GSE. |
| 2013 | “Problems with Geolocating Data in the Cloud,” Grinnell College, Grinnell, IA. <i>Host</i> : Rosenfield Program in Public Affairs, International Relations & Human Rights. |
| 2012 | “Service Oriented Architectures and the DoD GIG,” Naval Postgraduate School, Monterey, CA. <i>Host</i> : Deborah Goshorn. Guest lecture for “Cyber Communications Systems.” |
| 2011 | “Cryptographic Protocols,” Naval Postgraduate School, Monterey, CA. <i>Host</i> : Zachary N. J. Peterson. Guest lecture for “Introduction to Computer Security.” |
| 2009 | “Beyond Circuit Simulation: Efficient Simulation of RAM Machines,” Naval Postgraduate School, Monterey, CA. <i>Host</i> : Cynthia Irvine. |
| 2009 | “Complexity of Counting: #P, PP, ⊕P,” UC Davis, Davis, CA. <i>Host</i> : Matthew Franklin. Guest lecture for “Theory of Computation.” |
| 2009 | “Multi-Party Simulation of RAM Machines,” Adelphi U.S. Army Research Laboratory, Adelphi, MD. |
| 2007 | “Multi-Party Indirect Indexing and Applications,” Kuching, Sarawak, Malaysia. Presented at ASIACRYPT 2007. |
| 2007 | “Oblivious Transfer and Private Information Retrieval,” UC Davis, Davis, CA. <i>Host</i> : Matthew Franklin. Guest lecture for “Financial Cryptography.” |

Grants

California State University. *CSU Course Redesign with Technology Grant for CS115*. PIs: Mark Gondree and Gurman Gill. 06/2017–06/2018. \$12,662.

Acquisition Research Program (NPS). *Analysis of the recurring costs of outsourced cloud-scale integrity audits*. PI: Mark Gondree. 05/2016 – 05/2017. \$71,192.

OPNAV Study Funding (NPS). *Cybersecurity Framework for Ship Industrial Control Systems*. Randy Maule (PI). Co-PI: Mark Gondree. 10/2015 – 12/2016. \$120,000.

Office of Naval Research. *Naval Machinery Control System (MCS) laboratory*. PI: Mark Gondree. 06/2015 – 01/2016. \$113,302.

National Science Foundation. *SEED Lab Extension and Parameterization*. Cynthia Irvine (PI). Co-PI: Mark Gondree. 06/2015 – 05/2017. \$422,498.00.

National Science Foundation. *Re-energizing K-12 Extramural Programs with Security Activities*. Mark Gondree (PI). Co-PI: Zachary N. J. Peterson. 06/2015 – 05/2017. \$259,976.00.

National Science Foundation. *This is not a Game: Using ARGs for Teaching Security Concepts to First-Year Undergraduates*. Zachary N. J. Peterson (PI). Co-PIs: Mark Gondree, Tanya Flushman. 09/2014 – 09/2016. \$196,073.

National Reconnaissance Office. *On-Phone Multimodal Continuous Authentication*. Craig Martell (PI). Co-PIs: Mark Gondree, Zachary Peterson. 11/2012 – 9/2013. \$383,458.

National Reconnaissance Office. *Security Foundations for Commercial Solutions for Classified (CSFC)*. Cynthia Irvine (PI). Co-PI: Mark Gondree. 11/2012 – 9/2013. \$299,350.

National Reconnaissance Office. *Scalable Distributed Datastore for an MLS Cloud*. Cynthia Irvine (PI). Co-PI: Mark Gondree. 11/2012 – 9/2013. \$479,580.

National Science Foundation. *Teaching Computer Security Concepts Through Interactive (Non-digital) Games*. Mark Gondree, Zachary N. J. Peterson (Co-PIs). 10/2012 – 9/2014. \$283,700.

National Science Foundation. *Cyber Corps Through Transformation - Renewal*. Cynthia Irvine (PI). Co-PIs: Mark Gondree, Zachary N. J. Peterson, Chris Eagle, Deborah Goshorn, Theodore Huffmire. 10/2012 – 9/2017. \$4,113,385.

National Reconnaissance Office. *Cloud Technologies for Automated Tagging and Cryptographic Binding*. Craig Martell (PI). Co-PIs: Mark Gondree, Zachary N. J. Peterson. 11/2011 – 9/2012. \$437,996.

Fellowships and Scholarships

2006 Fellow at UCLA's Institute for Pure and Applied Mathematics (IPAM).

2006 Science, Mathematics and Research for Transformation (SMART) DoD Fellowship

2004 Graduate Assistance in Areas of National Need (GAANN) Fellowship

2003 Fulbright Fellowship

2003 NSF/AMS scholarship for study at The Independent University of Moscow

1998 CWRU Presidential Scholarship

Professional Service

Academic Service

2018 Program Committee, Passive and Active Measurement Conference 2018 (PAM 2018).

2018 Program Committee, ACM SIGCSE Technical Symposium on CS Education (SIGCSE 2018)

2018 Program Committee, 2018 USENIX Workshop on Advances in Security Education (ASE'18).

2018 Vice Chair, IEEE Symposium on Security and Privacy 2018 (IEEE SP'18).

2017 Organizer, 2017 USENIX Workshop on Advances in Security Education (ASE'17).

2017 Workshops Chair, IEEE Symposium on Security and Privacy 2017 (IEEE SP'17).

2017 Program Committee, ACM SIGCSE Technical Symposium on CS Education (SIGCSE 2017)

2016 Program Committee, International Conference on Security and Cryptography (SECRYPT 2016)

2016 Organizer, 2016 USENIX Workshop on Advances in Security Education (ASE'16)

2016 Program Committee, International Conference on Emerging Security Information, Systems and Technologies (SECURWARE 2016).

- 2016 Finance Chair, IEEE Symposium on Security and Privacy 2016 (IEEE SP'16).
- 2015 Program Committee, International Conference on Security and Cryptography (SECRYPT 2015)
- 2015 Organizer, USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE'15)
- 2015 Program Committee, USENIX Workshop on Cyber Security Experimentation and Test (CSET'15).
- 2015 Finance Chair, IEEE Symposium on Security and Privacy 2015 (IEEE SP'15).
- 2014 Program Committee, USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE'14)
- 2014 Program Committee, USENIX Workshop on Cyber Security Experimentation and Test (CSET'14).
- 2014 Program Committee, International Conference on Security and Cryptography (SECRYPT 2014)
- 2014 co-Treasurer, IEEE Security and Privacy Workshops 2014 (IEEE SPW'14).
- 2013 Program Committee, Fourth International Workshop on Information Systems Security Engineering (WISSE'14).
- 2013 Program Committee, International Conference on Security and Cryptography (SECRYPT 2013)
- 2012 Program Committee, The International Conference on Cyber Security, CyberWarfare and Digital Forensic (CyberSec12)
- 2012 Program Committee, Summer FTRA International Symposium on Advances in Cryptography, Security and Applications for Future Computing (ACSA-Summer 2012)
- 2012 Program Committee, ASE/IEEE International Conference on Cyber Security (ICCS 2012)
- 2012 Program Committee, International Conference on Security and Cryptography (SECRYPT 2012)

Institutional Service

- 2017– SSU Information Security Steering Committee, *faculty representative*
- 2016– Sonoma County Expanding Your Horizons, *volunteer*
- 2016– SSU School of Science & Technology Professional Development Committee, *CS faculty representative*
- 2013–2016 NPS T_EX Users Group (Naval Postgraduate School), *member, co-founder*
- 2015–2016 Cyber Security Scholarship for Service Program (Naval Postgraduate School), *SFS Program Manager*
- 2012–2016 Cyber Security Scholarship for Service Program (Naval Postgraduate School), *SFS Academic Advisor*
- 2011–2016 Monterey County Science Fair, *volunteer*
- 2010–2016 Center for Information Systems Security Studies and Research Group (CISR), *member*