Curriculum Vitae: Jeffrey Todd McDonald

A. Biographical Information

A.1 Demographic

J. Todd McDonald
Professor of Computer Science
School of Computing
150 Jaguar Drive, Room 1121
University of South Alabama
Mobile, AL 36688

Phone: 251-460-7555
Email: jtmcdonald@southalabama.edu
Web: http://soc.southalabama.edu/~mcdonald/

A.2 Education

Dec 2006	**Ph.D.**, Computer Science, Florida State University, Tallahassee, FL
Mar 2000	**Master of Science in Engineering**, Computer Engineering, Air Force Institute of Technology, WPAFB, OH
Dec 1996	**Masters of Business Administration**, University of Phoenix, Nellis AFB Campus, NV.
May 1990	**Bachelor of Science**, Computer Science, U.S. Air Force Academy, Colorado Springs, CO.

A.3 Academic Appointments

Aug 2006	**Assistant Professor**, Computer Science, Department of Electrical and Computer Engineering, Air Force Institute of Technology, WPAFB, OH.
Aug 2011	**Associate Professor**, Computer Science, School of Computing, University of South Alabama, Mobile, AL.
Aug 2014	**Professor**, Computer Science, School of Computing, University of South Alabama, Mobile, AL.

A.4 Professional History

Jan 2023 – Present	**Director, Center for Forensics, Information Technology, and Security (CFITS), University of South Alabama,** Mobile, Alabama.
Aug 2014 – Present	**Professor of Computer Science, with tenure, School of Computing, Dept of Computer Science, University of South Alabama,** Mobile, Alabama.

May 2012 – Aug 2012	**Visiting Faculty, U.S. Department of Energy Higher Education Research Experiences (HERE) Program,** Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee. Appointed to work research projects with the Computational Sciences and Engineering Division involving information assurance, anomaly detection, and security.
Aug 2011 – Aug 2014	**Associate Professor of Computer Science, School of Computing, Dedpt of Computer Science, University of South Alabama,** Mobile, Alabama.
Sep 2011	**Retired**, United States Air Force, Lieutenant Colonel.
Jan 2010 – May 2011	**Senior Advisor, Echelon Above Division-Advisory Team,** United States Forces-Iraq, ITAM-ARMY, Kirkuk Iraq. Deployed in support of Operation New Dawn and Iraqi Freedom as senior advisor for 25-person USAF, USA, USMC, USG, and contractor team. Responsible for coordination of advisory missions for Iraqi Army third level logistics and training centers for two advise and assist brigades, under direction of US Division North (USD-N). Advised Iraqi general level officers that manage resources for nearly 2000 sq km of the USD-N Area of Responsibility.
Aug 2010 – Jan 2010	**Division Chief, Computer Science and Computer Engineering**, Department of Electrical and Computer Engineering, Air Force Institute of Technology, Wright-Patterson AFB, OH. Directs efforts of 14 PhD-level faculty--designs and executes division and cyber warfare programs. Evaluated & guided academic and professional development of 35 MS, 6 PhD, & 4 IDE students.
Jan 2007 – May 2007	**Chief, Data Operations Support,** Coalition Coordination Center, deployed in support of Operation Iraqi Freedom, HQ US Central Command, MacDill AFB, FL.
Sep 2006 – Jan 2010	**Assistant Professor of Computer Science**, Department of Electrical and Computer Engineering, Air Force Institute of Technology, Wright-Patterson AFB, OH. - Responsible for overseeing software engineering curriculum sequence and instructional duties for five software-engineering related courses.
Aug 2003 – Aug 2006	**Graduate Student**, Department of Computer Science, Florida State University, Tallahassee, FL. -- Completed doctoral degree in Computer Science with research focus on mobile agents, mobile agent security, and software protection.
Jun 2002 – Aug 2003	**Advisor to the Chief Scientist***,* Air Force Operational, Test & Evaluation Center (AFOTEC), Albuquerque, NM. -- Staff officer assisting the Technical Advisor to the Commander and the Chief Scientist of AFOTEC in technical analysis, research projects, and coordination of AFOTEC technical direction. Developed and executed first AFOTEC analyst awards program. Contract manager and technical lead for $1M study effort that will determine 4 year/$50M spending plan for directed energy test infrastructure funded by OSD.
Jul 2002 – Jun 2005	**Practitioner Faculty**, Department of Business Science and Information Technology, University of Phoenix, Online Campus – Responsible for instructing Master's level introduction to programming and programming concepts courses.

Mar 2001 – Jun 2002	**Chief, Test Capability Analysis Branch,** AFOTEC, Albuquerque, NM. Test manager conducting operational utility analysis of the Joint Modeling and Simulation System (JMASS)… led joint service evaluation of software system coordinating Army and Navy evaluation teams. Led 5-person team that conducts trade-off analysis studies of test infrastructure capabilities (open air range assets, hardware-in-the-loop facilities, man/pilot-in-the-loop facilities, modeling and simulation systems) required for successful operational testing of major weapons systems (CV-22, F-22, Joint Strike Fighter, Space Based IR Systems, F-15, B-1B).
Aug 2000 – Dec 2002	**Academic Instructor**, Department of Computer and Information Science, National American University, Albuquerque/Rio Rancho Campus – Responsible for instructing Master's level courses in programming, relational databases, operating systems, software engineering, and software design.
Apr 2000 – Mar 2001	**Chief, Software Plans Branch**, AFOTEC, Albuquerque, NM. Performed software analysis on weapon systems in support of operational testing conducted by AFOTEC for C-130J, CV-22, and C-130 modernization programs. Conduct and execute methodologies that determine maintainability, reliability, code quality, maturity, and process (**CMM**) level implementation.
Jul 1998 – Apr 2000	**Masters Student**, AF Institute of Technology, Dayton, OH. Completed 75 course hours with a 3.86 GPA to earn a Master's of Science degree in Computer Engineering. Pursued 3 different elective tracks to include: database-information retrieval (IR), software engineering, and artificial intelligence (AI). Thesis work focused on practical application of object-oriented database technology (OODBMS), agent oriented systems (AOIS) design, and object-oriented data modeling (OOA/OOD) to a real-world AF problem.
Jun 1996 – Jul 1998	**Commander, Information Systems Flight***,* Las Vegas, NV.
Aug 1994 - Jun 1996	**Chief, Data Administration Section,** Las Vegas, NV.
Aug 1990 - Aug 1994	**Simulation Analyst**, AF Wargaming Institute, Montgomery, AL.
Jun 1990	**Commissioned**, United States Air Force, 2nd Lieutenant
Jun 1986 - Jun 1990	**Cadet**, US Air Force Academy (USAFA), Colorado Springs, CO.

A.5 Awards and Honors

2015	**Teacher of the Year**, School of Computing, University of South Alabama
2008	**Field Grade Officer of the Quarter, April - June,** Air Force Institute of Technology, Wright-Patterson AFB, OH
1992, 1994	**Company Grade Officer of the Quarter,** Center for Aerospace Doctrine & Research Education, Maxwell AFB, AL

B. Scholarly Activities

B.1 Teaching Activities

B.1.a Courses Taught (Enrollment numbers shown in parenthesis)

University of South Alabama:

CSC 434	Formal Lang and Automata Theory	SP22 (50)
CSC 450/550	Surreptitious Software	SP19 (14), SP18 (15)
CSC 490/590	Surreptitious Software	SP17 (10), SP16 (14)
CSC 440	Secure Software Engineering	FA18 (32), FA17 (29), FA16 (24), FA15 (27)
CSC 410/510	Compiler Design	FA21 (14), FA18 (14), FA17 (10), FA16 (14), FA15 (5), FA14 (7), FA13 (7)
CSC 527	Software Engineering Principles	SP22 (6), SP21 (9), SP19 (10), SP18 (8), SP17 (6), SP16 (11), SP15 (9), SP14 (6), SP13 (7) SP12 (15)
CSC 331	Software Engineering Principles	SP15 (30), SP14 (26), SP13 (23), SP12 (22)
CSC 340	Secure Software Engineering	FA14 (25), FA13(13), FA12 (6)
CSC 333	Programming Language Theory	FA12 (23), FA11 (15)
CSC 490/590	Forensic Malware Analysis	FA11 (9)
CSC 494	Directed Study on Circuit Obfuscation	SP19 (1)
CSC 494	Directed Study on PC Power Collection	SP19 (1)
CSC 494	Directed Study on Abstract Interpretation	SP19 (1)
CSC 494	Directed Study on Mobile Vulnerabilities	FA15 (3)
CSC 494	Directed Study on Advanced Digital Logic	SP15 (1)
CSC 594	Directed Study on Abstract Math in Security	SP15 (1)
CSC 494/594	Directed Study on Cyber Crimes Challenge	SP13 (4)
CSC 594	Directed Study on Reverse Engineering	SP12 (2)
CSC 494	Directed Study on Program Lang Theory	FA12 (2)

AFIT:

CSCE 793	Advanced Topics in Software Engineering	SU07 (15), SU08 (4)
CSCE 694	Advanced Software Engineering	WI08 (3)
CSCE 693	Software Evolution	WI09 (5)
CSCE 593	Introduction to Software Engineering	FA06, SU07, FA08, FA09 (42)
CSCE 590	Engineering of Software Intensive Systems	FA07 (30/co-teacher)
CSCE 531	Discrete Math	FA09 (8)
CSCE 526	Secure Software Design and Development	FA07 (25)

Wright State University:

CEG 460/660	Introduction to Software Engineering	FA08 (16)

University of Phoenix:

CSS 561	Programming Concepts	WI04
POS 370	Principles of Programming	SU04, FA03, WI02, FA02, SU02
MTH 208	College Mathematics I	SU04

National American University:

CI 4680	Advanced JAVA Programming	FA02
CI 4520	Advanced C/C++ Programming	SP01
CI 4070	SQL Server Administration	WI00
CI 3680	JAVA Programming	SU02
CI 3520	Programming in C/C++	SP01, WI00
CI 2490	Structured Query Language	FA02
CI 2350	Intro to UNIX	FA00
CI 1420	Principles of Programming	WI02, SU02, FA02, SU01, WI00
CI 1150	Introduction to CIS	SU01

B.1.b Course Development

2016 *CSC 490/590 Surreptitious Software* – Developed a new course that is focused on software protection. The course comes with 24 hands-on lab assignments that utilize C, Java, and x86 programming to reinforce key concepts of obfuscation, watermarking, and tamper-proofing.

2015 *CSC 440 Secure Software Engineering* – Equipped a student lab with commercial tools and virtualized labs supported by an NSF infrastructure grant that provide course project, curriculum, and hands on learning activities.

2014 *CSC 331 Software Engineering* – Created 10 project proposal options for students to choose from with options for Android or Java application development.

2013 *CSC 410/510, Compiler Design* – Reintroduced this course into the CS curriculum that is required for Master's students and is an undergraduate elective. Developed a course project based on Appel's *Modern Compiler Implementation in Java*. Created and introduced a 6-phase project using straight line logic programs for the first 3 phases and MiniJava for the last 3 phases. Extended the textbook material into a project to build foundational principles of the compiler front-end such as lexing, parsing, and semantic analysis.

2013 *CSC 331/CSC 527, Software Engineering* – Introduced an end-to-end software engineering example in the beginning of each course that illustrated all 5 phases of software development activities. The code example and supporting analysis/design artifacts formed the basis of homework activities and helped students understand the big picture of software engineering activities before introducing in-depth lectures on each topic. The software came in two versions that illustrated more advanced design concepts such as inheritance, abstraction, interfaces, and design patterns. In CSC 331, I introduced smaller team based projects that leveraged the School of Computing's purchase of Android tablets. Teams received an Android device as their target platform.

2012 *CSC 340, Secure Software Engineering* – Designed a new course focused on security of software that teaches sound principles that should be incorporated into the software development process. Students will learn a risk management framework for software engineering efforts as well as best practices for software security including code reviews,

architectural risk analysis, penetration testing, risk-based security tests, abuse cases, security requirements, and security operations. Students will also learn common flaws that lead to exploitation and be able to identify and mitigate such errors in practice. The course includes outside of class labs and exercises that reinforce concepts presented in class.

2012 *CSC 331, Software Engineering* – Introduced a class-wide group project focused on developing applications for tracking buses and passenger loads on the campus-wide Jag Tran tram network. The project leverages previous work from the College of Engineering where student coursework produced various local area wireless network solutions for tracking GPS bus locations as they carry passengers on routes across the campus. The project was the first of its kind for the software engineering curriculum and integrated the entire development lifecycle for a software engineering project using iterative development under the unified process. Students in the class comprised the entire development team and had to organize to accomplish customer interactions, management, analysis, design, testing, configuration management, and quality assurance tasks. The project forms the basis for future courses that will add to the existing production code base and continue the iterative development process.

2012 *CSC 580, Data Security* – Designed a new course focused on cryptography engineering and data security. The course will be part of an information assurance curriculum offered for Master's students specializing in Computer Science.

2012 *IA Curriculum Development* – Helped development of Master's level Information Assurance elective track for Master's students with Computer Science specialization.

2011 *CSC 490/590, Forensic Malware Analysis* – Created a new course focused on principles of malware analysis and identification, forensic evidence collection, reverse engineering, and code analysis techniques.

2009 *CSCE 693, Software Evolution* – Restructured this sequence course and combined elements from CSCE694 and CSCE793. Introduced 4 end-to-end examples of persistent-data patterns using architectural styles from Fowler, including setup of Enterprise Java Beans to illustrate service-oriented architectures and enterprise data applications.

2008 *ENG Software Engineering Sequence* – Restructured the software engineering sequence to better align with other elective options and provide better focus for non-software engineering specific research students in light of department requirements for software engineering.

2007 – 2010 *CSCE 593*, *Intro to Software Engineering* – This course is restructured annually to provide for changes in software engineering curriculum and adaptability to current Air Force needs. It shares a large portion of overlap with CSCE 590 and the courses are taught side by side in some cases.

2007 –2010 *CSCE 694, Advanced Software Engineering*– The objective of this course is refocused annually to better meet the needs of the overall software engineering sequence and adapt to varying student participation levels.

2007 –2010 *CSCE 793, Advanced Topics in Software Engineering*– The objective of this course is refocused annually to account for trends in industry and incorporation of the most current cases studies and findings for empirical software studies.

B.1.c Evaluation of Teaching Proficiency (Representative Sampling)

Term	Course	# Students	Student Comments on Instructor Performance
SP14	CSC-331	26	"1.good teaching approach 2.excellent performance 3.perfect teaching content" "Best course I took at south Alabama to date." "I learned alot. Dr.Mcdonald is a good teacher. It was good."
FA13	CSC-510	7	"The instructor was awesome!" "The professor is patient and class is helpful"
FA13	CSC-340	13	"Teacher was very eager to help anytime we didn't understand something. Teacher gave clear instructions about assignments as well as due dates and also kept grades up to date on sakai. Very clear on course material and explaining difficult concepts."
SP13	CSC-527	7	Students like most: "Dr. Mcdonald was very prepared for class." "The topics covered were both interesting and important for CS." "In class reviews were helpful in understanding concepts from previous lectures." "The class project was challenging and enjoyable"
SP13	CSC-331	23	Students like most: "-Dr. McDonald" "-Android Development" "-Clear requirements/assignments/etc."
FA12	CSC-333	23	"I like his ability to explain things easily. He tried to engage the class. It's not difficult to remain attentive in his class."
FA11	CSC-490	9	Students liked most: "Hands on learning studies directed by students" "The material covered, the teacher,"
FA11	CSC-333	15	"The tests and grading was very fair. I feel that it made me a better programmer through the use of scheme and Prolog. I believe that because of this class I can now more easily learn a new programming language." "I enjoyed the instructor's overall approach to presenting the material. I appreciate that he was able to communicate each topic effectively with both the correct terminology as well as in layman terms."
WI09	CSCE 693	5	"Great class! the instructor was able to relay the material in a way we could all understand"
FA08	CSCE 590	11	"Enthusiastic, always was available for consult, dedicated to his profession and to the students"
FA08	CSCE 593	14	"Very engaging in-class discussions, ability to span a spectrum of interest and experience levels"
FA07	CSCE 590	10	"The instructors for this course were more organized and prepared for class than any other course I've ever had. They really did a great job. Also, it is obvious they are experts of the material."
FA07	CSCE 526	25	"Lt Col McDonald provided very help feedback on our projects. He made the class really enjoyable."
SU07	CSCE 793	15	"A very personable instructor with a good attitude."
FA06	CSCE 593	17	"Lt Col McDonald is an engaging instructor. His enthusiasm for the subject matter shines through. He deftly handles a wide range of questions."
FA06	CSCE 593	17	"The instructor was enthusiastic about the material. Also, the instructor was available and willing to give additional help outside of normal class hours."

B.1.c Student Research Advising: # Completed / # In-Progress (See Appendix A for details)

1. Doctoral Students Advised - Chair: 5 / 5
2. Doctoral Committee Membership: 5 / 2
3. Masters Students Thesis - Chair: 36 / 1
4. Masters Students Project - Chair: 3 / 0
5. Masters Committee Membership: 20 / 0
6. Honors Undergraduate Student Mentor - Chair: 2 / 1
7. Honors Undergraduate Committee Membership: 4 / 0

B.1.d Student Research Mentoring:

1. USA SURF Program, Mentor, Summer 2021, Rebecca Clark: *Side Channel Detection of Malicious Software using Nonlinear Phase Space Analysis*
2. USA SURF Program, Mentor, Summer 2019, Trinity Stroud: *Developing a Deterministic Polymorphic Circuit Generator Using Boolean Logic Representation*
3. USA SURF Program, Mentor, Summer 2018, Blair Doyle: *Rootkit Detection through Power-Based Phase Space Analysis*
4. USA UCUR Volunteer Internship Program, Mentor, Fall 2015, An Vu, Ryan Creel, Justin Raya: *Extending the Program Encryption Toolkit*
5. USA UCUR Volunteer Internship Program, Mentor, Summer 2014, Caleb Hall: *Experimental Analysis of Polymorphic Gate Program Protection Techniques*
6. USA UCUR Volunteer Internship Program, Mentor, Summer 2014, Andrew Edwards: *IoS Application for Seizure Forewarning*

B.1.e Senior Project Development:

1. CIS 497, Spring 2020: Sponsor, Senior Project on OpenSTF for Android Malware Analysis
2. CIS 497, Fall 2019: Sponsor, Senior Project on Software-Based Polymorphic Functions
3. CoE Capstone, Fall 2018: Sponsor, Senior Project on Wearable EEG Monitor
4. CIS 497, Spring 2018: Sponsor, Senior Project on Secure API Challenge
5. CIS 497, Spring 2018: Sponsor, Senior Project on Cyberdefense Competition Network
6. CIS 497, Fall 2017: Sponsor, Senior Project on Facebook CTF Development
7. CIS 497, Spring 2017: Mentor, Senior Project on Software Vulnerability Assessment
8. CIS 497, Spring 2016: Sponsor, Senior Project on Android Reverse Engineering Tutorial
9. CIS 497, Fall 2015: Sponsor, Senior Project on Medical Mannequin Exploitation
10. CIS 497, Spring 2015: Sponsor, Senior Project on JAGTRACK
11. CIS 497, Fall 2014: Sponsor, Senior Project on JAGTRACK
12. CIS 497, Spring 2014: Sponsor, Senior Project on JAGTRACK
13. CIS 497, Spring 2014: Sponsor, Senior Project on Medical Device Security Testing
14. CIS 497, Spring 2012: Sponsor, Senior Project on Malware Testbed
15. CIS 497, Spring 2012: Sponsor, Senior Project on Java Obfuscation and Deobfuscation
16. CIS 497, Fall 2012: Mentor, Senior Project on CHATS

B.1.f Student Recruitment and Development

1. Davidson High School, Mentor for STEM/Computer Science track, 2014-Present.
2. Spanish Fort High School, Mentor for BEST Robotics, 2014.
3. Alabama School of Math and Science, AIMS Summer Camp, June 2014: Java Web Applications course

4. Baker High School, AP Computer Science Class, May 2014: Lectures on Object Oriented Programming Java
5. Alabama School of Math and Science, AIMS Summer Camp, June 2013: Java Web Applications course
6. Baker High School, AP Computer Science Class, May 2013: Lectures on Object Oriented Programming Java
7. CFITS Field Trip Program, 2012-2014: Blender-3D

B.2 Research Activities

B.2.a Research Grants and Awards

(Cumulative total exceeds $19 M in shared and collaborative funding. Grants awarded are from the Air Force Institute of Technology and University of South Alabama)

1. T.R. Andel, **J.T. McDonald,** A.M. Clark, Dimitrios Damopoulos, "*Renewal: Scholarship for Service in Information Assurance*," National Science Foundation, Award # DGE-2142948, Solicitation NSF 21-580 CyberCorps® Scholarship for Service, submitted Sept 2021, funded 01 Jun 2022 – 31 May 2027 ($3,320,319).
2. L. Chronister, A. Yasinsac, **J.T. McDonald (Principal)**, et al. Project Jaguar/Contract #140D0419-9-0004, Department of Interior, funded Jan 2019 – Dec 2021 ($7,171,606)
3. William R. Mahoney+ and **J.T. McDonald**, "*SaTC: CORE: Small: Collaborative: Evaluating Performance and Security of Executable Steganography for Surreptitious Programs*", National Science Foundation, Award # CNS-1811578, Solicitation NSF 17-576, Secure and Trustworthy Computing (SaTC Small), submitted Nov 2017, funded August 2018 (grand total $325,402, USA share $151,433).
4. **J.T. McDonald** and T.R. Andel, "*GenCyber-Cybersecurity and Information Assurance Camps*," National Security Agency, GenCyber Solicitation GEN-01-2017, submitted Nov 2016, funded March 2017 ($57,870).
5. Patrick H. Luckett, **J. Todd McDonald**, Lee M. Hively+, "*Seizure Prediction and Detection Via Nonlinear Analysis,*" INNOCENTIVE Challenge ID: 9933784 – Phase One, The SUDEP Institute Challenge: Developing Predictive Biomarkers of Epilepsy Seizures, submitted October 2016, funded November 2016 ($10,000).
6. T.R. Andel, **J.T. McDonald,** A.M. Clark, H.L. Barnett, "*Renewal: Scholarship for Service in Information Assurance*," National Science Foundation, Award # DGE-1564518, Solicitation NSF 15-584, submitted Sept 2015, funded 1 Oct 2016 – 30 Sep 2021 ($4,097,801).
7. **J.T. McDonald,** Patrick H. Luckett, Lee M. Hively+, "*Reliable and Efficient Seizure Prediction and Detection Using Nonlinear Phase-Space Analysis*," The SUDEP Institute Challenge: Predictive Biomarkers of Epilepsy Seizures, INNOCENTIVE Challenge ID: 9933719, submitted May 2016, funded Aug 2016 ($15,000).
8. T.R. Andel, **J.T. McDonald,** S.H. Russ, "*MRI: Acquisition of Side-Channel Measurement and Analysis System*," National Science Foundation, Award: # CNS-1624944, Solicitation NSF 15-504, submitted January 2016, funded 15 Aug 2016 – 14 Aug 2019 ($393,288).
9. T.R. Andel and **J.T. McDonald**, "*GenCyber-Cybersecurity and Information Assurance Camps*," National Security Agency, GenCyber Solicitation GEN-01-2016, submitted Sept 2015, funded February 2016 ($42,722).
10. **J.T. McDonald,** T.R. Andel, R. Bace, and H.L. Barnett, "*Capacity Building in Information Assurance*," National Science Foundation*,* Award #DGE-1303384, Solicitation NSF 12-585, submitted April 2012, funded 1 Sep 2014 – 31 Aug 2017 ($322,410).
11. **J.T. McDonald** and T.R. Andel, "*II-NEW: RUI: Expanding Cyber Assurance Research and Education*," National Science Foundation, Award # CNS-1305369, Solicitation NSF 11-536, submitted October 2012, funded 1 Oct 2013 – 30 Sep 2015 ($476,017).
12. **J.T. McDonald,** T.R. Andel, A.M. Clark, H.L. Barnett, "*Scholarship for Service in Information Assurance*," National Science Foundation, Award #DUE-1241675, Solicitation NSF 12-531, submitted March 2012, funded 1 Jan 2013 – 31 Dec 2017 ($2,190,694).
13. M. Doran, **J.T. McDonald**, S. Sokol, "*Automated Flight and Sensor Implementation for Unmanned Aerial Vehicle*", USA UCUR Undergraduate Summer Research Fellowship Proposal, Accepted/Funded for Summer 2013.

14. J.T. McDonald, "*External Storage for EEG Data Collection*", USA Endowment- Innovative Hardware and Software Fund, funded April 2013 ($550).
15. D. W. Repperger, **J.T. McDonald**, "*Quantifying Cyberspace Situational Awareness, Performance, Vulnerability, and the Design of Optimal Cyber Attacks in Complex Networks*," AFOSR, Dr. Robert J. Bonneau, funded 2011 ($210,000).
16. **J.T. McDonald**, Y. Kim, T. Andel, "*Architectural Framework for Evaluating General, Efficient, and Measurable Program Protection*," AFOSR, AFIT#2009-299/2008-083, funded 2008-2010 ($90,000).
17. **J.T. McDonald**, G. Peterson, P. Williams, "*AFIT Support for AFRL Cybercraft Project*", AFOSR, AFIT#2009-311, funded 2009 ($150,000).
18. G.L. Peterson, **J.T. McDonald**, R. F. Mills, S.H. Kurkowski, "*CyberCraft Environment Modeling for C3*," AFRL/RIGA, funded 2009 ($220,000).
19. Y.C. Kim, **J.T. McDonald,** L.A. Starman, R. Coutu "*Anti-Tamper Methodology for Field Programmable Gate Arrays*," AFRL/RYT, funded 2009 ($100,000).
20. **J.T. McDonald**, P.L. Williams, G.L. Peterson, K.J. Hopkinson, B.E. Mullins, "*Cyber Defense Applications Using Polymorphic Dynamic Decoy Network Topology*," AFCYBER(P), AFIT#2008-128, funded 2008 ($50,000).
21. Y.C. Kim, J.A. Fellows, L.A. Starman, **J.T. McDonald**, "*Anti-Tamper Methodology for Field Programmable Gate Arrays*," AFRL/RYT, AFIT#2008-059, funded 2007-2008 ($75,000).
22. R.A. Raines, R.O. Baldwin, and **J.T. McDonald**, "*Technical, Teaching, and Research Support for the Software Protection Initiative and Center for Information Security Education and Research*," Air Force Research Laboratory, funded 2006-2008 ($432,000).
23. Y.C. Kim, J. Petrosky, and J.A. Fellows, L.A. Starman, **J.T. McDonald**, "*Characterization of DRAM in Nuclear Environment*," EWF ($100,000).
24. **J.T. McDonald**, G. Peterson, P. Williams, "*AFIT Support for AFRL Cybercraft Project*", AFOSR, AFIT#2008-048, funded 2008 ($50,000).
25. **J.T. McDonald**, "*Investigating Practical and Secure Program Protection*," AFIT/FRC, AFIT#2007-916, funded 2007 ($28,000).

B.2.a.1 Submitted (In-Review) Research Grants

1. Ryan Benton, **J.T. McDonald**, et al., "*RII Track-2 FEC: A Bigdata-Centric Framework to Improve Cybersecurity, Privacy, and Infrastructure Resilience*," National Science Foundation, Solicitation NSF 18-589, Grand Total ($3,999,647), USA Share ($920,003), submitted Feb 2018.

B.2.a.2 Submitted (Non-Awarded) Research Grants

2. Ryan Benton, **J.T. McDonald**, et al., "*RII Track-2 FEC: A Bigdata-Centric Framework to Improve Cybersecurity, Privacy, and Infrastructure Resilience*," National Science Foundation, Solicitation NSF 18-589, Grand Total ($3,999,647), USA Share ($920,003), submitted Feb 2018.
3. **J.T. McDonald** and Todd R. Andel, "*SaTC: CORE: Small: Phase Space Detection of Malware Execution Using Side-channel Power Analysis*," National Science Foundation, Solicitation NSF 17-576, Secure and Trustworthy Computing (SaTC Small), Grand Total ($387,230), submitted Nov 2017.
4. **J.T. McDonald** and T.R. Andel, "*GenCyber-Cybersecurity and Information Assurance Camps*," National Security Agency, GenCyber Solicitation GEN-01-2018, submitted Oct 2017 ($75,898).
5. Patrick H. Luckett, **J. Todd McDonald**, Lee M. Hively, "*Seizure Prediction and Detection Via Nonlinear Analysis,*" INNOCENTIVE Challenge ID: 9933784 – Phase Two, The SUDEP Institute Challenge: Developing Predictive Biomarkers of Epilepsy Seizures, submitted October 2017 ($25,000).

6. William R. Mahoney and **J.T. McDonald**, "*SaTC: CORE: Small: Collaborative: Evaluating Performance and Security of Executable Steganography for Surreptitious Programs*," National Science Foundation, Solicitation NSF 14-588, Secure and Trustworthy Computing (SaTC Small), Grand Total ($272,471), USA share $137,832, submitted Nov 2016.
7. W.B. Glisson, M. Yampolskiy, **J.T. McDonald,** T.R. Andel, *et al.* "*Digital Forensics Information Intelligence (DFII) Research Center*", National Science Foundation, Grand Total ($483,877.82), submitted: June 2016.
8. A. Yasinac, T.R. Andel, W.B. Glisson, **J.T. McDonald,** and M. Yampolskiy, "*Digital Forensics Information Intelligence (DFII) Research Center*", Alabama Innovation Fund (AIF), Grand Total ($926,318), submitted: June 2015.
9. J. Shropshire, T.R. Andel, and **J.T. McDonald,** "*Towards a Diversity Defense for Cloud Computing Systems*", National Security Agency, Resilient Architecture and Operations program, Grand Total ($181,000), submitted: May 2015.
10. A. Yasinsac, H.R. Pardue, M. Yampolskiy, **J.T. McDonald,** *et al.* "*Cybersecurity Research for Critical Infrastructure Protection*", National Science Foundation, National Science Foundation*,* Solicitation NSF 14-588,, Grand Total ($20,000,000), submitted: Aug 2014.
11. A. Yasinac, H.R. Pardue, T.R. Andel, W.B. Glisson, and **J.T. McDonald,** "*Center of Excellence in Mathematically-founded Forensic Sciences*," National Institute of Standards, Grand Total ($19,992,353), submitted: Dec 2014.
12. W.B. Glisson, **J.T. McDonald,** and Yampolskiy, M., *et al.* "*CPS Synergy: Collaborative Research: Smartphone Analysis Land Traffic (SALT)*," National Science Foundation*,* Solicitation NSF 14-542, IIS-Cyber Physical Systems (CPS), Grand Total ($997,619), submitted: June 2014.
13. A. Yasinac, A. Skjellum, *et al*. "*Improving Alabama's Research Infrastructure through Statewide Cyber Security and Response Research Collaboration*," National Science Foundation*,* Solicitation NSF 13-549, Grand Total ($20,000,000), submitted: May 2014.
14. **J.T. McDonald,** Michael Jacobs, Samuel H. Russ, Todd R. Andel, William B. Glisson, and S. Matt Campbell, "*Developing Multi-Disciplinary Research Infrastructure for Bio-Medical Cyber Security Assessment*," University of South Alabama Office of Research and Economic Development, Research and Scholarship Development Grant Program, Grand Total ($25,000), Submitted: March 2014.
15. A. Parakh, T.R. Andel, W.R. Mahoney, and **J.T. McDonald,** "*TWC: Small: Development of Efficient Hardware-Based Cryptosystem,*" National Science Foundation, NSF 13-578, CCF-Secure and Trustworthy Cyberspace, Grand Total: ($499,853), Submitted: January 2014.
16. A. Yasinac, *et al*. "*TWC: Frontier: Collaborative: Alabama Digital Investigations Research Center*," National Science Foundation*,* Solicitation NSF 13-549, Grand Total ($3,683,239), submitted: November 2013.
17. A. Parakh, W.R. Mahoney, **J.T. McDonald,** and T.R. Andel, "*CPS: Breakthrough: Efficient Hardware-Based Cryptography for Cyber Physical Systems,*" National Science Foundation, NSF 13-502, Grand Total: ($495,926), Submitted: January 2013.
18. T.R Andel and **J.T. McDonald,** "*TWC: Small: Enhancing Security through Hardware/Software Partitioning*", National Science Foundation, NSF 12-596, Grand Total ($496,411), submitted December 2012.
19. A. Yasinsac, T.R. Andel, and **J.T. McDonald,** "*TWC SBE: Option: Small: Remote Electronic Voting*," National Science Foundation, NSF 12-596, Grand Total ($499,690), submitted December 2012.
20. A. Skjellum, A. Yasinsac, J. Grimes, R. Burgess, D. Williams, R. Amin, **J.T. McDonald,** T.R. Andel, *et al. "Alabama Cyber Research Consortium-Cyber Research Group (ACRC-CRG)*", W911-NF-13-R-0004, Army Research Lab, Cyber Security Collaborative Research Alliance, USA portion ($2,090,000), Grand Total ($15,600,000), whitepaper submitted April 2013.
21. **J.T. McDonald** and T.R. Andel, "Instrumentation for Cyber Assurance Research and Education," DoD FY 2013 *Defense University Research Instrumentation Program (DURIP)*, Grand Total ($279,633), submitted September 2012.

22. **J.T. McDonald, N.** Stakhanova, and T.R. Andel, "II-NEW: Building a Capacity for Security-Focused Research," *National Science Foundation CISE Computing Research Infrastructure, Solicitation NSF 11-536*, Grand Total ($750,000), submitted: October 2012.

23. S.J. Prowell, L. Hively, L. Pouchard, K. Testa, A. Snyder, B. Brown, E. Gunther, V. Zheglov, B. Barnett, D. Thanos, **J.T. McDonald,** "Robust Remote Cyber Event Detection", *Cybersecurity for Energy Delivery Systems Research Call RC-CEDS-2012-012*, Grand Total ($3,278,183), submitted: July 2012.
24. **J.T. McDonald**, "A Semantic Framework for Circuit Obfuscation using Abstract Interpretation," *USA Faculty Development Council Grant Proposal*, submitted December 2011.
25. A. Lakhotia, **J.T. McDonald, G.L.** Peterson, M. Grimaila, R.F. Mills, B. Mullins, E. Trias, M. Doran, R. Guha, *et al.* "*Cyber Situational Awareness*", Grand Total ($4,500,000) (AFIT: 45%), FY09: ($1,500,000), FY10: ($1,500,000), FY11: (1,500,000).
26. R. Guha, **J.T. McDonald,** G.L. Peterson, A. Lakhotia, *et al.* "*Removing the Botnet Threat*", ARO BAA, Grand Total: ($6,765,000) (AFIT: 19.2%), FY09: ($1,335,000), FY10: ($1,345,000), FY11: (1,367,500).

B.2.b Research Publications [*Indicates Student Author, +Indicates Outside Author]

B.2.b.1 Journal Publications

1. Imano Williams, Xiaohong Yuan, Mohd Anwar, and **Todd McDonald**, "An Automated Security Concerns Recommender Based on Use Case Specification Ontology", *Automated Software Engineering,* vol. 29, no. 42, June 2022. DOI: 10.1007/s10515-022-00334-0.
2. George Clark*, Todd R. Andel, **J.T. McDonald**, T. Johnsten, and T. Thomas, "Detection and Defense of Cyber Attacks on the Machine Learning Control of Robotic Systems", *Journal of Defense Modeling and Simulation*, Nov. 2021, DOI: 10.1177/15485129211043874.
3. Dustin M. Mink*, **Jeffrey McDonald**, Sikha Bagui+, William B. Glisson+, Jordan Shropshire, Ryan Benton, and Samuel Russ, "Near-Real-Time IDS for the U.S. FAA's NextGen ADS-B", *Big Data and Cognitive Computing,* June 2021, vol. 5, no. 2, pp 91–106. doi: 10.3390/bdcc5020027
4. Patrick Luckett*, Elena Pavelescu, **Todd McDonald**, Lee M. Hively+, and Juan Ochoa, "Predicting State Transitions in Brain Dynamics Through Spectral Distance of Phase Space Graphs", *Journal of Computational Neuroscience*, February 2019, vol. 46, no. 1, pp 91–106. doi: 10.1007/s10827-018-0700-1
5. Patrick Luckett*, **J. Todd McDonald**, William B. Glisson, Ryan Benton, Joel Dawson*, and Blair Doyle*, "Identifying Stealth Malware Using CPU Power Consumption and Learning Algorithms", *Journal of Computer Security,* vol. 26 no. 5, pp. 589-613, 2018. doi: 10.3233/JCS-171060
6. Adam J. Brown*, Todd R. Andel, **J. T. McDonald**, and Mark Yampolskiy, "A Detailed Look at 'I Think I CAN'", *The Journal of Information Warfare,* vol. 16, no. 3, July 2017.
7. Patrick Luckett*, **J. T. McDonald**, and L. M. Hively+, "Dissimilarity of graph invariant features from EEG phase-space analysis," *Journal of Computer Engineering and Information Technology*, vol. 6, no. 3, 2017, May 2017, SciTechnol.
8. Imano Williams+, Xiaohong Yuan+, **Jeffrey T. McDonald**, and Mohd Anwar+, "A Method for Developing Abuse Cases and Its Evaluation", *Journal of Software,* vol. 11, no. 5, May 2016. doi: 10.17706/jsw.11.5.520-527
9. **J. Todd McDonald** and Lee M. Hively+, "Multidisciplinary Approaches for Cyber Security", *National Cybersecurity Institute's Journal,* vol. 1, no. 2*,* pp. 26-31, August 2014.
10. Joshua D. Cazalas*, Todd R. Andel, and **J. Todd McDonald**, "Analysis and Categorical Application of LSB Steganalysis Techniques," *The Journal of Information Warfare,* vol. 13, no. 3, July 2014.
11. Todd R. Andel, John Barron*, **J. Todd McDonald**, and Jeffrey W. Humphries+, "RSA Power Analysis Obfuscation: A Dynamic Algorithmic Hardware Countermeasure," *International Journal of Computing & Digital Systems*, May 2014, vol. 3, no. 2, pp. 69-78.
12. Todd R. Andel, Austin Fritzke*, Jeffrey W. Humphries+, and **J. Todd McDonald**, "Design and Implementation of Hiding Techniques to Obfuscate Against Side-Channel Attacks on AES," *International Journal of Computing & Network Technology*, May 2014, vol. 2, no. 2, pp. 65-72.
13. **J. Todd McDonald** and Todd R. Andel, "Integrating Historical Security Jewels in Information Assurance Education," *IEEE Security & Privacy, Special Issue: Lost Treasures*, vol. 10, no. 6, Nov/Dec. 2012, pp. 45-50. doi: 10.1109/MSP.2012.86
14. Yong C. Kim and **J. Todd McDonald**. "Considering Software Protection for Embedded Systems," *Crosstalk: The Journal of Defense Software Engineering*, vol. 22, no. 6, Sept/Oct 2009, pp. 4-8.
15. Alec Yasinsac and **J. Todd McDonald**, "Tamper Resistant Software Through Intent Protection," *International Journal of Network Security*, vol. 7, no. 3, Nov 2008, pp. 370-382.
16. **J. Todd McDonald**, Yong Kim, and Alec Yasinsac+. "Software Issues in Digital Forensics," *ACM SIGOPS OS Review, Special Issue on Forensics*, vol. 42, no. 3, April 2008, pp. 29-40. doi: 10.1145/1368506.1368512

B.2.b.2 Book Chapter

1. William S. Ashbee*, Lee M. Hively+, **J. Todd McDonald** (2014), "Nonlinear Epilepsy Forewarning by Support Vector Machines," Chapter 3 in *Epilepsy Topics*, M.D. Holmes ed. (InTech publ., Croatia) 2014 (ISBN 978-953-51-1630-1). Online: http://cdn.intechopen.com/pdfs-wm/46250.pdf

B.2.b.3 Editorials

1. **J. Todd McDonald**, Sebastian Barden+, Natalia Stakhanova+, editors, *Proceedings of the 9h Software Security, Protection, and Reverse Engineering Workshop (SSPREW-9)*, December 9-10, 2019, San Juan, Puerto Rico, ACM Publishing, ISBN: 978-1-4503-7746-1.
2. **J. Todd McDonald**, Sebastian Barden+, Natalia Stakhanova+, editors, *Proceedings of the 8h Software Security, Protection, and Reverse Engineering Workshop (SSPREW-8)*, December 3-4, 2018, San Juan, Puerto Rico, ACM Publishing, ISBN: 978-1-4503-6096-8.
3. **J. Todd McDonald**, Natalia Stakhanova+, Mila Dalla Preda+, editors, *Proceedings of the 7h Software Security, Protection, and Reverse Engineering Workshop (SSPREW-7)*, December 4-5, 2018, Orlando, FL, ACM Publishing, ISBN: 978-1-4503-4841-6.
4. **J. Todd McDonald**, Todd R. Andel, Mikel D. Petty+, editors, *Journal of Defense Modeling and Simulation: Applications, Methodology, Technology (JDMS), Special Issue on Cyber Modeling and Simulation*, vol. 14, no. 3, pp. 197-199, July 2017. SAGE Publishing, DOI: 10.1177/1548512917699729
5. **J. Todd McDonald**, Natalia Stakhanova+, Mila Dalla Preda+, editors, *Proceedings of the 6h Software Security, Protection, and Reverse Engineering Workshop (SSPREW-6)*, December 5-6, 2016, Los Angeles, CA, ACM Publishing, ISBN: 978-1-4503-4841-6.
6. **J. Todd McDonald**, Natalia Stakhanova+, Mila Dalla Preda+, editors, *Proceedings of the 5th Program Protection and Reverse Engineering Workshop (PPREW-5)*, December 8, 2015, Los Angeles, CA, ACM Publishing, ISBN: 978-1-4503-2649-0.
7. **J. Todd McDonald**, Todd R. Andel, William H. Mahoney+, Samuel H. Russ+, "Current Trends in Applications for Software/Hardware Integration," *Journal of Computer Engineering & Information Technology*, S2-e101, August 19, 2015, SciTechnol Publishing. DOI: 10.4172/2324-9307.S2-e101
8. **J. Todd McDonald**, Mila Dalla Preda+, editors, *Proceedings of the 4th Program Protection and Reverse Engineering Workshop (PPREW-4)*, December 14, 2014, New Orleans, LA, ACM Publishing, ISBN: 978-1-4503-2649-0.
9. Robert K. Abercrombie+ and **Jeffrey Todd McDonald,** editors, *Cyber and Information Security Research Conference (CISR '14)*, Oak Ridge, TN, USA, April 8-10, 2014. ACM 2014, ISBN 978-1-4503-2812-8
10. **J. Todd McDonald**, Mila Dalla Preda+, Arun Lakhotia+, Roberto Giocabazzi+, editors, *Proceedings of the 3rd ACM SIGPLAN Program Protection and Reverse Engineering Workshop (PPREW '14)*, January 26, 2014, San Diego, CA, ACM Publishing, ISBN: 978-1-4503-2649-0.
11. **J. Todd McDonald** and Mila Dalla Preda+, editors, *Proceedings of the 2nd ACM SIGPLAN Program Protection and Reverse Engineering Workshop (PPREW '13)*, January 25, 2013, Rome, Italy, ACM Publishing, ISBN: 978-1-4503-1857-0.

12. Frederick T. Shelton+ and **J. Todd McDonald**, "Introduction to the special issue on cyber security and management," No. 4, *Inf Syst E-Bus Manage* (2012) 10: 429-431. doi: 10.1007/s10257-012-0204-x Springer.
13. **J. Todd McDonald** and Eric D. Trias, editors, *Journal of Defense Modeling and Simulation: Applications, Methodology, Technology, Special Issue on Cyber Defense - Methodologies and Techniques for Evaluation*, July 2012; 9 (3), pp. 193-194, Sage Publishers, doi: 10.1177/1548512911425125

B.2.b.4 Invited Papers

1. **J. Todd McDonald**, "Side-Channel Based Detection of Malicious Software," *Dagstuhl Reports, No. 17281, Malware Analysis: From Large-Scale Data Triage to Targeted Attack Recognition.* Schloss Dagstuhl, Germany, September 2017. ISSN: 2192-5283. Published Online: http://drs.dagstuhl.de/?semnr=17281
2. **J. Todd McDonald**, "Developing an extensible deobfuscation framework," *NII Shonan Meeting Report (ISSN 2186-7437), No.2015-4*: *Low level code analysis and applications to computer security.* Tokyo, Japan. Published online: Aug. 5, 2015.
3. **J. Todd McDonald** and Todd R. Andel, "Program Partitioning and Polymorphic Functions: A Two-Pronged Approach for Program Protection Research," unpublished, *ARO Workshop on Continuously Upgradeable Software Security and Protection* (SSP'14), Scottsdale, Arizona, November 7, 2014.
4. **J. Todd McDonald**, "Capturing the Essence of Practical Obfuscation," *Proceedings of the 6th International Conference on Information Systems, Technology, and Management (ICISTM'12), Program Protection and Reverse Engineering Workshop (PPREW)*, (eds.) Dua, S. et al., pp. 451-456, Springer. doi: 10.1007/978-3-642-29166-1_44.
5. **J. Todd McDonald,** Bert Peterson, Dan Karrels*, Todd R. Andel, and Richard Raines, "Guarding the Cybercastle in 2020," *IANewsletter*, vol. 11, no. 3, Fall 2008.

B.2.b.5 Refereed Conference and Workshop Publications

1. Mark Yampolskiy, Lynne Graves, Jacob Gatlin, **Jeffrey McDonald,** and Moti Young, ": Crypto-Steganographic Validity for Additive Manufacturing (3D Printing) Design Files", accepted, *25th Information Security Conference (ISC-2022),* Bali, Indonesia, 18-22 December 2022.
2. **Jeffrey T. McDonald**, Jennifer Parnell*, Todd R. Andel, Samuel H. Russ, "Effectiveness of Adversarial Component Recovery in Protected Netlist Circuit Designs", *Proceedings of the 19th International Conference on Security and Cryptography (SECRYPT 2022),* Lisbon, Portugal, 11-13 July 2022.
3. J. Alex Mullins*, **J. Todd McDonald**, William R. Mahoney+, Todd R. Andel, "Evaluating Security of Executable Steganography for Digital Software Watermarking", *IEEE SoutheastCon 2022,* Mobile, AL, 31 March – 3 April, 2022.
4. Reeve Cabral*, **J. Todd McDonald**, Lee M. Hively, Ryan G. Benton, "Profiling CPU Behavior for Detection of Android Ransomware", *IEEE SoutheastCon 2022,* Mobile, AL, 31 March – 3 April, 2022.
5. Deepak Adhikari*, **J. Todd McDonald**, Todd R. Andel, Joseph D. Richardson, "Argon: A Toolbase for Evaluating Software Protection Techniques Against Symbolic Execution Attacks", *IEEE SoutheastCon 2022,* Mobile, AL, 31 March – 3 April, 2022.
6. Cordell Clay Davidson, Todd R. Andel, and J**effrey Todd McDonald**, "Looking at a Moving Target Defense of EthernetIP", *IEEE SoutheastCon 2022,* Mobile, AL, 31 March – 3 April, 2022.

7. **J. Todd McDonald**, Rebecca C. Clark*, Lee M. Hively+, and Sam Russ, "Phase Space Power Analysis for PC-based Rootkit Detection", *ACM Southeast 2022,* Jacksonville State University, AL, 31 March – 3 April, 2022.
8. Tristen Mullins, Brandon Baggett, Todd R. Andel, and **Jeffrey T. McDonald**, "Circuit-Variant Moving Target Defense for Side-Channel Attacks", *Proceedings of the 17th International Conference on Cyber Warfare and Security (ICCWS-2022),* 17 - 18 March 2022, Albany, New York, USA.
9. William Mahoney+, Phil Sigillito+, **J. Todd McDonald**, "The Impact of Software Fingerprinting in LLVM", *Proceedings of the 17th International Conference on Cyber Warfare and Security (ICCWS-2022),* 17 - 18 March 2022, Albany, New York, USA.
10. Joshua Hightower*, William Bradley Glisson+, Ryan Benton, and **J. Todd McDonald**, "Classifying Android Applications Via System Stats", *Privacy and Security of Big Data (PSBD 2021): Special Session, of the 2021 IEEE International Conference on Big Data (IEEE BigData 2021),* virtual, 15-18 December, 2021.
11. William Mahoney+, Gregory Hoff+, **J. Todd McDonald**, George Grispos+, "Software Fingerprinting in LLVM", *Proceedings of the 16th International Conference on Cyber Warfare and Security (ICCWS-2021)*.
12. **Jeffrey T. McDonald,** Ramya K. Manikyam*, Sébastien Bardin+, Richard Bonichon+, and Todd Andel**,** "Program Protection Through Software-Based Hardware Abstraction," *Proceedings of the 18th International Conference on Security and Cryptography (SECRYPT 2021)*, virtual, July 6-8 2021.
13. Colby Parker, **Jeffrey T. McDonald**, and Dimitrios Damopoulos, "Machine Learning Classification of Obfuscation using Image Visualization," short paper, *Proceedings of the 18th International Conference on Security and Cryptography (SECRYPT 2021)*, virtual, July 6-8, 2021.
14. **Jeffrey T. McDonald**, Dawn McKinney, and Todd R. Andel**,** "Program Encryption Toolkit - A Tool for Digital Logic Education and Undergraduate Research," *Proceedings of the 2021 ASEE Annual Conference and Exposition*, Virtual, July 26-29 2021.
15. Brandon Baggett*, Todd R. Andel, and **J. Todd McDonald,** "Location Distribution as a Side Channel Countermeasure," *Proceedings of the IEEE SoutheastCon 2021*, virtual, March 10-14, 2021.
16. Nathan Herron*, **J. Todd McDonald,** William B. Glisson, Ryan Benton, "Machine Learning-Based Android Malware Detection Using Manifest Permissions", *Proceedings of 54th Hawaii International Conference on System Sciences (HICSS-54),* Kauai, Hawaii, January 5-8 2021.
17. A. Ceballos Delgado, William Glisson, N. Shashidhar, **Jeffrey McDonald**, George Grispos, and Ryan Benton, "Deception Detection Using Machine Learning", *Proceedings of 54th Hawaii International Conference on System Sciences (HICSS-54),* Kauai, Hawaii, January 5-8 2021.
18. **Jeffrey T. McDonald**, Trinity Stroud*, and Todd R. Andel, "Polymorphic Circuit Generation Using Random Boolean Logic Expansion", *Proceedings of the 35th ACM/SIGAPP Symposium On Applied Computing,* March 30-April 3, 2020, Brno, Czech Republic. doi: 10.1145/3341105. 3374031.
19. Thanh Nguyen*, **J. Todd McDonald**, William B. Glisson, and Todd R. Andel, "Detecting Repackaged Android Applications Using Perceptual Hashing", *Proceedings of 53rd Hawaii International Conference on System Sciences (HICSS-53),* January 7-10, 2020, Grand Wailea, Maui, HI, USA
20. Bronwyn J. Hodges*, **J. Todd McDonald**, William B. Glisson, Maureen S. Van Devender, Michael Jacobs, and J. Harold Pardue, "Attack Modeling and Mitigation Strategies for Risk Based Analysis of Networked Medical Devices", *Proceedings of 53rd Hawaii International Conference on System Sciences (HICSS-53),* January 7-10, 2020, Grand Wailea, Maui, HI, USA

21. Javaria Ahmad*, Zachary Lewis*, Prakash Duraisamy, **Todd McDonald**, "Parking Lot using MRCNN" *Proceedings of 10th International Conference on Computing, Communication and Networking Technologies, Proc of IEEE*, July 2019, IIT Kanpur, India
22. Patrick Luckett+, Thomas Watts*, **J. Todd McDonald**, Lee Hively+, and Ryan Benton, "A Deep Learning Approach to Phase-Space Analysis for Seizure Detection", *Proceedings of the 10th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics (ACM-BCB'19).* ACM, New York, NY, USA. doi: 10.1145/3307339.3342131.
23. Fernando Lorenzo*, **Jeffrey McDonald**, Todd R. Andel, William B. Glisson+, and Samuel Russ, "Evaluating Side Channel Resilience in iPhone 5c Unlock Scenarios", *Proceedings of the IEEE SoutheastCon 2019*, April 11-14, 2019, Huntsville, AL, USA.
24. William Mahoney+, Joseph Franco+, Greg Hoff*, and **Jeffrey McDonald**, "Leave It to Weaver", *Proceedings of the 8th Software Security, Protection, and Reverse Engineering Workshop*, December 3-4, 2018, San Juan, Puerto Rico, USA.
25. Daniel Miller*, Brad Glisson, **J. Todd McDonald**, and Mark Yampolskiy, "Investigating 3D Printer Residual Data", *Proceedings of 52nd Hawaii International Conference on System Sciences (HICSS-52),* January 3-8, 2019, Grand Wailea Maui, HI, USA.
26. Todd R Andel, **Jeffrey Todd McDonald,** Adam Brown+, Tyler Trigg+, Paul Carsten+, "Towards Protection Mechanisms for Secure and Efficient CAN Operation," *Proceedings of 37th IEEE International Conference on Consumer Electronics (ICCE)*, January 11-13, 2019, Las Vegas, NV, USA.
27. Colby Parker*, **J. Todd McDonald**, Tom Johnsten, and Ryan Benton, "Android Malware Detection Using Step-Size Based Multi-layered Vector Space Models", *Proceedings of the 13th IEEE International Conference on Malicious and Unwanted Software (MALCON 2018),* October 22-24, 2018, Nantucket, MA, USA.
28. William B. Ledbetter*, William B. Glisson, **J. Todd McDonald**, Todd R. Andel, George Grispos+, and Kim-Kwang Raymond Choo+, "Digital Blues: An Investigation into the Use of Bluetooth Protocols", *Proceedings of the 17th IEEE International Conference On Trust, Security And Privacy In Computing And Communications (IEEE TrustCom-18),* New York City, NY, July 31 - August 3, 2018.
29. Patrick Luckett*, Elena Pavelescu, **J. Todd McDonald**, Lee M. Hively+, and Juan Ochoa, "Hypergraphs in Phase Space: A New Method for Predicting Epileptic Seizures", *Proceedings of the IEEE SoutheastCon 2018*, St. Petersburg, FL, April 19-22, 2018.
30. Adam Brown*, Todd R. Andel, Mark Yampolskiy, **J. Todd McDonald**, "CAN Authorization Using Message Priority Bit-Level Access Control," *Proceedings of the International Conference on Data Intelligence & Security (ICDIS-2018)*, April 8-10, 2018.
31. Todd R. Andel, Lindsey N. Whitehurst+, **Jeffrey T. McDonald**, and Waleed Al-Assadi, "Enhancing Security against Software Attacks with Reprogrammable Hardware", *Proceedings of the International Conference on Data Intelligence & Security (ICDIS-2018)*, April 8-10, 2018.
32. Joel A. Dawson+, **J. Todd McDonald**, Lee Hively+, Todd R. Andel, Mark Yampolskiy and Charles Hubbard+, "Phase Space Detection of Virtual Machine Cyber Events through Hypervisor-level System Call Analysis", *Proceedings of the International Conference on Data Intelligence & Security (ICDIS-2018)*, April 8-10, 2018, doi: 10.1109/ICDIS.2018.00034
33. William Holder*, **J. Todd McDonald**, and Todd R. Andel, "Evaluating Optimal Phase Ordering in Obfuscation Executives", *Proceedings of the 7th Software Security, Protection, and Reverse Engineering Workshop (SSPREW-7)*, December 4-5, 2017. doi: 10.1145/3151137.3151140
34. Joel A. Dawson*, **J. Todd McDonald**, Jordan Shropshire, Todd R. Andel, Patrick Luckett*, Lee Hively, "Rootkit Detection through Phase-Space Analysis of Power Voltage Measurements", *Proceedings of the 12th IEEE International Conference on Malicious and Unwanted Software (MALCON 2017)*, October 11-14, 2017, pp. 19-27. doi: 10.1109/MALWARE.2017.8323953

35. Katherine Seale*, **Jeffrey McDonald**, William Glisson, Harold Pardue, and Michael Jacobs, "MedDevRisk: Risk Analysis Methodology for Networked Medical Devices", *Proceedings of the 51st Hawaii International Conference on System Sciences (HICSS-51),* January 3-6, 2018, Hilton Waikoloa Village, HI, USA. doi: scholarspace.manoa.hawaii.edu:10125/50302
36. C. Davidson*, Todd R. Andel, Mark Yampolskiy, **J. Todd McDonald**, William B. Glisson, "On SCADA PLC and Fieldbus Cyber-Security", *Proceedings of the 13th International Conference on Cyber Warfare and Security (ICCWS-2018)*, Academic Conferences and Publishing International.
37. **. Todd McDonald**, Ramya Manikyam*, William B. Glisson, Todd R. Andel, and Yuan X. Gu+, "Enhanced Operating System Protection to Support Digital Forensic Investigations", *Proceedings of the 16th IEEE International Conference on Trust, Security and Privacy in Computing and Communications (IEEE TrustCom-17),* Sydney, Australia, August 1-4, 2017. doi: 10.1109/Trustcom/BigDataSE/ICESS.2017.296
38. Adam J. Brown*, Todd R. Andel, **Jeffrey McDonald**, and Mark Yampolskiy, "I Think I CAN", *Proceedings of the 12th International Conference on Cyber Warfare and Security - (ICCWS 2017),* pp. 67-73, March 2-3, 2017, Dayton, OH, USA.
39. Thanh Nguyen*, **Jeffrey T. McDonald**, and William Bradley Glisson, "Exploitation and Detection of a Malicious Mobile Application", *Proceedings of the 50th Hawaii International Conference on System Sciences (HICSS-50)*, January 4-7, 2017, Hilton Waikoloa Village, HI, USA. doi: 10.24251/HICSS.2017.747
40. Patrick H. Luckett*, **Jeffrey T. McDonald**, and William Bradley Glisson, "Attack-Graph Threat Modeling Assessment of Ambulatory Medical Devices", *Proceedings of the 50th Hawaii International Conference on System Sciences (HICSS-50)*, January 4-7, 2017, Hilton Waikoloa Village, HI, USA. doi: 10.24251/HICSS.2017.441
41. Ramya Manikyam*, **J. Todd McDonald**, William R. Mahoney+, Todd R. Andel, and Samuel H. Russ+, "Comparing Effectiveness of Commercial Obfuscators against MATE Attacks", *Proceedings of the Software Security, Protection, and Reverse Engineering Workshop (SSPREW-6)*, December 5-6, 2016, Los Angeles, CA, ACM. doi: 10.1145/3015135.3015143
42. Samuel Moore*, Mark Yampolskiy, Jacob Gatlin*, **Jeffrey T. McDonald**, and Todd R. Andel, "Buffer Overflow Attack's Power Consumption Signatures", *Proceedings of the Software Security, Protection, and Reverse Engineering Workshop (SSPREW-6)*, December 5-6, 2016, Los Angeles, CA, ACM. doi: 10.1145/3015135.3015141
43. Joel Dawson* and **J. Todd McDonald**, "Improving Penetration Testing Methodologies for Security-Based Risk Assessment", *Cybersecurity Symposium: Your Security, Your Future 2016: Edited Proceedings Volume*, 18-20 April 2016, Coeur d'Alene, ID, USA. IEEE, 2017. doi: 10.1109/CYBERSEC.2016.016
44. Patrick Luckett*, **J. Todd McDonald**, and Joel Dawson*, "Neural Network Analysis of System Call Timing for Rootkit Detection", *Cybersecurity Symposium: Your Security, Your Future 2016: Edited Proceedings Volume*, 18-20 April 2016, Coeur d'Alene, ID, USA. IEEE, 2017. doi: 10.1109/CYBERSEC.2016.008
45. Samuel Moore*, Phillip Armstrong*, **Jeffrey T. McDonald**, and Mark Yampolskiy, "Vulnerability Analysis of Desktop 3D Printer Software", *Proceedings of the International Symposium on Resilient Cyber Systems*, 16-18 Aug. 2016, Resilience Week (RWS), 2016, IEEE. doi: 10.1109/RWEEK.2016.7573305
46. John Dombrowski*, Todd R. Andel, **J. Todd McDonald** "The Application of Moving Target Defense to Field Programmable Gate Arrays", *Proceedings of the 11th Annual Cyber and Information Security Research Conference (CISR)*, April 5-7, 2016, Oak Ridge, TN, ACM. doi: 10.1145/2897795.2897820

47. Patrick Luckett*, **J. Todd McDonald**, Lee M. Hively+, "Seizure Detection via Distance Traversal of Phase-Space Graphs", Late-Breaking Papers, poster, *IEEE International Conference on Biomedical and Health Informatics (BHI)*, February 24-27, 2016, Las Vegas, NV.
48. Imano Williams+**,** Xiaohong Yuan+**, Jeffrey McDonald,** and Mohd Anwar+, "A Method for Developing Abuse Cases and Its Evaluation", *Proceedings of ICSIE 2016 5th International Conference on Software and Information Engineering*, May 11-13, 2016, Tokyo, Japan.
49. **J. Todd McDonald**, Yong C. Kim+, Todd R. Andel, James McVicar*, and Mile Forbes*, "Polymorphic Functions for Intellectual Property Protection", best poster award, *Proceedings of the IEEE International Symposium on Hardware Oriented Security and Trust (HOST 2016)*, May 5-7, 2016, McLean, VA, USA. doi: 10.1109/HST.2016.7495557
50. C. Kynigos+, W.B. Glisson, T.R. Andel, and **J.T. McDonald**, "Utilizing the Cloud to Store Camera -Hijacked Images," *Proceedings of Hawaii International Conference on System Sciences (HICSS-49),* January 4-7, 2017, Kauai, Hawaii, IEEE Publishing, 2017. doi: 10.1109/HICSS.2016.679
51. **J. Todd McDonald**, Tyler H. Trigg*, Clifton E. Roberts*, and Blake J. Darden*, "Security in Agile Development: Pedagogic Lessons from an Undergraduate Software Engineering Case Study", *Communications in Computer and Information Science*: *Cyber Security,* vol. 589, pp. 127-141, 8 January, 2016, Springer. doi: 10.1007/978-3-319-28313-5_9
52. Paul Carsten*, Todd R. Andel, Mark Yampolskiy, **Jeffrey T. McDonald**, and Samuel Russ, "A System to Recognize Intruders in Controller Area Network (CAN)," *Proceedings of 3rd International Symposium for ICS & SCADA Cyber Security Research (ICS-CSR 2015)*, Ingolstadt, Germany, 17-18 September, 2015. doi: 10.14236/ewic/ICS2015.15
53. William B. Glisson, Todd Andel, **Todd McDonald**, Mike Jacobs, Matt Campbell, Johnny Mayr*, "Compromising a Medical Mannequin," *Proceedings of 21st Americas Conference on Information Systems (AMCIS 2015)*, Puerto Rico, 13-15 August, 2015.
54. Paul Carsten*, Todd R. Andel, Mark Yampolskiy, and **Jeffrey T. McDonald,** "In-Vehicle Networks: Attacks, Vulnerabilities, and Proposed Solutions," *Proceedings of 2015 Cyber and Information Security Research Conference (CISR '15)*, Oak Ridge, TN, 7-9 April 2015, Article 1.
55. Joshua Cazalas*, **J. Todd McDonald,** Todd R. Andel, Natalia Stakhanova, "Probing the Limits of Virtualized Software Protection," in *Proceedings of the 4th Program Protection and Reverse Engineering Workshop (PPREW-4),* New Orleans, LA, 9 December 2014. ACM Publishing.
56. Mark Yampolskiy, William Glisson, Todd R. Andel, **J. Todd McDonald,** Alec Yasinsac, "Intellectual Property Protection in Additive Layer Manufacturing: Requirements for Secure Outsourcing," in *Proceedings of the 4th Program Protection and Reverse Engineering Workshop (PPREW-4),* 9 December 2014, New Orleans, LA. ACM Publishing.
57. Todd R. Andel, Lindsey N. Whitehurst*, and **J. Todd McDonald**, "Software Security and Randomization through Program Partitioning and Circuit Variation," in *Proceedings of 1st Workshop on Moving Target Defense (MTD 2014)*, Scottsdale, Arizona, November 3, 2014. ACM Publishing.
58. Lindsey N. Whitehurst*, Todd R. Andel, and **J. Todd McDonald**, "Exploring Security in ZigBee Networks," in *Proceedings of 2014 Cyber and Information Security Research Conference* (*CISR '14*), Oak Ridge, TN, 8-10 April 2014. ACM Publishing. doi: 10.1145/2602087.2602090 (Best Paper Award)
59. Joshua D. Cazalas*, Todd R. Andel, and **J. Todd McDonald**, "Analysis and Categorical Application of LSB Steganalysis Techniques," accepted, *9th International Conference on Cyber Warfare and Security (ICCWS-2014),* 24-25 March, 2014, Purdue University, West Lafayette, Indiana, USA.

60. Todd R. Andel and **J. Todd McDonald**, "A Systems Approach to Cyber Assurance Education," in *Proceedings of the Information Security Curriculum Development Conference (INFOSECCD 2013),* October 11-12, 2013, Kennesaw, GA, USA, ACM Publishing. doi: 10.145/ 2528908.2528920
61. Lee M. Hively+, **J. Todd McDonald,** Nancy Munro+, and Emily Cornelius+, "Forewarning of Epileptic Events from Scalp EEG," in *Proceedings of the ORNL Biomedical Science and Engineering Center Conference (BSEC 2013)*, May 21-23, 2013, Oak Ridge National Laboratory, pp. 1-4. doi: 10.1109/BSEC.2013.6618498
62. Jarilyn M. Hernández*, Line Pouchard+, and **J. Todd McDonald**, "Developing a Power Measurement Framework for Cyber Defense," in *Proceedings of the 8th Cyber Security and Information Intelligence Workshop*, January 2013, Oak Ridge National Laboratory, ACM Publishing. doi: 10.1145/2459976.2460008
63. Lee M. Hively+ and **J. Todd McDonald**, "Theorem-Based, Data-Driven, Cyber Event Detection," in *Proceedings of the 8th Cyber Security and Information Intelligence Workshop*, January 2013, Oak Ridge National Laboratory, ACM Publishing. doi: 10.1145/2459976.2460041
64. **J. Todd McDonald,** Yong C. Kim, Daniel Koranek*, and James D. Parham*, "Evaluating Component Hiding Techniques in Circuit Topologies," in *Proceedings of the International Conference on Communications, Communication and Information Systems Security Symposium (ICC-CISS-2012),* June 10-15, 2012, Ottawa, Canada, pp. 1138-1143. doi: 10.1109/ICC.2012.6364542
65. **J. Todd McDonald** and Yong C. Kim, "Examining Tradeoffs for Hardware-Based Intellectual Property Protection," in *Proceedings of the 7th International Conference on Information Warfare (ICIW-2012)*, March 22-23, 2012, University of Washington, Seattle, USA.
66. **J. Todd McDonald**, Yong C. Kim, and Daniel Koranek*, "Deterministic Circuit Variation for Anti-Tamper Applications," in *Proceedings of the Cyber Security and Information Intelligence Research Workshop (CSIIRW '11)*, October 12-14, 2011, Oak Ridge, TN, USA. doi: 10.1145/2179298.2179376
67. James D. Parham*, **J. Todd McDonald**, Michael R. Grimaila, and Yong C. Kim, "A Java based Component Identification Tool for Measuring the Strength of Circuit Protections," in *Proceedings of the of the Sixth Annual Workshop on Cyber Security and Information Intelligence Research*, (eds.) Sheldon, F.T. *et al*., Apr. 21-23, 2010, Oak Ridge, Tennessee, USA. doi: 10.1145/1852666.1852695
68. Sherry B. Murphy*, **J. Todd McDonald,** and Robert F. Mills. "An Application of Deception in Cyberspace: Operating System Obfuscation," in *Proceedings of the 5th International Conference on Information Warfare and Security*, 8-9 April 2010, The Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA, pp. 241-250. Academic Publishing Limited, ISBN: 1906638608
69. **J. Todd McDonald**, Eric D. Trias, Yong C. Kim, and Michael R. Grimaila. "Using Logic-Based Reduction for Adversarial Component Recovery," in *Proceedings of the 25th ACM Symposium on Applied Computing*, March 2010, Sierre, Switzerland, pp. 1993-2000. doi: 10.1145/1774088.1774508
70. **J. Todd McDonald**, Yong C. Kim, and Michael R. Grimaila. "Protecting Reprogrammable Hardware with Polymorphic Circuit Variation," in *Proceedings of the 2nd Cyberspace Research Workshop*, June 2009, Shreveport, Louisiana, USA.
71. James S. Okolica*, **J. Todd McDonald**, Gilbert L. Peterson, Robert F. Mills, and Michael W. Haas+. "Developing Systems for Cyber Situational Awareness," in *Proceedings of the 2nd Cyberspace Research Workshop 2009,* June 2009, Shreveport, Louisiana, USA.

72. Hiren Patel*, Yong C. Kim, **J. Todd McDonald**, LaVern Starman. "Increasing Stability and Distinguishability of the Digital Fingerprint in FPGAs Through Inputword Analysis," in *Proceedings of the IEEE International Conference on Field Programmable Logic and Applications (FPL 09),* Aug 31-Sep 2, 2009, Prague, Czech Republic, pp. 391-396. doi: 10.1109/FPL.2009.5272253
73. Roy Porter*, Samuel J. Stone*, Yong C. Kim, **J. Todd McDonald**, LaVern A. Starman. "Dynamic polymorphic reconfiguration for anti-tamper circuits," in *Proceedings of the IEEE International Conference on Field Programmable Logic and Applications (FPL 09),* Aug 31-Sep 2, 2009, Prague, Czech Republic, pp. 493 – 497. doi: 10.1109/FPL.2009.5272469
74. **J. Todd McDonald**, Eric D. Trias, and Alan C. Lin*. "Analyzing Functional Entropy of Software-Based Intent Protection Schemes," in *Proceedings of the 4th International Conference on Information Warfare and Security,* 26-27 March 2009, University of Cape Town, South Africa, pp. 60-68. Academic Publishing Limited, ISBN: 978-1-906638-27-6
75. James Crouch*, Hiren Patel*, Yong C Kim, **J. Todd McDonald,** Tony C. Kim. "Creating digital fingerprints on commercial field programmable gate arrays," in *Proceedings of the IEEE International Conference on Field Programmable Technology (ICFPT 2008)*, December 2008, Taipei, Taiwan, pp. 345-348. doi: 10.1109/FPT.2008.4762414
76. Bryan Skarda*, Robert Mills, **J. Todd McDonald,** and Dennis Strouble. "Operationalizing Social Engineering for Offensive Cyber Operations," in *Proceedings of the 13th International Command and Control Research and Technology Symposia (ICCRTS 2008),* 17-19 Jun 2008, Bellevue, WA (Best Student Paper: Concepts, Theory, and Policy Track).
77. **J. Todd McDonald,** Stuart H. Kurkowski, Richard A. Raines, Robert W. Bennington+. "Practical Methods for Software Security Education," *National Science Foundation Faculty Workshop on Secure Software Development,* April 14-15, 2008, Orlando, FL.
78. D.W. Repperger+, M.W. Haas+, **J.T. McDonald**, R.L. Ewing+, "Cyberspace and Networked Systems - Paradigms for Security and Dynamic Attacks," in *IEEE National Aerospace and Electronics Conference (NAECON 2008)*, pp. 168 - 172, IEEE Conference Publications, doi: 10.1109/NAECON.2008.4806541
79. **J. Todd McDonald** and Shannon Hunt*. "Developing a Requirements Framework for Cybercraft Trust Evaluation," in *Proceedings of the 3rd International Conference on Information Warfare and Security,* 24-25 April 2008, Peter Kiewit Institute, University of Nebraska Omaha, USA. Academic Publishing Limited, ISBN: 978-1-906638-00-9
80. **J. Todd McDonald** and A. Yasinsac, "Application Security Models for Mobile Agent Systems," *Electronic Notes in Computer Science*, vol. 157, no. 3, 25 May 2006, Elsevier, pp. 43-59. doi: 10.1016/j.entcs.2005.09.041
81. **J. Todd McDonald**. "Hybrid Approach for Secure Mobile Agent Computations," *Lecture Notes in Computer Science,* vol. 4074, Sept. 20-22, 2005, Springer-Verlag, pp. 38-53. doi: 10.1007/11801412_5
82. Alec Yasinsac and **J. Todd McDonald,** "Towards Working With Small Atomic Functions," in *Proceedings of the Fifteenth International Workshop on Security Protocols*, (eds.) Christianson, B. *et al.*, Springer Verlag, April 18-20, 2007, Brno, Czech Republic, pp. 191-200. doi: 10.1007/978-3-642-17773-6_25
83. **J. Todd McDonald** and Alec Yasinsac, "Applications for Provably Secure Intent Protection with Bounded Input-Size Programs," in *Proceedings of the International Conference on Availability, Reliability and Security (ARES 2007)*, April 10-13, 2007, Vienna, Austria, pp. 286 - 293. doi: 10.1109/ARES.2007.40 (28% acceptance rate, 60/212)**.**
84. **J. Todd McDonald** and Alec Yasinsac, "Program Intent Protection Using Circuit Encryption," in *Proceedings of the 8th International Symposium on System and Information Security*, Sao Jose dos Campos, Sao Paulo, Brazil, November 8-10, 2006. (29% acceptance rate, 40/140).

85. Alec Yasinsac and **J. Todd McDonald**, "Foundations for Security Aware Software Development Education," in *Proceedings of the Hawaii International Conference on System Sciences (HICSS'05),* January 4-7, 2006, pp. 219c. doi: 10.1109/HICSS.2006.187
86. Alec Yasinsac and **J. Todd McDonald**, "Of Unicorns and Random Programs," in *Proceedings of the 3rd IASTED International Conference on Communications and Computer Networks (IASTED/CCN)*, October 24-26, 2005, Marina del Rey, CA, pp. 24-30. IASTED/ACTA Press, ISBN 0-88986-546-9
87. **J. Todd McDonald**, A. Yasinsac, W. Thompson, "Mobile Agent Data Integrity Using Multi-agent Architecture," in *Proceedings of the International Workshop on Security in Parallel and Distributed Systems (PDCS 2004),* 14-17 September 2004, San Francisco, CA.
88. W. Thompson, A. Yasinsac, **J. T. McDonald**, "Semantic Encryption Transformation Scheme," in *Proceedings of the International Workshop on Security in Parallel and Distributed Systems (PDCS 2004),* 14-17 September 2004, San Francisco, CA.
89. **J. Todd McDonald** and M. Talbert, "Agent-Based Architecture for Modeling and Simulation Integration," in *Proceedings of the IEEE National Aerospace & Electronics Conference (NAECON 2000)*, Oct 2000, Dayton, OH, pp. 375-382. doi: 10.1109/NAECON.2000.894935 (2nd Place Best Paper for NAECON 2000 in the Student Award Category)
90. **J. Todd McDonald**, M. Talbert, and S. Deloach, "Heterogeneous Database Integration Using Agent-Oriented Information Systems," in *Proceedings of the International Conference on Artificial Intelligence (IC-AI-2000)*, Jun 2000, Las Vegas, NV. doi: 10.1.1.21.1007

B.2.b.6 Other Publications/Posters/Magazines

1. James Carambat, **J. Todd McDonald**, Todd R. Andel, Samuel H. Russ, "Evaluating Defensive Countermeasures for Software-Based Hardware Abstraction", poster, *National Initiative for Cybersecurity Education Conference*, Atlanta, GA, June 2022.
2. Shelby A. Caldwell, J. Todd McDonald, Ryan G. Benton, David Bourrie, "A Framework for Identifying Malware Threat Distribution on the Dark Web", poster, *National Initiative for Cybersecurity Education Conference*, Atlanta, GA, June 2022.
3. Rebecca C. Clark*, **J. Todd McDonald**, and Lee M. Hively+, "Exploring Side Channel Data for Detecting Malicious Software", poster, *Women in Cybersecurity Conference (WiCyS -2022)*, March 17-19, 2022, Cleveland, OH.
4. Joseph A. Mullins*, **J. Todd McDonald,** William R. Mahoney+, and Todd R. Andel, "Evaluating Security of Executable Steganography for Digital Software Watermarking", accepted, conference canceled, *7th Annual Cybersecurity Symposium*, April 20-22, 2020, Coeur d'Alene, ID, USA.
5. Blair A. Doyle*, **J. Todd McDonald**, Patrick H. Luckett*, and Lee M. Hively, "Virtualized Rootkit Detection Using Nonlinear Phase Space Analysis and Machine Learning Techniques", poster, *Women in Hardware and Systems Security Workshop (WISE-2019)*, May 9, 2019, McLean, VA.
6. Ramya Manikyam*, J. Todd McDonald, Todd R. Andel, Mark Yampolskiy, "Analyzing Program Protection Using Software-Based Hardware Abstraction", poster, *Women in Hardware and Systems Security Workshop (WISE-2019)*, May 9, 2019, McLean, VA.
7. Bronwyn J. Hodges*, **J. Todd McDonald**, J. Harold Pardue, and Michael Jacobs, "Advancing Cybersecurity Posture in the Healthcare Sector", poster, *Healthcare Information and Management Systems Society (HIMSS-19)*, February 12-15, 2019, Orlando, FL, U.S.A
8. Maureen S. Van Devender*, **J. Todd McDonald**, J. Harold Pardue, Michael Jacobs, and William B. Glisson, " ", poster, *Healthcare Information and Management Systems Society (HIMSS-19)*, February 12-15, 2019, Orlando, FL, U.S.A

9. Joel Dawson* and **J. Todd McDonald**, "Improving Penetration Testing Methodologies for Security-Based Risk Assessment", abstract and presentation, *Cybersecurity Symposium 2016 (CYBERSEC-2016)*, April 19-20, 2016, Coeur d'Alene, Idaho, U.S.A
10. Patrick Luckett*, **J. Todd McDonald**, and Joel Dawson*, "Neural Network Analysis of System Call Timing for Rootkit Detection", abstract and presentation, *Cybersecurity Symposium 2016 (CYBERSEC-2016)*, April 19-20, 2016, Coeur d'Alene, Idaho, U.S.A
11. Lindsey N. Whitehurst*, Todd R. Andel, **J. Todd McDonald**, and Waleed Al-Assadi, "Using Hardware to Eliminate Software Vulnerabilities", Poster Presentation, *19th Annual Colloquium for Information System Security Education* (*CISSE 2015*), Las Vegas, NV, June 15-17, 2015.
12. Miles A. Forbes* and **J. Todd McDonald**, "Implementing and Analyzing Circuits Based on Fully Homomorphic Encryption", Poster Presentation, *19th Annual Colloquium for Information System Security Education* (*CISSE 2015*), Las Vegas, NV, June 15-17, 2015.
13. Joshua Poling*, **J. Todd McDonald**, Brad Glisson, and Todd R. Andel, "Modeling Exploits within Android's Permission Acceptance", Poster Presentation, *19th Annual Colloquium for Information System Security Education* (*CISSE 2015*), Las Vegas, NV, June 15-17, 2015.
14. Charles Hubbard*, **J. Todd McDonald**, Todd R. Andel, Jordan K. Shropshire, and Samuel H. Russ, "Data Collection for Cyber Anomaly Event Detection", Poster Presentation, *19th Annual Colloquium for Information System Security Education* (*CISSE 2015*), Las Vegas, NV, June 15-17, 2015.
15. Brenner Sweat Jr.*, **J. Todd McDonald**, Todd R. Andel, Samuel H. Russ, "Characterizing Obfuscation of Abstract Properties in Polymorphic Circuit Variants: When does polymorphism become obfuscation?", Poster Presentation, *19th Annual Colloquium for Information System Security Education* (*CISSE 2015*), Las Vegas, NV, June 15-17, 2015.
16. Paul A. Carsten*, Todd R. Andel, Mark Yampolsky, **J. Todd McDonald**, "A System to Recognize Intruders in Controller Area Network (CAN)", Poster Presentation, *19th Annual Colloquium for Information System Security Education* (*CISSE 2015*), Las Vegas, NV, June 15-17, 2015.
17. **J. Todd McDonald**, Tyler H. Trigg*, Clifton E. Roberts*, and Blake J. Darden*, "Security in Agile Development: Pedagogic Lessons from an Undergraduate Software Engineering Case Study", Poster Presentation, *Cyber Security Symposium,* April 7-8, 2015, Coeur d'Alene, Idaho.
18. James Cerkovnik*, **J. Todd McDonald**, J. Harold Pardue, Mark Yampolskiy, and Mike Jacobs, "Assessing Vulnerabilities and Risk in Networked Medical Devices", Poster Presentation, *Annual Computer Security Applications Conference (ACSAC 2014)*, New Orleans, LA, presented December 2014.
19. Mark Yampolskiy, Todd R. Andel, **J. Todd McDonald**, William B. Glisson, and Alec Yasinsac**,** "Towards Security of Additive Layer Manufacturing," Work In Progress, *Annual Computer Security Applications Conference (ACSAC 2014)*, New Orleans, LA, presented December 2014.
20. Joshua Cazalas*, J., Todd R. Andel, **J. Todd McDonald,** "Analysis and Categorical Application of LSB Steganalysis Techniques," *USA Spring Research Forum*, presented Apr 2013.
21. Lewis R. Williams*, Lee M. Hively+, **J. Todd McDonald**, "Improving Seizure Forewarning Using Graph Dissimilarity and Layout Analysis," student poster, *Student Research Conference, Fayetteville State University*, presented April 2013.
22. Lewis R. Williams*, Lee M. Hively+, **J. Todd McDonald**, "Improving Seizure Forewarning Using Graph Dissimilarity and Layout Analysis", student poster, *Research Alliance in Math and Science Internship*, Oak Ridge National Laboratory, August 2012.
23. **J. Todd McDonald**, "Enhanced Mobile Agent Security", PhD thesis, Department of Computer Science, Florida State University, 2006.

B.3 Service

B.3.a Institutional Service

2023	School of Computing Dean Search Committee
2022 – Present	USA
2021	USA Presidential Search Committee
2015 – Present	Faculty Advisor, DayZero Cyber Competition Club, School of Computing
2015 – 2019	USA Faculty Senate, School of Computing Caucus Leader
2014 – 2016	USA University Library Committee
2013 – Present	Coach, USA/SoC SEC Cyber Defense Competition (SECCDC) Team
2013 – 2015	Mentor, USA/SoC Facebook Capture the Flag Team
2012 – 2013	Mentor, Department of Defense Cyber Crime Center's DC3 Digital Forensics Challenge
2013 – 2019	Faculty Advisor, Upsilon Pi Epsilon (UPE), Computer Science Honor Society
2013 – 2016	Faculty Advisor, ACM Student Chapter, School of Computing
2013 – Present	USA/SoC Computer Engineering Coordination Committee
2012 – 2015	USA Honors Program Selection Committee
2012 – Present	Founder, System Protection and Exploitation Research Group (SPERG), University of South Alabama, School of Computing
AY 2019	Mentor/Customer, one senior project team, College of Engineering.
Spring 2017	Mentor/Customer, one senior project team in CIS-497.
Spring 2016	Mentor/Customer, one senior project team in CIS-497.
Fall 2015	Mentor/Customer, one senior project team in CIS-497.
Spring 2015	Mentor/Customer, one senior project team in CIS-497.
Fall 2014	Mentor/Customer, one senior project team in CIS-497.
Spring 2014	Mentor/Customer, two senior project teams in CIS-497.
Spring 2012	Mentor/Customer, two senior project teams in CIS-497.
Fall 2011	Assistant Head Coach, ACM Programming Contest, USA/SoC ACM Student Chapter
2009 – 2010	Division Chief, Computer Science and Computer Engineering Division (CSCE), Air Force Institute of Technology.
2008 – 2010	Graduate Computer Science (GCS) Program Chair, Air Force Institute of Technology.
2007 – 2008	Organizer, Air Force Research Laboratory Cybercraft 2008 Spring Workshop, WPAFB, OH
2006 – 2010	Curriculum Chair, ENG Software Engineering Sequence, Air Force Institute of Technology.

B.3.b Professional Service

Visiting Professor, Summer 2012, Oak Ridge National Laboratory, Higher Education Research Experiences (HERE) program, Cyberspace Sciences and Information Intelligence Research Group

Editorial Board, Digital Threats: Research and Practice (DTRAP), ACM, 2018-Present.

Editorial Board, Computers & Security (COSE), Elsevier, 2015-Present.

Associate Editor, Journal of Defense Modeling and Simulation, 2012-Present.

Editorial Board, Journal of Computer Engineering & Information Technology, SciTechnol International Publisher of Science, Technology, and Medicine, 2013-2017.

Panel Reviewer, Army Research Office, 2016.

Panel Member, CISE Panel, National Science Foundation, 2015.

Editor, Special Issue on Cyber Simulation, Journal of Defense Modeling and Simulation, July, 2017

Editor, Special Issue on Cyber Defense, Journal of Defense Modeling and Simulation. September, 2009

Steering Committee, CheckMATE: Research on offensive and defensive techniques in the context of Man At The End (MATE) attack, collocated with ACM CCS, November 19, 2021, Seoul, South Korea.

Steering Committee, Workshop on Software Attacks and Defenses (SAD 2020), collocated with IEEE S&P Europe, September 11, 2020 (virtual).

Workshop Organizer/Steering Committee, 9th Software, Security, Protection and Reverse Engineering Workshop (SSPREW-9), co-located with ACSAC 2019, December 9-11, 2019, San Juan, Puerto Rico, USA

Workshop Organizer/Steering Committee, 8th Software, Security, Protection and Reverse Engineering Workshop (SSPREW-8), co-located with ACSAC 2018, December 3-4, 2018, San Juan, Puerto Rico, USA

Workshop Organizer/Steering Committee, 7th Software, Security, Protection and Reverse Engineering Workshop (SSPREW-7), co-located with ACSAC 2017, December 4-5, 2017, Orlando, FL, USA

Workshop Organizer/Steering Committee, 6th Software, Security, Protection and Reverse Engineering Workshop (SSPREW-6), co-located with ACSAC 2016, December 5-6, 2016, Los Angeles, CA, USA

Workshop Organizer/Steering Committee, 5th Program Protection and Reverse Engineering Workshop (PPREW-5), co-located with ACSAC 2015, December 8, 2015, Los Angeles, CA, USA

Workshop Organizer/Steering Committee, 4th Program Protection and Reverse Engineering Workshop (PPREW-4), co-located with ACSAC 2014, December 9, 2014, New Orleans, LA, USA

Workshop Organizer/Steering Committee, 3rd ACM SIGPLAN Program Protection and Reverse Engineering Workshop (PPREW 2014), co-located with POPL 2014, January 25, 2014, San Diego, CA

Workshop Organizer/Steering Committee, 2nd ACM SIGPLAN Program Protection and Reverse Engineering Workshop (PPREW 2013), co-located with POPL 2013, January 26, 2013, Parco dei Principi

Hotel, Rome, Italy.

Workshop Organizer, Program Protection and Reverse Engineering Workshop (PPREW'12), in conjunction with 6th International Conference on Information Systems, Technology, and Management (ICISTM'12), March 28-30, 2012, Grenoble Ecole de Management, France.

Requirements Working Group Chairman, Cybercraft Research Project, AFRL/RIGA. 2007 – 2009.

Steering Committee, 8th Annual Cyber Security and Information Intelligence Research Workshop (CSIIRW 2012), Oak Ridge National Laboratory, October 30 - November 1, 2012.

Proceedings Chair, 9th Cyber and Information Security Research Conference (CISRC-9), 8-12 April 2014, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA.

Program Committee, 15th International Conference on Cyber Warfare & Security (ICCWS), 25 -26 February 2020, Tennessee Tech University, Tennessee, USA.

Program Committee, 14th IEEE International Conference on Malicious and Unwanted Software (MALCON-2019), 1-3 October, 2019, Nantucket, MA, USA.

Program Committee, 14th International Conference on Cyber Warfare & Security (ICCWS), 28 February - 1 March 2019, Stellenbosch University, South Africa.

Program Committee, 16th International Conference on Privacy, Security and Trust (PST 2018), August 28-30, 2018, Belfast, Northern Ireland, United Kingdom.

Program Committee, 13th International Conference on Cyber Warfare & Security (ICCWS), 8 – 9 March 2018, National Defense University, Washington DC, USA.

Program Committee, 13th Cyber and Information Security Research Conference (CISRC-18), 4-6 April, 2018, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA.

Program Committee, 6th International Conference on Software and Information Engineering (ICSIE-2017), May 1-3, 2017, Singapore.

Program Committee, 12th IEEE International Conference on Malicious and Unwanted Software (MALCON-2017), 11-14 October, 2017, Fajardo, Puerto Rico.

Program Committee, 12th Cyber and Information Security Research Conference (CISRC-17), 4-6 April, 2017, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA.

Program Committee, 12th International Conference on Cyber Warfare & Security (ICCWS), 2-3 March, 2017, Dayton, Ohio, USA.

Program Committee, 7th IEEE Annual Computing and Communication Workshop and Conference, 9-11 January, 2017, Las Vegas, NV, USA.

Program Committee, 14th International Conference on Privacy, Security and Trust (PST 2016), 12-14 December, 2016, Auckland, New Zealand.

Program Committee, 11th IEEE International Conference on Malicious and Unwanted Software (MALCON-2016), 18-21 October, 2016, Fajardo, Puerto Rico.

Program Committee, 5th International Conference on Software and Information Engineering (ICSIE-2016).

Program Committee, 6th International Conference on Ambient Computing, Applications, Services and Technologies (AMBIENT 2016), 9-13 October, 2016, Venice, Italy.

Program Committee, 11th International Conference on Availability, Reliability and Security (AReS 2016), 31 August– 2 September , 2016, Salzburg, Austria.

Program Committee, 25th International Conference on Computer Communications and Networks (ICCCN-2016), 1-4 August, 2015, Waikoloa, Hawaii, USA.

Program Committee, 11th Cyber and Information Security Research Conference (CISRC-16), 5-7 April, 2016, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA.

Program Committee, 11th International Conference on Cyber Warfare & Security (ICCWS), 17-18 March, 2016, Boston, Massachusetts, USA.

Program Committee, 2015 International Conference on Automation, Cognitive Science, Optics, Micro Electro Mechanical System, and Information Technology (ICACOMIT 2015), 29-30 October, 2015, Bandung, Indonesia.

Program Committee, 10th IEEE International Conference on Malicious and Unwanted Software (MALCON-2015), 20-22 October, 2015, Fajardo, Puerto Rico, USA.

Program Committee, 2015 International Symposium on Web of Things and Big Data (WoTBD 2015), 18-20 October 2015, Manama, Bahrain.

Program Committee, 10th International Conference on Availability, Reliability and Security (AReS 2015), 24-28 August, 2015, Toulouse, France.

Program Committee, 24th International Conference on Computer Communications and Networks (ICCCN-2015), 3-6 August, 2015, Las Vegas, NV, USA.

Program Committee, 13th International Conference on Privacy, Security and Trust (PST 2015), 21-23 July, 2015, Izmir, Turkey.

Program Committee, 6th International Conference on Ambient Systems, Networks and Technologies (ANT-2015), Systems Security and Privacy Track, June 2-5, 2015, London, UK.

Program Committee, 10th Cyber and Information Security Research Conference (CISRC-15), 7-9 April, 2015, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA.

Program Committee, International Journal of Computing and Digital Systems (IJCDS' V3), 2014.

Program Committee, The 2014 International Workshop on the Design and Performance of Networks on Chip (DPNoS 2014), August 17-20, 2014, Niagara Falls, Ontario, Canada.

Program Committee, Fourth International Workshop on Privacy, Security and Trust in Mobile and Wireless Systems (MobiPST 2014) , August 7, 2014, Shanghai, China.

Program Committee, 12th International Conference on Privacy, Security and Trust (PST 2014), July 23-24, 2014, Toronto, Canada.

Program Committee, 9th Cyber and Information Security Research Conference (CISRC-14), 8-12 April, 2014, Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA.

Program Committee, 5th International Conference on Ambient Systems, Networks and Technologies (ANT-2014), Systems Security and Privacy Track, June 2-5, 2014, Hasselt, Belgium.

Program Committee, 9th International Conference on Availability, Reliability and Security (AReS 2014), 8th - 12th September, 2014, Fribourg, Switzerland.

Program Committee, 9th International Conference on Cyber Warfare & Security (ICCWS), 24-25 March, 2014, West Lafayette, Indiana, USA.

Program Committee, 8th International Conference on Availability, Reliability and Security (AReS 2013), September 2nd - 6th, 2013, University of Regensburg, Germany.

Program Committee, International Conference on Advanced Computing, Networking and Security (ADCONS 2013), 15th - 17th December 2013, NITK Surathkal, Mangalore.

Program Committee, 4th International Conference on Ambient Systems, Networks and Technologies (ANT-2013), Systems Security and Privacy Track, June 25-28, 2013, Halifax, Nova Scotia, Canada.

Program Committee, 11th International Conference on Privacy, Security and Trust (PST 2013), July 10-12, 2013, Tarragona, Catalonia.

Program Committee, 8th International Conference on Information Warfare (ICIW-13), Regis University, Denver, Colorado, USA, 25-26 March 2013.

Program Committee, The 50th ACM Southeast Conference (ACMSE), March 29-31, 2012, Tuscaloosa, Alabama.

Program Committee, 5th International Conference on Information Warfare (ICIW-10), 8-9 April, WPAFB, OH. March, 2010.

Program Committee and Session Chair, 4th International Conference on Information Warfare (ICIW-09), Cape Town, South Africa. March, 2009.

Session Chair, Technology and Security Track, 3rd International Conference on Information Warfare and Security (ICIW-08), Omaha, NE. April, 2008.

Program Chair, Graduate Computer Science (GCS), Department of Electrical and Computer Engineering, Air Force Institute of Technology, WPAFB, OH. 2008 – 2010.

Reviewer, Journal of Medical Internet Research, 2020

Reviewer, 52nd Hawaii International Conference on System Sciences (HICSS-52), July 2020.

Reviewer, IEEE Transactions on Information Forensics & Security (IEEE T-IFS), 2019.

Reviewer, Software: Practice and Experience, Journal, 2018.

Reviewer, ACM Computing Surveys, Journal, 2018.

Reviewer, IEEE Security & Privacy, Journal, 2017.

Reviewer, EURASIP Journal on Information Security, 2017.

Reviewer, Social Network Analysis and Mining, Journal, 2017.

Reviewer, Elsevier Computer Languages, Systems and Structures, Journal, 2017.

Reviewer, IET Electronic Letters, Journal, 2013-2016.

Reviewer, Cybersecurity Symposium 2016 Proceedings Volume, 2016.

Reviewer, EURASIP Journal on Information Security, 2016.

Reviewer, Security and Communication Networks Journal, 2016.

Reviewer, 50th Hawaii International Conference on System Sciences (HICSS-50), 2016.

Reviewer, IEEE Transactions on Information Forensics & Security (IEEE T-IFS), 2016.

Reviewer, International Journal of Computing and Digital Systems (IJCDS), 2016.

Reviewer, The 26th Australasian Conference on Information Systems, Nov 30 – Dec 4, 2015, University of South Australia.

Reviewer, International Journal of Security and Networks (IJSN), 2015.

Reviewer, International Journal of Information and Computer Security (IJICS), 2015.

Reviewer, Security and Communication Networks Journal, 2014.

Reviewer, 2nd International Conference on Technology, Informatics, Management, Engineering & Environment (TIME-E 2014), 19-21 August, 2014, Bandung, Indonesia.

Reviewer, 2014 Intelligent Autonomous Agents, Networks and Systems (INAGENTSYS 2014), 19-21 August 2014, Bandung, Indonesia.

Reviewer, IEEE Communication and Information Systems Security Symposium (ICC 2013), 12 October 2013, Budapest, Hungary.

Reviewer, Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications.

Reviewer, Information Security Curriculum Development Conference (InfoSecCD 2013), 12 October 2013, Kennesaw, GA, USA.

Reviewer, 2013 2nd IEEE Conference on Control, Systems & Industrial Informatics (ICCSII 2013), 23-26 June 2013, Bandung, Malaysia.

Reviewer, Social Network Analysis and Mining Journal, 2013.

Reviewer, 3rd International Conference on Instrumentation, Control and Automation (ICA 2013), August 28-30, 2013, Bali, Indonesia.

Reviewer, Computational Intelligence, 2013.

Reviewer, IET Information Security, 2013-2014.

Reviewer, Communication and Information Systems Security Symposium (IEEE ICC 2013), 9-13 June 2013, Budapest, Hungary.

Reviewer, IEEE Security & Privacy, 2012, 2017.

Reviewer, Eighth Annual IFIP WG 11.9 International Conference on Digital Forensics, September 2011.

Reviewer, 27th Annual Computer Security Applications Conference, July 2011.

Reviewer, International Journal of Network Security (IJNS), 2007 – 2010

B.3.c Consulting

2008 – 2009	Subject Matter Expert/Non Advocate Review, B-2 Air Vehicle Division AFMC 326 AESG/VA
2007 – 2009	Requirements Working Group Chairman, Cybercraft Research Project, AFRL/RIGA
Oct 2007	Requirements Working Group Session Leader, Cybercraft Fall 2007 Workshop, Rome, NY

B.3.d Summer Camps

June 2015	Co-director, GenCyber - Cybersecurity and Information Assurance Summer Camps (CIASC), NSF Award DGE-1303384: Capacity Building for Information Assurance and Cybersecurity, Mobile, AL.
June 2016	Co-director, GenCyber - Cybersecurity and Information Assurance Summer Camp (CIASC), NSA Grant H98230-16-1-0273, Mobile, AL.
June 2017	Director, GenCyber - Cybersecurity and Information Assurance Summer Camp (CIASC), NSA Grant H98230-17-1-028, Mobile, AL.
June 2018	Director, Davidson High School Computing Camp, Mobile, AL.

B.3.e Tutorials/Workshops

June 2013	"Reverse Engineering", Hands-On Workshop, given at 17th Colloquium for Information Systems Security Education (CISSE 2013), Mobile, AL, June 2013.

B.3.f Invited Talks

Mar 2019	"Anomaly Detection in Diverse Data Domains Using Non-linear Methods", Research Colloquium, College of Engineering, University of South Alabama.
Nov 2018	"Hardware-based Protection from Man-at-the-end Attacks", IEEE Section, Mobile, AL.
Oct 2014	"Cyber Security Education and Scholarship Programs at University of South Alabama", University of Nebraska-Omaha, Omaha NE, Oct 6, 2014.
May 2013	"Theorem-Based Epileptic Seizure Prediction", USA Medical Center, Department of Neurology Grand Rounds, University of South Alabama, Mobile, AL, May 28, 2013.
Mar 2013	"Cyber Security", CFITS Information Assurance Speaker Series, School of Computing, University of South Alabama, Mobile, AL, Mar. 20, 2013.
Apr 2012	"Training Cyber Warriors", Keynote Speaker, Computing Day, School of Computing, University of South Alabama, Mobile, AL, Apr. 26, 2012.
Feb 2012	"Framing research for software exploitation and protection", Department of Computer Science Colloquium, Louisiana Technical University, Rustin, LA, Feb. 17, 2012.

Jun 2008	"Opportunities for AFIT Research and Partnership", Kittyhawk Week, sponsored by Air Force Research Laboratory, Sensors Directorate (AFRL/RY) and Kittyhawk Chapter of the Association of Old Crows (AOC), Fairborn, OH, June 5, 2008.
Feb 2008	"Experimental Framework for Randomizing White-Box Obfuscation", CACS Colloquium, Department of Computer Science, University of Louisiana, Lafayette
Oct 2007	"Considering Mechanisms for Cybercraft Protection", Cybercraft Fall 2007 Workshop, Rome, NY

B.3.g Professional Society Membership

2006 – Pres	Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
2006 – Pres	Senior Member, Association of Computing Machinery (ACM)
2006 – Pres	Member, Eta Kappa Nu, Student Honor Society of IEEE
2004 – Pres	Member, Upsilon Pi Epsilon, Honor Society in the Computing / Information Disciplines
2001 – 2004	Member, Military Operations Research Society (MORS)

B.3.g Community and Other Service

1990-2011	Communications/Cyber Operations Officer, Lieutenant Colonel, U.S. Air Force (retired)
2010-2011	Deployed, Operation Iraqi Freedom/Operation New Dawn, Kirkuk, Iraq
2008-2010	Trustee/Staff Member, Fishgate Community Church
2007	Deployed, Operation Iraqi Freedom, Macdill AFB, Florida
2002	Science Fair Judge, Van Buren Middle School, Albuquerque, NM

Appendix A: Students Advised and Committee Membership

Doctoral Students Advised / Committee Chair (5 Completed / 5 In Progress):

1. Luckett, P.H. *Seizure Prediction and Detection via Nonlinear Analysis*, University of South Alabama. Grad: July 2018.
2. Manikyam, R. *Evaluating Hardware Abstractions as Software Protection Technique,* University of South Alabama. Grad: December 2019
3. Mink, D.M. *Indicators of Compromise for the United States Federal Aviation Administration Next Generation Air Transportation System Automatic Dependent Surveillance-Broadcast*, University of South Alabama. Grad: December 2019
4. Parker, C., *Adversarial Machine Learning for Software Protection*, University of South Alabama. Grad: May 2022.
5. Van Devender, M. *Framework for Risk-Based Analysis of Networked Medical Devices*, University of South Alabama. Grad: May 2023.
6. Miller, D. *Development and Analysis of Digital Forensic Methods for Additive Manufacturing Devices*, University of South Alabama. In Progress.
7. Pendli, N. *A Novel Blockchain Based Framework for Secure and Privacy Preserving E-Governance System*, University of South Alabama. In Progress.
8. Cabral, R. Topic: Static and dynamic approaches for Android malware detection , University of South Alabama, In Progress.
9. Karki, P. Topic: Software vulnerability detection using image-based visualizations of the compiler tool-chain , University of South Alabama, In Progress
10. Pilate, B. Topic: Malicious detection of cyber events in critical infrastructure and cyber physical systems , University of South Alabama, In Progress

Doctoral Student Committee Membership (5 Completed / 2 In Progress):

1. Davidson, C. *Applying Moving Target Defense Towards the Protection of SCADA Systems*, University of South Alabama. Grad: May 2019.
2. Brown, A. *Semi-automation of Formally Validated Secure Software,* University of South Alabama. Grad: May 2019.
3. Graves, L., *Cyber-Physical Sabotage Attacks in Additive Manufacturing Security*, University of South Alabama. Grad: Summer 2019.
4. Clark, G., *Detection and Defense of Cyber Attacks on the Machine Learning Control of Robotic Systems*, University of South Alabama. Grad: Summer 2019.
5. Williams, I., *An Ontology-Based Context-Based Recommender System to Support Use Case with Security Concerns for Web Applications: A System Evaluation and User Study*, North Carolina A&T State University, Grad: Fall 2020.
6. Wilkinson, M. *Modeling and Simulation for evaluating security in Vehicle-to-Vehicle (V2V) communications*, University of South Alabama. In progress
7. Monge, A., *Inclusion of Intrusion Detection Systems in Controller Area Network Environments*, University of South Alabama. In progress

Masters Thesis Students Advised / Committee Chair (36 Completed / 1 In Progress):

1. Norman, K., Major, USAF, *Algorithms for White-box Obfuscation Using Randomized Subcircuit Selection and Replacement*, Air Force Institute of Technology. Grad: Mar 2008.
2. James, M., Captain, USAF, *Obfuscation Framework Based on Functionally Equivalent Combinatorial Logic Families*, Air Force Institute of Technology. Grad: Mar 2008.
3. Lin, A., 1Lt, USAF, *Software Obfuscation with Symmetric Cryptograph*y, Air Force Institute of Technology. Grad: Mar 2008.
4. Hunt, S., Captain, USAF, *Developing a Reference Framework for Cybercraft Trust Evaluation*, Air Force Institute of Technology. Grad: Mar 2008.
5. Hunsberger Michael, G., Major, USAF, *Cybercraft Requirements Elicitation*, Air Force Institute of Technology. Grad: Jun 2008.
6. Simonaire, E., Sub-*Circuit Selection and Replacement Algorithms Modeled as Term Rewriting Systems*, Air Force Institute of Technology. Grad: Dec 2008
7. Sevy, B., 1Lt, USAF, *Using Covert Means to Establish Cybercraft Command and Control*, Air Force Institute of Technology. Grad: Mar 2009
8. Williams, J., Capt, USAF, *Characterizing Component Hiding Using Ancestral Entropy*, Air Force Institute of Technology. Grad: Mar 2009
9. Kim, Han-Seok, Capt, South Korean Air Force, Air Force Institute of Technology. *Removing Redundant Logic Pathways in Polymorphic Circuits,* Grad: Mar 2009
10. Murphy, S., Maj, USAF, *Deceiving Adversary Network Scanning Efforts Using Host-Based Deception*, Air Force Institute of Technology. Grad: Jun 2009.
11. Parham, J., 1Lt, USAF*, Component Hiding Using Identification and Boundary Blurring Techniques*, Air Force Institute of Technology. Grad: Mar 2010.
12. Koranek, D., DAF, *Deterministic, Efficient Variation of Circuit Components to Improve Resistance to Reverse Engineering*, Air Force Institute of Technology. Grad: Jun 2010.
13. Ashbee, W., *Nonlinear Epilepsy Forewarning By Support Vector Machines*, University of South Alabama, Grad: Dec 2013.
14. Cazalas, J., *Probing the Limits of Virtualized Software Protection*, University of South Alabama, Grad: May 2014.
15. Cerkovnik, J., *Assessing Vulnerabilities and Risks in Networked Medical Devices*, University of South Alabama. Grad: May 2015.
16. Hubbard, C., *Data Collection for Cyber Anomaly Event Detection*, University of South Alabama. Grad: May 2015.
17. Manikyam, R. *Comparing Effectiveness of Commercial Obfuscators against Man at the End Attacks*, University of South Alabama. Grad: May 2016.
18. Forbes, M., *Digital Logic Protection Using Functional Polymorphism and Topology Hiding*, University of South Alabama, Grad: May 2017.
19. Holder, W. *Evaluating Optimal Phase Ordering in Obfuscation Executives*, University of South Alabama, Grad: May 2017.
20. Dawson, J., *Rootkit Detection Through Phase-Space System Call Timing and Power Analysis*, University of South Alabama, Grad: May 2017.
21. Seale, K., *Integrating Relational Data Frameworks Into Risk Assessment of Networked Medical Devices*, University of South Alabama, Grad: May 2017.

22. Nguyen, T., *Effective Protection against Repackaged Malware*, University of South Alabama, Grad: May 2018.
23. Parker, C., *Exploiting Multi-Layered Vector Spaces for Malware Detection*, University of South Alabama, Grad: Aug 2018.
24. Minor, A. *Rootkit Detection Based on Visual Pattern Recognition*, University of South Alabama, in progress, Grad: May 2019.
25. Seaman, J. *The Effect of Sold-State Drive Firmware Processes on Individual File Hashes*, University of South Alabama, Grad: May 2019.
26. Meckley, T. *Residual Data Analysis on Consumer Market Smart Phones*, University of South Alabama, Grad: May 2019.
27. Hodges, B. *Attack Modeling and Mitigation Strategies for Risk Based Analysis of Networked Medical Devices*, University of South Alabama, Grad: May 2019.
28. Bell, J. *Program Protection Against Symbolic Execution in x86 Executables,* University of South Alabama, Grad: May 2020.
29. Herron, N. *Machine Learning Based Android Malware Detection using APK Digests*, University of South Alabama, Grad: May 2020.
30. Mullins, J. *Evaluating Security of Executable Steganography for Digital Software Watermarking*, University of South Alabama, Grad: May 2020.
31. Dorsett, M. *Forensic Analysis of Ransomware Malware*, University of South Alabama, Grad: May 2020.
32. Adhikari, D. *A Toolbase for Evaluating Software Protection Techniques Against Symbolic Execution Attacks*, University of South Alabama, Grad: May 2020.
33. Parnell, J. *Comparative Analysis of Digital Logic Component Hiding Techniques*, University of South Alabama, Grad: Dec 2021.
34. Carambat, J. *Defeating Adversarial Analysis of Gate Level Netlists in Software Based Hardware Abstraction*, University of South Alabama, Grad: May 2023.
35. Caldwell, S. *A Framework for Identifying Malware Threat Distribution on the Dark Web*, University of South Alabama, Grad: May 2023:
36. Surles, A. *Epileptic Seizure Detection Using Image-Based Analysis of EEG*, University of South Alabama, Grad: July 2023.
37. Johnson, D. *A Framework for Identifying Malware Threat Distribution on the Dark Web*, University of South Alabama, In Progress.

Masters Project Students Advised / Committee Chair (3 Completed / 0 In Progress):

1. Falgout, S. *Automated Data Integration for TVA-Based Risk Assessment Schema*, University of South Alabama, Grad: Dec 2019.
2. Braswell, J. *Man-at-the-End Attacks Using Binary Analysis*, University of South Alabama, Grad: Dec 2020.
3. Miller, C.L. *Countermeasures for Android Ransomware*, University of South Alabama, Grad: May 2021.

Masters Thesis Committee Membership (20 Completed / 0 In Progress):

1. Skarda, B., Major, USAF, *Operationalizing Social Engineering for the Air Force*, Air Force Institute of Technology. Grad: Mar 2008.
2. Dines, D., Major, USAF, *A Hybrid Communications Network Simulation-Independent Toolkit*, Air Force Institute of Technology. Grad: Mar 2008.
3. Ontiveros, F., Captain, USAF, *Development of a Night Vision Goggle Heads-Up Display for Paratrooper Guidance*, Air Force Institute of Technology. Grad: Jun 2008.
4. Serafin, Avitia, *Developing Cyber Situational Awareness through Visualizations of Fused Intrusion Detection System Alerts*, Air Force Institute of Technology. Grad: Jun 2008.
5. Kimball, W., *SecureQEMU: Emulation-based Software Protection Providing Encrypted Code Execution And Page Granularity Code Signing*, Air Force Institute of Technology. Grad: Dec 2008.
6. Holloway, E., 2Lt, USAF, *Self Organized Multi Agent Swarms (SOMAS) for Network Security Control*, Air Force Institute of Technology. Grad: Mar 2009.
7. Porter, R., 1Lt, USAF, *Critical Technology Tamper Protection Through Dynamic Polymorphic Reconfiguration*, Air Force Institute of Technology. Grad: Mar 2009.
8. Patel, H. J., 1Lt, USAF, *A Top Down Approach to Creating a Digital Fingerprint to Uniquely Identify Field Programmable Gate Arrays*, Air Force Institute of Technology. Grad: Mar 2009.
9. Thomas E. Simmons, Captain, USAF, *Characterization of Hardening by Design Techniques on Commercial, Small Feature Sized Field-Programmable Gate Arrays*, Air Force Institute of Technology. Grad: Mar 2009.
10. Birdwell, M.B., Major, USAF, *If You Don't Know Where You Are Going, You Probably Will End Up Somewhere Else: Computer Network Operations Force Presentation*, Air Force Institute of Technology. Grad: Jun 2009.
11. Whitehurst, Lindsey W., *Enhanced Software Security through Program Partitioning*, University of South Alabama. Grad: May 2015.
12. Gamble, Tracy, *Formal Analysis of Security in Internet Voting*, University of South Alabama. Grad: May 2015.
13. Carsten, P., *A Mechanism for Recognizing Intrusion in Controller Area Network*, University of South Alabama. Grad: May 2016.
14. Trigg, T., *Security in the Controller Area Network (CAN)*, University of South Alabama, Grad: May 2017.
15. Jahn, M., *Confessions of a Medical Mannequin*, University of South Alabama, Grad: May 2017.
16. Ledbetter, W., *Analyzing Inherent Vulnerabilities and Associated Risks in Bluetooth Technology,* University of South Alabama, Grad: May 2017.
17. Dombrowski, J., *The Application of Moving Target Defense to Field Programmable Gate Arrays*, University of South Alabama, Grad: May 2018.
18. Gautier, A., *Hardware-Based Intrusion Detection Using Thermal Side-Channels*, University of South Alabama, Grad: May 2020.
19. Stanfield, P*., Linear Embeddings of Non-Intrinsically Linked Graphs*, University of South Alabama, Grad: May 2021.
20. Cox, R., *Android Malware Detection Using Visual Image Features,* University of South Alabama, Grad: Dec 2021.

Chair, Honors Undergraduate Thesis Students: (2 Completed/1 In Progress)

1. Clark, Rebecca. *Side Channel Detection of Malicious Software using Nonlinear Phase Space Analysis,* in progress.
2. Stroud, Trinity. *Efficient and Secure Deterministic Polymorphic Circuit Generation for Program Protection,* Grad: May 2021.
3. Fornoff, C. Robert. *Integrating Computer Science Learning in K-12 Education through Digital Media Software,* Grad: May 2013.

Honors Undergraduate Thesis Committee Membership: (4 Completed / 0 In-Progress)

1. Mesler, Mason. *Automobile Digital Forensics*, University of South Alabama, Grad: May 2018.
2. Maynard, Jacob. *Evaluation of the Delivery Algorithm for a Simulated Train Environment*, University of South Alabama, Grad: May 2017.
3. Hicks, Ellis. *Using Artificial Intelligence and Robotics to Explore Educational Possibilities with a Slot Car Racetrack*, University of South Alabama, Grad: May 2015.
4. Poirson, Patrick. *Multimodal Deep Learning,* University of South Alabama, Grad: May 2015.