Dr. Craig S. Miles

CONTACT INFORMATION

Offensive Security Research
Amazon

E-mail: craig@craigmil.es
WWW: http://craigmil.es

EDUCATION

The University of North Carolina at Chapel Hill, Chapel Hill, NC

MBA, Kenan-Flagler Business School, August 2019

- Graduated Beta Gamma Sigma Honor Society

University of Louisiana at Lafayette, Lafayette, LA

Ph.D., Computer Science, December 2015

- Dissertation: *Elicitation of a Program's Behaviors*
- Comprehensives: Programming Languages and Compilers, Operating Systems
- GPA: 4.0
- Adviser: Professor Arun Lakhotia

The University of Montana, Missoula, MT

M.S., Computer Science, May 2010

- Thesis: *Modern Steganography: An Overview*
- GPA: 4.0
- Adviser: Professor Joel Henry

Oregon State University, Corvallis, OR

B.S., Mathematical Sciences, June 2007

- Computer Science option

PROFESSIONAL EXPERIENCE

Amazon, Portland, OR

Manager, Offensive Security Research **January 2022 to Present**

- Leading Amazon's best and most prolific team of Security Engineers (I'm biased).

Sr. Security Engineer, Offensive Security Research **August 2021 to December 2022**

- Protecting Amazon.

Assured Information Security, Portland, OR

Principal Scientist / Portland Site Lead **February 2016 to August 2021**

- Provides expert advice to scientific research and engineering efforts in the government cyberspace domain.
- Builds new business programs, and serves as Tech Lead for projects of any size and for project portfolios.
- Initiates and leads independent Research and Development Teams.
- Conducts business development, and secures funding for new business areas.

Idaho National Laboratory, Idaho Falls, ID

Cyber Security Researcher **May 2014 to January 2016**

- Conduct advanced cyber-security research for national defense.
- Secure funding for new research areas.

University of Louisiana at Lafayette, Lafayette, LA

Graduate Research / Teaching Assistant **August 2010 to May 2015**

- Malware Analysis and Attribution using Genetic Information (MAAGI) under DARPA I2O Cyber Genome effort.
- Grading and guest lecturing for undergraduate Software Engineering course and graduate Compilers courses.

Assured Information Security, Portland, OR

Engineering Co-Op **May 2013 to August 2013**

- Development of advanced program analysis capabilities.

The University of Montana, Missoula, MT

Graduate Research / Teaching Assistant **August 2008 to May 2010**

- Developed Distributed Simulation Network under Air Force SBIR AF071-070: Timely Decision-Making for Logistics Support
- Wrote material for and taught four classes (see Teaching Experience section) to over 100 undergraduate students.

Translations.com, Corvallis, OR

Localization Engineer **January 2008 to August 2008**

- Analysis of web sites/software for localization potential and time/material requirements
- Automation of analysis, file parsing, and filtering
- Re-engineering of translated components
- Ensured compliance with clients requirements and integrity of data
- Interfaced and coordinated with project management, art-graphics personnel, sales and customers
- Provided quotes on new projects for marketing/sales departments

Refereed Journal Publications

[1] Scofield, D., C. Miles, and S. Kuhn. Automated Model Learning for Accurate Detection of Malicious Digital Documents. In: *Digital Threats: Research and Practice*. 1(3):1–21. 2020. doi:10.1145/3379505

[2] Lakhotia, A., A. Walenstein, C. Miles, and A. Singh. VILO: A Rapid Learning Nearest-Neighbor Classifier for Malware Triage. In: *Journal in Computer Virology*, 2013. doi:10.1007/s11416-013-0178-3

[3] Miles, C., A. Lakhotia, and A. Walenstein. In Situ Reuse of Logically Extracted Functional Components. In: *Journal in Computer Virology*. 8(3):73–84. 2012. doi:10.1007/s11416-012-0167-y

Conference Publications

[4] Oesch, S., R. Bridges, J. Smith, J. Beaver, J. Goodall, K. Huffer, C. Miles, D. Scofield. An Assessment of the Usability of Machine Learning Based Tools for the Security Operations Center. In: *2020 International Conferences on Internet of Things (iThings)*, 2020.

[5] Scofield, D., C. Miles, S. Kuhn. Fast model learning for the detection of malicious digital documents. In: *Proceedings of the 7th Software Security, Protection, and Reverse Engineering/Software Security and Protection Workshop*, December, 2017.

[6] Pfeffer, A., B. Ruttenberg, L. Kellogg, M. Howard, C. Call, A. O'Connor, G. Takata, S. N. Reilly, T. Patten, J. Taylor, R. Hall, A. Lakhotia, C. Miles, D. Scofield, J. Frank. Artificial intelligence based malware analysis. In: *arXiv preprint* Axis:1704.08716, 2017.

[7] Miles, C., A. Lakhotia, C. LeDoux, A. Newsom, V. Notani. VirusBattle: State-of-the-Art Malware Analysis for Better Cyber Threat Intelligence. In: *Proceedings of the 7th International Symposium on Resilient Control Systems (ISRCS)*, August, 2014.

[8] Ruttenberg, B., C. Miles, L. Kellog, V. Notani, M. Howard, C. Ledoux, A. Lakhotia, A. Pfeffer. Identifying Shared Software Components to Support Malware Forensics. In: *Proceeding of the 11th Conference on Detection of Intrusions and Malware & Vulnerability Assessment*, 2014.

[9] LeDoux, C., A. Lakhotia, C. Miles, V. Notani, A. Pfeffer. FuncTracker: Discovering Shared Code to Aid Malware Forensics. In: *Proceedings of LEET '13 Conference*, 2013.

[10] Miles, C., A. Lakhotia, and A. Walenstein. In Situ Reuse of Logically Extracted Functional Components. In: *Proceedings of the 21st Annual EICAR Conference*, May 7–8, 2012. Best Paper Award.

[11] LeDoux, C., M. Sharkey, B. Primeaux, and C. Miles. Instruction Embedding for Improved Obfuscation. In: *Proceedings of the 50th Annual ACM Southeast Conference (ACM-SE 12)*, March 29–31, 2012.

Other Publications

[12] Miles, C. *Elicitation of a Program's Behaviors*. Ph.D. Dissertation, University of Louisiana at Lafayette, Lafayette, LA, 2015.

[13] Miles, C. *Modern Steganography: An Overview*. Master's Thesis, The University of Montana, Missoula, MT, 2010.

Patents

[14] Scofield, Daniel, and Craig Miles. "Entity resolution-based malicious file detection." *U.S. Patent No. 10,754,950*. 25 Aug. 2020.

Professional Development

Probabilistic Programming for Advancing Machine Learning (PPAML)
- July 2014

The 2012 International Summer School on Information Security and Protection
- May 2012

Hex-Rays IDA Pro Advanced Reverse Engineering Course
- April 2012

Hex-Rays IDA Pro Standard Reverse Engineering Course
- April 2012

Professional Service

Referee Service
- *Software Security, Protection, and Reverse Engineering Workshop (SSPREW)*
- *Malware Conference (MALCON)*
- *Software: Practice and Experience*
- *Brazilian Symposium on Information and Computer System Security*

Skills

Computer Programming:
- X86 Assembly, C, C++, C#, Java, PHP, Python, Perl, UNIX shell scripting, and others

Reverse Engineering:
- IDA Pro, Ghidra, OllyDbg, PEiD, hex editors, Cuckoo Sandbox, unpackers

Awards

University of Louisiana at Lafayette
- University Fellowship - Full Tuition and Stipend, 2010–2013
- Prominent Summer Research Award, The Center for Advanced Computer Studies, 2014

Teaching Experience

The University of Montana, Missoula, MT

Instructor **Autumn 2009 & Spring 2010**

- CS 172: Computer Modeling
  - Problem solving with spreadsheets and databases to analyze data.

Instructor **Spring 2009**

- CS 102: Object Oriented Programming
  - Elementary programming techniques using the Visual BASIC programming language.

Instructor **Autumn 2008**

- CS 101: Object Oriented Programming
  - Introduction to object-oriented programming using a visual programming environment.

References Available to Contact

Available upon request.