

## Jay Ligatti

### Contact Information

University of South Florida CSE Dept.  
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<http://www.cse.usf.edu/~ligatti>

### Research Areas

Software security and programming languages

### Appointments

*University of South Florida*

Professor, Department of Computer Science and Engineering (2018-present)

Associate Professor, Department of Computer Science and Engineering (2012-2018)

Assistant Professor, Department of Computer Science and Engineering (2006-2012)

### Education

*Princeton University* (2001-2006)

Degrees: Ph.D., Computer Science (2006); M.A., Computer Science (2003)

Dissertation: *Policy Enforcement via Program Monitoring*

Adviser: David Walker

*University of South Carolina* (1997-2001)

Degrees: B.S., Computer Science (2001); B.M., Music Composition (2001)

Honors: summa cum laude, Phi Beta Kappa, honors college, piano perf. certificate

Advisers: John Kenneth Adams, Reginald Bain

### Awards and Honors

- Best Student Paper Award at the 2022 IEEE *International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (TPS)*, for [16]
- Distinguished Paper Award at the 2021 *USENIX Symposium on Usable Privacy and Security (SOUPS)*, for [17]
- USF Excellence in Innovation Award, 2017
- ACM Senior Member, 2016
- Test of Time Award at the 2015 *ACM Conference on Computer and Communications Security (CCS)*, for Control-Flow Integrity [38]
- USF Outstanding Research Achievement Award, 2009
- NSF Faculty Early Career Development (CAREER) Award, 2008
- Best-paper award at the 2007 *ACM Conference on Programming Language Design and Implementation (PLDI)*, for [36]
- CCS'05 paper [38] was invited to appear as TISSEC journal article [9]
- FCS'02 paper [46] was invited to appear as IJIS journal article [13]

## Refereed Journal Publications

- [1] Co-Creation in Secure Software Development: Applied Ethnography and the Interface of Software and Development. Daniel Lende, Alexis Monkhouse, Jay Ligatti, and Xinming Ou. *Human Organization: Special Issue on Intersection of Software and Human Systems*. Vol 82, No 1, pp 13-24. April 2023.
- [2] Far Proximity Identification in Wireless Systems. Tao Wang, Jian Weng, Jay Ligatti, and Yao Liu. *IEEE Transactions on Dependable and Secure Computing (TDSC)*. Vol 18, No 5, pp 2403-2418. IEEE, September/October 2021.
- [3] Cybersecurity Vulnerabilities in Mobile Fare Payment Applications: A Case Study. Kevin Dennis, Maxat Alibayev, Sean J. Barbeau, and Jay Ligatti. *Transportation Research Record: Journal of the Transportation Research Board (TRR)*. Vol 2674, No 11, pp 616-624. Sage Publishing, November 2020.
- [4] On Subtyping-Relation Completeness, with an Application to Iso-Recursive Types. Jay Ligatti, Jeremy Blackburn, and Michael Nachtigal. *ACM Transactions on Programming Languages and Systems (TOPLAS)*. Vol 39, No 1, Article 4, pp 1-36. ACM Press, March 2017.
- [5] Design of Adiabatic Dynamic Differential Logic for DPA-Resistant Secure Integrated Circuits. Matthew Morrison, Nagarajan Ranganathan, and Jay Ligatti. *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*. Vol 23, No 8, pp 1381-1389. IEEE, August 2015.
- [6] Modeling Runtime Enforcement with Mandatory Results Automata. Egor Dolzhenko, Jay Ligatti, and Srikar Reddy. *International Journal of Information Security (IJIS)*. Vol 14, No 1, pp 47-60. Springer-Verlag, February 2015.
- [7] A Location-based Policy-specification Language for Mobile Devices. Joshua Finnis, Nalin Saigal, Adriana Iamnitchi, and Jay Ligatti. *Pervasive and Mobile Computing (PMC)*. Vol 8, No 3, pp 402-414. Elsevier, June 2012.
- [8] PoliSeer: A Tool for Managing Complex Security Policies. Daniel Lomsak and Jay Ligatti. *Journal of Information Processing (JIP)*. Vol 19, pp 292-306. Information Processing Society of Japan, July 2011.
- [9] Control-Flow Integrity: Principles, Implementations, and Applications. Martín Abadi, Mihai Budiu, Úlfar Erlingsson, and Jay Ligatti. *ACM Transactions on Information and System Security (TISSEC)*, Vol 13, No 1, Article 4, pp 1-40. ACM Press, October 2009.
- [10] Composing Expressive Run-time Security Policies. Lujo Bauer, Jay Ligatti, and David Walker. *ACM Transactions on Software Engineering and Methodology (TOSEM)*, Vol 18, No 3, pp 1-43. ACM Press, May 2009.
- [11] Run-Time Enforcement of Nonsafety Properties. Jay Ligatti, Lujo Bauer, and David Walker. *ACM Transactions on Information and System Security (TISSEC)*, Vol 12, No 3, pp 1-41. ACM Press, January 2009.

- [12] A Type-theoretic Interpretation of Pointcuts and Advice. Jay Ligatti, David Walker, and Steve Zdancewic. In Pascal Fradet and Ralf Lämmel, editors, *Science of Computer Programming (SCP): Special Issue on Foundations of Aspect-Oriented Programming*, Vol 63, No 3, pp 240-266. Elsevier, December 2006.
- [13] Edit Automata: Enforcement Mechanisms for Run-time Security Policies. Jay Ligatti, Lujó Bauer, and David Walker. *International Journal of Information Security (IJIS)*, Vol 4, No 1-2, pp 2-16. Springer-Verlag, February 2005.

### Selective Conference Publications

- [14] Large-Scale Analysis of GitHub and CVEs to Determine Prevalence of SQL Concatenations. Kevin Dennis, Bianca Dehaan, Parisa Momeni, Gabriel Laverghetta, and Jay Ligatti. Proceedings of the *International Conference on Security and Cryptography (SECRYPT)*, July 2024.
- [15] Preventing Variadic Function Attacks Through Argument Width Counting. Brennan Ward, Kevin Dennis, Gabriel Laverghetta, Parisa Momeni, and Jay Ligatti. Proceedings of the *IEEE/ACIS International Conference on Software Engineering, Management and Applications (SERA)*, May 2024.
- [16] ProProv: A Language and Graphical Tool for Specifying Data Provenance Policies. Kevin Dennis, Shamaria Engram, Tyler Kaczmarek, and Jay Ligatti. Proceedings of the *IEEE International Conference on Trust, Privacy and Security in Intelligent Systems, and Applications (TPS)*, December 2022.
- [17] An Analysis of the Role of Situated Learning in Starting a Security Culture in a Software Company. Anwesh Tuladhar, Daniel Lende, Jay Ligatti, and Xinming Ou. Proceedings of the *Usenix Symposium on Usable Privacy and Security (SOUPS)*, August 2021.
- [18] Through the Lens of Code Granularity: A Unified Approach to Security Policy Enforcement. Shamaria Engram and Jay Ligatti. Proceedings of the *IEEE Conference on Applications, Information and Network Security (AINS)*, November 2020.
- [19] An Ethnographic Understanding of Software (In)Security and a Co-Creation Model to Improve Secure Software Development. Hernan Palombo, Armin Tabari, Daniel Lende, Jay Ligatti, and Xinming Ou. Proceedings of the *Usenix Symposium on Usable Privacy and Security (SOUPS)*, August 2020.
- [20] An Evaluation of the Power Consumption of Coauthentication as a Continuous User Authentication Method in Mobile Systems. Brandon Corn, Ashley Ruiz, Alfredo Perez, Cagri Cetin, and Jay Ligatti. Proceedings of the *Annual ACM Southeast Conference (ACMSE)*, April 2020.
- [21] Stream-Monitoring Automata. Hernan Palombo, Egor Dolzhenko, Jay Ligatti, and Hao Zheng. Proceedings of the *9<sup>th</sup> International Conference on Software and Computer Applications (ICSCA)*, February 2020.

- [22] PoCo: A Language for Specifying Obligation-Based Policy Compositions. Danielle Ferguson, Yan Albright, Daniel Lomsak, Tyler Hanks, Kevin Orr, and Jay Ligatti. Proceedings of the *9<sup>th</sup> International Conference on Software and Computer Applications (ICSCA)*, February 2020.
- [23] SQL-Identifier Injection Attacks. Cagri Cetin, Dmitry Goldgof, and Jay Ligatti. Proceedings of the *IEEE Conference on Communications and Network Security (CNS)*, June 2019.
- [24] A Dual-Task Interference Game-Based Experimental Framework for Comparing the Usability of Authentication Methods. Jean-Baptiste Subils, Joseph Perez, Peiwei Liu, Shamaria Engram, Cagri Cetin, Dmitry Goldgof, Natalie Ebner, Daniela Oliveira, and Jay Ligatti. Proceedings of the *IEEE International Conference on Human System Interaction (HSI)*, June 2019.
- [25] Coauthentication. Jay Ligatti, Cagri Cetin, Shamaria Engram, Jean-Baptiste Subils, and Dmitry Goldgof. Proceedings of the *ACM Symposium on Applied Computing (SAC)*, April 2019.
- [26] Cybersecurity in Public Transportation: A Literature Review. Kevin Dennis, Maxat Alibayev, Sean Barbeau, and Jay Ligatti. Proceedings of the *98<sup>th</sup> Transportation Research Board Annual Meeting (TRB)*, January 2019.
- [27] A Theory of Gray Security Policies. Donald Ray and Jay Ligatti. Proceedings of the *European Symposium on Research in Computer Security (ESORICS)*, September 2015.
- [28] Defining Injection Attacks. Donald Ray and Jay Ligatti. Proceedings of the *International Information Security Conference (ISC)*, October 2014.
- [29] Fingerprinting Far Proximity from Radio Emissions. Tao Wang, Yao Liu, and Jay Ligatti. Proceedings of the *European Symposium on Research in Computer Security (ESORICS)*, September 2014.
- [30] Defining Code-injection Attacks. Donald Ray and Jay Ligatti. Proceedings of the *ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL)*, January 2012.
- [31] A Theory of Runtime Enforcement, with Results. Jay Ligatti and Srikar Reddy. Proceedings of the *European Symposium on Research in Computer Security (ESORICS)*, September 2010.
- [32] A Packet-classification Algorithm for Arbitrary Bitmask Rules, with Automatic Time-space Tradeoffs. Jay Ligatti, Josh Kuhn, and Chris Gage. Proceedings of the *19<sup>th</sup> IEEE International Conference on Computer Communication Networks (ICCCN)*, August 2010.

- [33] PoliSeer: A Tool for Managing Complex Security Policies. Daniel Lomsak and Jay Ligatti. Proceedings of the *International Conference on Trust Management (IFIP-TM)*, June 2010.
- [34] Inline Visualization of Concerns. Nalin Saigal and Jay Ligatti. Proceedings of the *ACIS International Conference on Software Engineering Research, Management, and Applications (SERA)*, December 2009.
- [35] LoPSiL: A Location-based Policy-specification Language. Jay Ligatti, Billy Rickey, and Nalin Saigal. Proceedings of the *International ICST Conference on Security and Privacy in Mobile Information and Communication Systems (MobiSec)*, June 2009.
- [36] Fault-tolerant Typed Assembly Language. Frances Perry, Lester Mackey, George Reis, Jay Ligatti, David August, and David Walker. Proceedings of the *ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, June 2007.
- [37] Static Typing for a Faulty Lambda Calculus. David Walker, Lester Mackey, Jay Ligatti, George Reis, and David August. Proceedings of the *ACM SIGPLAN International Conference on Functional Programming (ICFP)*, September 2006.
- [38] Control-Flow Integrity: Principles, Implementations, and Applications. Martín Abadi, Mihai Budiu, Úlfar Erlingsson, and Jay Ligatti. Proceedings of the *ACM SIGSAC Conference on Computer and Communications Security (CCS)*, November 2005.
- [39] A Theory of Secure Control Flow. Martín Abadi, Mihai Budiu, Úlfar Erlingsson, and Jay Ligatti. Proceedings of the *7th International Conference on Formal Engineering Methods (ICFEM)*, November 2005.
- [40] Enforcing Non-safety Security Policies with Program Monitors. Jay Ligatti, Lujo Bauer, and David Walker. Proceedings of the *10th European Symposium on Research in Computer Security (ESORICS)*, September 2005.
- [41] Composing Security Policies with Polymer. Lujo Bauer, Jay Ligatti, and David Walker. Proceedings of the *ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*, June 2005.
- [42] Types and Effects for Non-interfering Program Monitors. Lujo Bauer, Jarred Ligatti, and David Walker. In M. Okada, B. Pierce, A. Scedrov, H. Tokuda, and A. Yonezawa, editors, *Lecture Notes in Computer Science: Software Security—Theories and Systems (Revised Papers of the 2002 Mext-NSF-JSPS International Symposium)*, Vol 2609, pp 154-171. Springer-Verlag, November 2003.
- [43] A Theory of Aspects. David Walker, Steve Zdancewic, and Jay Ligatti. Proceedings of the *ACM SIGPLAN International Conference on Functional Programming (ICFP)*, August 2003.

## Workshop Publications

- [44] A Preliminary Study on Using Large Language Models in Software Pentesting. Kumar Shashwat, Francis Hahn, Xinming Ou, Dmitry Goldgof, Lawrence Hall, Jay Ligatti, S. Raj Rajgopalan, Armin Ziaie Tabari. Proceedings of the *Workshop on SOC Operations and Construction (WOSOC)* (associated with NDSS), February 2024.
- [45] Enforcing More with Less: Formalizing Target-aware Run-time Monitors. Yannis Mallios, Lujo Bauer, Dilsun Kaynar, and Jay Ligatti. Proceedings of the *International Workshop on Security and Trust Management (STM)* (associated with ESORICS), September 2012.
- [46] More Enforceable Security Policies. Lujo Bauer, Jarred Ligatti, and David Walker. Proceedings of the *Foundations of Computer Security Workshop (FCS)* (associated with LICS), July 2002.

## Ph.D. Thesis

- [47] Policy Enforcement via Program Monitoring. Jarred Adam Ligatti. PhD thesis, Princeton University, June 2006.

## Patents

- [48] Systems and Methods for Challengeless Coauthentication. Jay Ligatti. US Patent 10,367,817. July 2019.
- [49] Systems and Methods for Generating Symmetric Cryptographic Keys. Jay Ligatti, Cagri Cetin, Shamaria Engram, Dmitry Goldgof. US Patent 10,298,391. May 2019.
- [50] Systems and Methods for Generating Symmetric Cryptographic Keys. Jay Ligatti, Cagri Cetin, Shamaria Engram, Dmitry Goldgof. US Patent 10,291,403. May 2019.
- [51] System and Methods for Authentication using Multiple Devices. Jay Ligatti, Dmitry Goldgof, Cagri Cetin, Jean-Baptiste Subils. US Patent 9,659,160. May 2017.
- [52] Adiabatic Dynamic Differential Logic for Differential Power Analysis Resistant Secure Integrated Circuits. Matthew Morrison, Jay Ligatti, and Nagarajan Ranganathan. US Patent 9,531,384. December 2016.
- [53] Systems and Methods for Anonymous Authentication using Multiple Devices. Jay Ligatti, Dmitry Goldgof, Cagri Cetin, Jean-Baptiste Subils. US Patent 9,380,058. June 2016.
- [54] Software security based on control flow integrity. Martín Abadi, Mihai Budiu, Úlfar Erlingsson, Jay Ligatti. US Patent 7,577,992. August 2009.
- [55] Software memory access control. Martín Abadi, Mihai Budiu, Úlfar Erlingsson, Jay Ligatti. US Patent 7,337,291. February 2008.

### **Provisional Patent Application**

- Custom AI Co-pilot for Software Security Pen-testing. Xinming Ou, Dmitry Goldgof, Jarred Ligatti, and Lawrence Hall. USF TTO Ref. 24T083PR-CS. Application 63/625,083. January 2024.

### **Expert Witness Experience**

- *Ericsson, Inc. et al v. TCL Communication Technology Holdings, Ltd. et al*, Case Number 2:15-cv-00011-RSP (July-December 2017)
  - Studied case documents, wrote and submitted expert and rebuttal reports, prepared and traveled for deposition.
- *BlackBerry Limited v. BLU Products, Inc.*, Case Number 16-23535-CIV-MORENO (December 2016-January 2017)
  - Studied case documents and drafted an expert report.
- *Industrial Engineering & Development et al v. Static Control Components*, Case Number 8:12-cv-691-T-24-MAP (November 2012-November 2014)
  - Studied documents, wrote expert and rebuttal reports, was deposed, and testified in federal court on technologies and patents related to access controls in printing systems.
- *John Sheppard et al v. Hillsborough County Sheriff's Office* (Nov-Dec 2012)
  - Wrote programs to obtain and analyze information from personnel databases.

### **Industrial Experience**

- *CACI* (March-July, 2012)  
Consultant on software security.
- *Microsoft Research* (Summer 2003)  
Created CFI (control-flow integrity) enforcement and proved its soundness.
- *Medical Software and Computer Systems* (Summers 2000-2001, Winter 2004)  
Software-security consultant; software engineer.

### **Teaching Experience**

*University of South Florida* [including number of students who completed each course] (initial enrollments were typically 20-80% higher than the final enrollments shown here)

- *Secure Coding (CNT 4419)*: Fall 2023 [42], 2022 [89], 2021 [86], 2020 [42], 2019 [39], and 2018 [32]
- *Compilers (COP 4620)*: Spring 2024 [30], 2023 [26], 2022 [20], 2021 [30], 2020 [14]; Fall 2017 [25], 2016 [19], 2015 [14], 2013 [24], 2011 [23], 2009 [13], and 2007 [21]
- *Compilers (COP 6625)*: Spring 2024 [5], 2023 [9], 2022 [4], 2020 [10]; Fall 2017 [5], 2016 [7], 2015 [9], 2013 [14], 2011 [11], 2009 [14], and 2007 [12]
- *Programming Languages (COP 4020)*: Spring 2019 [22], 2018 [20], 2017 [16], 2016 [17]; Fall 2014 [16], 2012 [23], 2010 [13], and 2008 [16]

- *Programming Languages (COP 6021)*: Spring 2019 [4], 2018 [4], 2017 [7], 2016 [7]; Fall 2014 [11], 2012 [8], and 2010 [14]
- *Foundations of Software Security (CIS 6373)*: Spring 2024 [39], 2023 [19], 2022 [13], 2021 [6]; Fall 2019 [9]; Spring 2019 [4], 2018 [10], 2017 [11], 2016 [10], 2015 [9], 2014 [24], 2013 [15], 2012 [22], 2010 [19], 2008 [10], and 2007 [13]
- *Advanced Programming Languages (CIS 4930)*: Spring 2015 [3] and 2011 [2]
- *Advanced Programming Languages (CIS 6930)*: Spring 2015 [11] and 2011 [11]
- *Operating Systems (COP 4600)*: Fall 2006 [44]
- *Independent Study (COP 4900 & 6900)*: (excluding my own research advisees) Summer 2024 [1], Spring 2024 [1], Summer 2022 [3], Spring 2021 [1], Summer 2020 [2], Spring 2020 [3], Summer 2019 [2], Spring 2019 [2], Summer 2018 [1], Spring 2018 [1], Summer 2017 [2], Spring 2017 [2], Fall 2016 [3], Summer 2016 [6], Spring 2016 [1], Spring 2015 [2], Fall 2014 [2], Summer 2014 [3], Spring 2014 [4], Fall 2013 [3], Summer 2013 [3], Spring 2013 [2], Fall 2012 [1], Summer 2012 [1], Spring 2012 [2], Fall 2011 [1], Summer 2011 [4], Spring 2011 [2], Fall 2010 [1], Spring 2010 [5], Summer 2009 [3], Spring 2009 [2], Fall 2008 [1], Summer 2008 [4], Spring 2008 [4], Fall 2007 [2], Summer 2007 [2], Spring 2007 [7]
- *Advanced Undergraduate Research Experience (IDS 4914)*: Spring 2024 [1]
- *Industry Internship (CIS 6946, IDS 3947, and CIS 4940)*: Fall 2020 [1], Summer 2020 [2], Summer 2019 [3], Summer 2018 [2], Fall 2017 [1], Summer 2017 [1], Spring 2017 [1], Fall 2016 [2], Summer 2016 [2], Spring 2016 [1], Spring 2015 [1], Spring 14 [1], and Summer 13 [1]

#### *Princeton University (2001-2006)*

- Teaching assistant for *Compiling Techniques (COS 320)*: Spring 2003 and 2006
- Preceptor (section lecturer) for *General Computer Science (COS 126)*: Fall 2002

#### **Postdoc Supervised**

- Donald Ray (2016)

#### **Research Students Advised**

##### *Ph.D. Students:*

- Gabriel Laverghetta (2024-present)
- Parisa Momeni (2021-present)
- Kevin Dennis (2018-present)
- Jennifer Adorno (2022-2023)
- Shamaria Engram (2015-2020)
- Yan Albright (2014-2020)
- Hernan Palombo (2013-2020)
- Danielle Ferguson (2012-2020)
- Jean-Baptiste Subils (2014-2019)
- Cagri Cetin (2014-2019)
- Donald Ray (2011-2016)
- Daniel Lomsak (2008-2013)



- Nalin Saigal (2006-2011)

*Master's Students:*

- Katarina Capalbo (2024-present)
- Brennan Ward (2022)
- Michael Quintero (2015-2017)
- Ivory Hernandez (2015-2017)
- Jacob Venne (2016-2017)
- Kimberly Bursum (2015-2017)
- Bader Albassam (2015-2016)
- Clayton Whitelaw (2014-2015)
- Cory Juhlin (2013-2015)
- Grant Smith (2013-2014)
- Zachary Carter (2010-2012)
- Stan Naspinski (2010-2011)
- Matt Spaulding (2010-2011)
- Brandy Eyers (2009-2011)
- Josh Kuhn (2009-2011)
- Srikar Reddy (2007-2009)

*REU Students:*

- Molly Feldmann (Summer 2018)
- Shaughn Seepaul (Summer 2018)
- Shelsa Marcel (Summer 2013)
- Bader AlBassam (Fall 2012-Fall 2013)
- Jesse Squires (Summer 2011)
- Matt LaDuca (Summer 2011)
- DaShawn Matias (Fall 2010)
- Edwin Martinez Avila (Summer 2010)
- Robert Donatto (Fall 2009)
- Billy Rickey (Summer 2007)
- Humberto Gonzalez (Summer 2007)

*USF Honors College Thesis Students:*

- Elijah Malaby (Fall 2018)
- Kyle Peters (Fall 2018)
- Edwin Peguero (Fall 2015)
- Thomas Dietert (Fall 2015)
- William Seed (Spring 2014)
- Bader Albassam (Spring 2014)
- Jonathan Palmer (Fall 2010)
- Donald Ray (Fall 2010)
- Bryan Hill (Spring 2009)
- Vincent Newman (Spring 2008)
- Amin Astaneh (Spring 2007)

### **Thesis Committees (besides those of my own students)**

- Tao Hou, Ph.D., USF, 2022
- Armin Ziaie Tabari, Ph.D., USF, 2021
- Anwesh Tuladhar, Ph.D., USF, 2021
- Matthew Lewandowski, Ph.D., USF, 2021
- Zhengping Luo, Ph.D., USF, 2021
- Rouzbeh Behnia, Ph.D., USF, 2021
- Thang Hoang, Ph.D., USF, 2020
- Nazli Siasi, Ph.D., USF (Electrical Engineering), 2020
- Ahmad Alagil, Ph.D., USF, 2020
- Efe Ulas Akay Seyitoglu, M.S., USF, 2020
- Mohammed Hafez, Ph.D., USF (Electrical Engineering), 2019
- Daniel Cruz, Ph.D., USF (Mathematics), 2019
- John Theado, Ph.D., USF (Mathematics), 2019
- Srivarsha Polnati, M.S., USF, 2019
- Xiaolong Wang, Ph.D., USF, 2018
- Yuping Li, Ph.D., USF, 2018
- Fengguo Wei, Ph.D., USF, 2018
- Song Fang, Ph.D., USF, 2018
- Gregory Churchill, Ph.D., USF (Mathematics), 2017
- Pubudu Kaluarachchilage, Ph.D., USF (Mathematics), 2017
- Sathya Sundaramurthy, Ph.D., USF, 2017
- Santosh Aditham, Ph.D., USF, 2017
- Ioannis (Yannis) Mallios, Ph.D., Carnegie Mellon University, 2016
- Nagalaxmi Yenuganti, M.S., USF, 2016
- Hari Jonnalagadda, M.S., USF, 2016
- Ryan Wheeler, M.S., USF, 2015
- Jae-Won Jang, M.S., USF, 2015
- Jeremy Blackburn, Ph.D., USF, 2014
- Egor Dolzhenko, Ph.D., USF (Mathematics), 2013
- Matthew Lewandowski, M.S., USF, 2013
- Christopher Bell, M.S., USF, 2013
- Nikolai Samteladze, M.S., USF, 2013
- Ismail Butun, Ph.D., USF (Electrical Engineering), 2013
- Jill Dizona, Ph.D., USF (Mathematics), 2012
- Nicolas Kourtellis, Ph.D., USF 2012
- Mehrgan Mostowfi, M.S., USF, 2010
- Paul Anderson, M.S., USF, 2010
- Konstantinos Dalamagkidis, Ph.D., USF, 2009
- Tine Verhanneman, Ph.D., Katholieke Universiteit Leuven, 2007

### **Selected Talks**

- *Coauthentication.* Defense Innovation Technology Acceleration Challenges Conference (Tampa, 2017)

- *A Technique for Proving Subtyping Completeness, with an Application to Iso-recursive Types*. ACM SIGPLAN Workshop on Types in Language Design and Implementation (Philadelphia, 2012)
- *A Theory of Runtime Enforcement, with Results*. European Symposium on Research in Computer Security (Athens, 2010)
- *Modeling Enforcement Mechanisms with Security Automata*. USF Discrete Mathematics Seminar (Tampa, 2010)
- *An Introduction to Cryptography for Homeland Security*. USF Institute for Safety Security Rescue Technology (iSSRt) Distinguished Lecture (Tampa, 2008)
- *Coping with Runtime-Policy Complexity*. International Workshop on Run Time Enforcement for Mobile and Distributed Systems (Dresden, 2007)
- *Runtime Software Monitoring*. Carnegie Mellon University CyLab (Pittsburgh, 2007)
- *Monitoring Software to Enforce Run-time Policies*. Microsoft Research-INRIA Joint Centre (Paris, 2007)
- *Polymer: A Language and System for Specifying Complex, Modular Run-time Policies*. Katholieke Universiteit Leuven, Belgium (Leuven, 2007)
- *An Underappreciated Software-verification Technique*. IEEE-CS's USF-student-chapter meeting (Tampa, 2007)
- *Language-based Security*. ACM's USF-student-chapter meeting (02/2007)
- *New Research in Computer Security*. ACM's USF-student-chapter meeting (10/2006)
- *Enforcing Security Policies with Run-time Program Monitors*. Reservoir Labs-NYC (03/2006), University of Texas-Arlington (03/2006), Florida International University (03/2006), University of South Florida (02/2006), Kansas State University (02/2006)
- *Composing Security Policies with Polymer*. ACM SIGPLAN Conference on Programming Language Design and Implementation (Chicago, 2005)
- *Enforcing Non-safety Security Policies with Program Monitors*. European Symposium on Research in Computer Security (Milan, 2005)

## Service

### *Program committees:*

- International Workshop on Attacks and Defenses for Internet-of-Things (*ADIoT*, in conjunction with *ESORICS*), 2022-2023
- IEEE/ACIS International Conference on Big Data, Cloud Computing, and Data Science Engineering (*BCD*), 2021-2024
- IEEE Conference on Communications and Network Security (*CNS*), 2020-2023
- International Conference on Computational Science/Intelligence & Applied Informatics (*CSII*), 2021-2023
- International Symposium on Cyberspace Safety and Security (*CSS*), 2012-2016, 2021-2022
- IEEE International Conference on Dependable, Autonomic, and Secure Computing (*DASC*), 2011, 2014

- IEEE International Conference on Data Security and Privacy Protection (*DSPP*), 2023-2024
- International Symposium on Emotional Artificial Intelligence & Metaverse (*EAIM*), 2023
- International Symposium on Engineering Secure Software and Systems (*ESSOS*), 2014-2015
- IFIP International Conference on Formal Methods for Open Object-based Distributed Systems and International Conference on FORMal TEchniques for Networked and Distributed Systems (*FMOODS & FORTE*), 2010-2011
- IFIP International Conference on Formal Techniques for Distributed Objects, Components, and Systems (*FORTE*), 2014
- ACIS International Conference of Artificial Intelligence (*IAI*), 2021, 2023
- IEEE/ACIS International Conference on Computer and Information Science (*ICIS*), 2021-Summer, 2021-Fall, 2022-2024
- International Conference on Network and System Security (*NSS*), 2011
- ACM SIGPLAN Conference on Programming Language Design and Implementation (*PLDI*), external review committee for PLDI'16 and review committee for PLDI'24
- Conference on Principles of Security and Trust (*POST*), 2016, 2018
- Conference on Privacy, Security and Trust (*PST*), 2012
- Annual ACM Symposium on Applied Computing: Software Verification and Testing Track (*SAC-SVT*), 2009-2011
- International Conference on Security and Cryptography (*SECRYPT*), 2018-2022
- IEEE/ACIS International Conference on Software Engineering Research, Management and Applications (*SERA*), 2009-2011, 2014-2019, 2021-2024
- International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (*SNPD*), 2012, 2021-Winter, 2021-Summer, 2022-Summer, 2022-Winter, 2023-Summer, 2023-Winter, 2024-Summer

*Conference organization:*

- Co-General Chair (with Simon Ou) for the 2020 ACM Conference on Computer and Communications Security (*CCS*)
- Local Chair for the 2016 ACM Symposium on Principles of Programming Languages (*POPL*)
- Co-organizer of the “Grand Challenges in Programming Languages” panel at the 2009 ACM Symposium on Principles of Programming Languages (*POPL*)

*Reviewer for many conferences and journals, including:*

IEEE Computer Security Foundations Symposium (*CSF*), Computers and Security (*C&S*), ACM Computing Surveys (*ACMCS*), ACM Conference on Computer and Communications Security (*CCS*), Electronic Commerce and Research Applications (*ECRA*), European Symposium on Programming (*ESOP*), European Symposium on Research in Computer Security (*ESORICS*), Foundations of Software Technology and Theoretical Computer Science (*FSTTCS*), IEEE International Conference on Communications (*ICC*), IET Information Security (*IET-IFS*), International Journal of

Information Security (*IJIS*), Information Processing Letters (*IPL*), Journal of Computer Security (*JCS*), Journal of Software: Evolution and Process (new *JSME*), Journal of Software Maintenance and Evolution (old *JSME*), Journal of Systems and Software (*JSS*), Mathematical Structures in Computer Science (*MSCS*), ACM Workshop on Programming Languages and Analysis for Security (*PLAS*), ACM Symposium on Programming Languages Design and Methodology (*PLDI*), ACM Symposium on Principles of Programming Languages (*POPL*), International Conference on Runtime Verification (*RV*), Science of Computer Programming (*SCP*), Software Tools and Technology Transfer (*STTT*), Software Testing Verification and Reliability (*STVR*), IEEE Transactions on Computers (*TC*), The Computer Journal—Oxford University Press (*TCJ*), IEEE Transactions on Dependable and Secure Computing (*TDSC*), IEEE/ACM Transactions on Networking (*ToN*), ACM Transactions on Programming Languages and Systems (*TOPLAS*), ACM Transactions on Privacy and Security (*TOPS*), IEEE Transactions on Reliability (*TR*), ACM Transactions on Software Engineering and Methodology (*TOSEM*).

*NSF Service:*

- National Science Foundation panelist (2008, 2009, 2016, 2018, 2020, 2021, 2022)

*USF CSE Department Service:*

- Director of Graduate Admissions (2022-present)
- Graduate Admissions Committee (2023-present), Chair 2023-present
- Graduate Program Committee (2006-present)
- Undergraduate/ABET Committee (2019-present)
- Tenure and Promotion Committee (2012-present), Chair 2021-present
- Chair, Corporate Fellowship Committee (2021-2022)
- BS CyS Curriculum Workgroup (2021-2022)
- Mentoring Committee (2012-2021)
- Data and Decisions Support (formerly Planning and External Relations) Committee (2013-2019)
- Faculty-evaluation Committee (2019, 2024), Chair 2024
- Faculty-search Committee (2011-2015, 2017-2018, 2023-present)

*USF College of Engineering Service:*

- Faculty Governance Committee (2021-present)
- Engineering Research Advisory Council (2012-2016)
- Cybersecurity Faculty-search Committee (2014-2015)

*USF Service:*

- Technical Advisor to CyberFlorida (2021)
- Distinguished University Professor Discipline Committee (2018)
- Florida Center for Cybersecurity (FC<sup>2</sup>) Curriculum Assessment Group (2016)

*Community Service:*

- Judge, Florida State Science and Engineering Fair (2009-2020)
- Judge, Hillsborough County Regional Science Fair (2007-2013)

## Funding

- *Mitigation of Cybersecurity Vulnerabilities for Traffic Control Infrastructure.* Achilleas Kourtellis (PI), Pei-Sung Lin (Co-PI), and Jay Ligatti (Co-PI). Sponsor: FDOT. Project dates: 11/27/23-5/31/25. Amount: \$250,000.
- *Languages and Tools for Specifying and Analyzing Data Security Policies for the ACDC System.* Jay Ligatti (PI). Sponsor: MIT Lincoln Laboratory. Project dates: 6/1/2021-5/31/2022. Amount \$55,240.
- *Identify Sources and Risks on Cybersecurity for Connected Vehicle Infrastructures.* Pei-Sung Lin (PI), Jay Ligatti (Co-PI), Xiaopeng Li (Co-PI), Sean Barbeau (Co-PI), Achilleas Kourtellis (Co-PI). Sponsor: FDOT. Project dates: 5/18/20-8/23/22. Amount: \$240,989.
- *Secure Software Development for Network Defense Technologies.* Jay Ligatti (PI). Sponsor: OPSWAT. Project dates: 2/11/20-5/8/20. Amount: \$10,000 + \$10,000 matching from the Florida High Tech Corridor.
- *SaTC: CORE: Medium: Collaborative: Understanding Security in the Software Development Lifecycle: A Holistic, Mixed-Methods Approach.* Michelle Mazurek (PI at UMD), Michael Hicks (co-PI at UMD), Xinming Ou (PI at USF), Jay Ligatti (co-PI at USF), and Daniel Lende (co-PI at USF). NSF awards CNS-1801545 (UMD) and CNS-1801633 (USF). Project dates: 9/1/18-8/31/22. Amount: \$700,000 (UMD) + \$500,000 (USF).
- *Enhancing Cybersecurity in Public Transportation.* Sean Barbeau (PI) and Jay Ligatti (co-PI). Florida Department of Transportation, Agreement BDV25 TWO 977-51. Project dates: 1/1/2018-6/30/2019. Amount: \$292,995.
- *TWC: Small: Techniques and Tools for Enforcing Proximity-based Policies in Wireless Systems.* Yao Liu (PI) and Jay Ligatti (co-PI). NSF SaTC award CNS-1527144. Project dates: 9/1/15-8/31/18. Amount: \$300,000.
- *II-New: A research platform for heterogeneous, massively parallel computing.* Yicheng Tu (PI), Swaroop Ghosh (co-PI), Jay Ligatti (co-PI), Sagar Pandit (co-PI), Sudeep Sarkar (co-PI). NSF CRI award CNS-1513126. Project dates: 7/1/15-6/30/2019. Amount: \$679,798.
- *Collaborative Authentication for the Internet of Things.* Jay Ligatti (PI) and Daniela Oliveira (co-PI at University of Florida). Sponsor: Florida Center for Cybersecurity (FC<sup>2</sup>). Project dates: 7/1/17-6/30/19. Amount: \$25,000 (USF) + \$25,000 (University of Florida).
- *Analysis of Cryptographic Primitives and Protocols (for VTE, Virtual Tunneling Effect).* Jay Ligatti (PI), Yao Liu (co-PI), and Dmitry Goldgof (co-PI). Sponsor: CBT Holding, LLC. Project dates: 5/9/16-5/8/17. Amount: \$56,649 + \$56,649 matching from the Florida High Tech Corridor.
- *Practical Improvements to Network Security Infrastructure.* Jay Ligatti (PI). Sponsor: Impulse Point, LLC. Project dates: 9/1/15-5/5/17. Amount: \$70,146 + \$70,146 matching from Florida High Tech Corridor.
- *Cyber Resilience for Injection Attacks.* Jay Ligatti (PI) and Geoffrey Smith (co-PI at Florida International University). Sponsor: Florida Center for Cybersecurity (FC<sup>2</sup>). Project dates: 3/1/15-5/31/17. Amount: \$50,000 (USF) + \$50,000 (Florida International University).

- *Development of Network-security Tools.* Jay Ligatti (PI). Sponsor: Impulse Point, LLC. Project dates: 3/1/13-12/31/13. Amount: \$61,356 + \$61,356 matching from Florida High Tech Corridor.
- *Development of a Marketplace Portal Framework.* Jay Ligatti (PI). Sponsor: Enporion. Project dates: 1/1/11-12/31/11. Amount: \$68,855 + \$68,855 matching from Florida High Tech Corridor.
- *Avatar DNA using Biometrics and User Access Controls.* Sudeep Sarkar (PI) and Jay Ligatti (Co-PI). Sponsor: The Raytheon Company. Project dates: 1/2/09-8/24/10. Amount: \$60,000 + \$29,250 matching from Florida High Tech Corridor.
- *Security-research Partnership between USF and Team TACLAN: Wireless Security.* Jay Ligatti (PI), Rangachar Kasturi (co-PI). Sponsor: Team TACLAN. Project dates: 10/1/08-9/30/09. Amount: \$133,333.
- *Collaborative Research - ANET: Mobius: A Multi-Tier Socially-Aware Network Infrastructure.* Adriana Iamnitchi (PI), Jay Ligatti (co-PI), Cristian Borcea (PI at NJ Inst of Tech), and Quentin Jones (co-PI at NJ Inst of Tech). NSF NeTS awards CNS-0831785 (USF) and CNS-0831753 (NJIT). Project dates: 9/1/08-8/31/12. Amount: \$429,999 (USF) + \$409,978 (NJIT).
- *CAREER: Foundational Theories and Enforcement Tools for Secure Software Systems.* Jay Ligatti (PI). NSF award CNS-0742736. Project dates: 2/1/08-1/31/2014. Amount: \$412,771 + \$8,000 (supplemental REU funding).
- *CT-ISG: Collaborative Research: Trustworthy Enforcement of Domain-independent Run-time Policies.* Jay Ligatti (PI), Adriana Iamnitchi (co-PI), and Lujo Bauer (co-PI at Carnegie Mellon University). NSF CyberTrust awards CNS-0716343 (USF) and CNS-0716216 (CMU). Project dates: 8/1/07-7/31/11. Amount: \$300,000 (USF) + \$50,000 (CMU).
- *Security-research Partnership between USF and Team TACLAN.* Jay Ligatti (PI), Rangachar Kasturi (co-PI). Sponsor: Team TACLAN. Project dates: 8/24/07-8/23/08. Amount: \$114,189.