

## UNIVERSITÀ DEGLI STUDI DI MILANO

Procedura di selezione per la chiamata a professore di II fascia da ricoprire ai sensi dell'art. 18, comma 1, della Legge n. 240/2010 per il settore concorsuale 09/H1, (settore scientifico-disciplinare ING-INF/05) presso il Dipartimento di Oncologia ed Emato-Oncologia, Codice concorso 4810.



## STEFANO IANNUCCI

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<https://www.linkedin.com/in/stefano-iannucci/>

Date of Birth: April 28th, 1984

Citizenship: Italian

Spoken Languages: Italian, English

### EDUCATION

<b>Bachelor of Engineering</b>   <i>Computer Engineering</i>	2007
University of Rome "Tor Vergata"	Rome, Italy
<b>Master's of Engineering</b>   <i>Computer Engineering</i>	2009
University of Rome "Tor Vergata"	Rome, Italy
<b>Doctoral Degree</b>   <i>Computer Science and Automation Engineering</i>	2015
University of Rome "Tor Vergata"	Rome, Italy

### ACADEMIC APPOINTMENTS

<b>Postdoctoral Associate</b>	September 2015 - August 2016
High Performance Computing Collaboratory, Mississippi State University	Starkville, MS, USA
<b>Assistant Research Professor</b>	August 2016 - August 2017
High Performance Computing Collaboratory, Mississippi State University	Starkville, MS, USA
<b>Assistant Professor</b>	August 2017 - present
Computer Science and Engineering, Mississippi State University	Starkville, MS, USA

### OTHER APPOINTMENTS

<b>Founder and CEO</b>	January 2010 - December 2013
chmod srl	Colleferro (RM), Italy
<b>Co-Founder and CTO</b>	November 2012 - February 2015
grep srl	Rome, Italy

### AWARDS AND HONORS

<b>Best paper award</b>	2011
IEEE 6th International Symposium on Service Oriented Systems (SOSE)	Irvine, CA, USA
<b>Italian National Scientific Qualification (ASN 2018) for the role of Associate Professor in Computer Science (01/B1)</b>	2020
Italian Ministry of Education, University and Research (MIUR)	Italy
<b>Italian National Scientific Qualification (ASN 2018) for the role of Associate Professor in Computer Engineering (09/H1)</b>	2021
Italian Ministry of Education, University and Research (MIUR)	Italy

### TEACHING AND DISSEMINATION

#### Courses taught (as course responsible)

<b>Information and Computer Security</b>	Fall 2017, Fall 2018, Fall 2019
Mississippi State University	Starkville, MS

<b>Special Topics on Autonomic Cyber-Security</b>	Spring 2018, Fall 2020
Mississippi State University	Starkville, MS
<b>Secure Software Engineering</b>	Spring 2019
Mississippi State University	Starkville, MS
<b>Special Topics on Web Applications Penetration Testing</b>	Fall 2019
Mississippi State University	Starkville, MS
<b>Operating Systems I</b>	Spring 2020, Fall 2020, Winter 2020, Spring 2021, Summer 2021, Fall 2021
Mississippi State University	Starkville, MS

## Invited Speeches

<b>"The biggest Cybersecurity Threats in America – Scams and How to Protect You and Your Family"</b>	December 2017
Invited Seminar, Kiwanis Association of Tupelo	Tupelo, MS
<b>"Model-Based Intrusion Response for Enterprise Systems"</b>	March 2018
Invited Seminar, University of Rome "Tor Vergata"	Rome, IT
<b>"Autonomic Security for Distributed Systems"</b>	May 2018
Invited Seminar, Blekinge Institute of Technology (BTH)	Karlskrona, SE
<b>"Towards Autonomic Security Management"</b>	November 2018
Invited as distinguished speaker, NIST Cybersecurity Risk Management Conference	Baltimore, MD, USA
<b>"Model-Based Autonomic Security Management for Distributed Systems"</b>	July 2019
Invited Seminar, Sapienza University of Rome	Rome, IT
<b>"A Hybrid Model-Free Approach to Autonomic Security Management"</b>	January 2020
Invited Seminar, University of Florida	Gainesville, FL, USA
<b>"A Hybrid Model-Free Approach to Autonomic Security Management"</b>	April 2020
Keynote Speaker, IEEE International Conference on Intelligent Engineering and Management	London, UK

## Conference Presentations

<b>"Designing a broker for QoS-driven runtime adaptation of SOA applications"</b>	July 2010
IEEE International Conference on Web Services (ICWS) 2010	Miami, FL, USA
<b>"Improving SOA Applications Response Time with Service Overload Detection"</b>	June 2012
ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC) 2012	Delft, NL
<b>"Designing a flexible and modular architecture for a private cloud: a case study"</b>	June 2012
ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC) 2012	Delft, NL
<b>"Cloud Desktop Workload: a Characterization Study"</b>	March 2015
IEEE International Conference on Cloud Engineering (IC2E) 2015	Tempe, AZ, USA
<b>"High-Performance Intrusion Response Planning on Many-Core Architectures"</b>	August 2016
IEEE International Conference on Computer Communication and Networks (ICCCN) 2016	Waikoloa, HI, USA
<b>"A Comparison of Graph-Based Synthetic Data Generators for Benchmarking Next-Generation Intrusion Detection Systems"</b>	September 2017
IEEE Cluster Conference 2017	Honolulu, HI, USA
<b>"Towards Self-Defense of Non-Stationary Systems"</b>	February 2019
IEEE International Conference on Computing, Networking and Communications (ICNC) 2019	Honolulu, HI, USA
<b>"A Model-Integrated Approach to Designing Self-Protecting Systems"</b>	May 2019
IEEE International Conference on Software Engineering (ICSE) 2019	Montreal, CA

## Ph.D. Students

### Kazizakia Sultana

2017 - 2018

Mississippi State University

Starkville, MS, USA

- Role: co-advisor, Ph.D. in Computer Science.
- Topic: Analysis of micro-patterns and nano-patterns for the early identification of vulnerabilities in Java code.

### Patrick Day

2018 - present

Mississippi State University

Starkville, MS, USA

- Role: co-advisor, Ph.D. in Computational Engineering.
- Topic: Synthetic Data Generation for Anomaly-Based Intrusion Detection.

### Paul Danko

2019 - present

Mississippi State University

Starkville, MS, USA

- Role: co-advisor, Ph.D. in Computer Science.
- Currently working on the definition of his dissertation topic, which will be at the intersection of cyber-security and High-Performance Computing.

### Jesse Ables

2020 - present

Mississippi State University

Starkville, MS, USA

- Role: advisor, Ph.D. in Computer Science.
- Topic: Design of an ensemble of techniques for the realization of a novel performance-oriented Intrusion Detection System.

### Shannon Birchell

2020 - present

Mississippi State University

Starkville, MS, USA

- Role: advisor, Ph.D. in Computational Engineering.
- Currently working on the definition of his dissertation topic, which will fall under the broad area of Intrusion Response

### Damodar Panigrahi

2021 - present

Mississippi State University

Starkville, MS, USA

- Role: advisor, Ph.D. in Computer Science.
- Currently working on the definition of his dissertation topic.

## Master's Students

In addition to the students reported in what follows, I have been co-advisor for 9 Master's theses and 1 Bachelor's thesis for the Computer Engineering program at University of Rome "Tor Vergata", during 2009 - 2015.

### Drew Kerby

2017 - 2018

Mississippi State University

Starkville, MS, USA

- Role: advisor, Master's in Computer Science.
- Thesis topic: state space compression of Markov Decision Processes.

### Jesse Ables

2018 - 2019

Mississippi State University

Starkville, MS, USA

- Role: advisor, Master's in Computer Science.

### Justin Lewis

2018 - 2019

Mississippi State University

Starkville, MS, USA

- Role: advisor, Master's in Computer Science.

### Tushar Porwal

2018 - 2019

Mississippi State University

Starkville, MS, USA

- Role: advisor, Master's in Computer Science.

### Ovidiu Daniel Barba

2018 - 2019

University of Rome "Tor Vergata"

Rome, Italy

- Role: co-advisor, Master's in Computer Engineering
- Thesis Topic: Self-Protection of Non-Stationary Systems

#### **Jordan Donovan**

Mississippi State University

2018 - 2019  
Starkville, MS, USA

- Role: co-advisor, Master's in Computer Science.
- Thesis Topic: Image-Based Recognition of Materials

#### **Marcus Brumfield**

Mississippi State University

2019 - 2020  
Starkville, MS, USA

- Role: advisor, Master's in Computer Science.
- Thesis Topic: Static Analysis of Code Micro and Nano-Patterns with Deep Learning for Bug Detection

#### **Andrea Silvi**

University of Rome "Tor Vergata"

2019 - 2020  
Rome, Italy

- Role: co-advisor, Master's in Computer Engineering.
- Thesis Topic: Self-Protection of Non-Stationary Systems with Deep Learning

#### **Arthur Hubbard**

Mississippi State University

2019 - 2020  
Starkville, MS, USA

- Role: advisor, Master's in Computer Science.

#### **Ben Wiggins**

Mississippi State University

2020 - 2021  
Starkville, MS, USA

- Role: advisor, Master's in Computer Science.

#### **Matteo Lucantonio**

Sapienza University of Rome

2020 - 2021  
Rome, Italy

- Role: co-advisor, Master's in Computer Science.
- Thesis Topic: Self-Protection of Non-Stationary Systems with Deep Learning

#### **Bhuvanesh Abburi**

Mississippi State University

2020 - present  
Starkville, MS, USA

- Role: advisor, Master's in Computer Science.

### FUNDING INFORMATION [GRANTS AS PRINCIPAL INVESTIGATOR (PI) OR CO-PRINCIPAL INVESTIGATOR (CO-PI)]

#### **PI: Research and innovation project for the design, implementation and exploitation of a Mobile Desktop-as-a-Service**

2012-2015

Sponsor: POR FESR Lazio 2007/2013 FILAS SO 2011-1046 "Sostegno Agli Spin-Off Di Ricerca" - FILAS (Financing, innovation and research in Lazio, Italy)

EUR 98,000

#### **PI: Application-specific Benchmarking for Big Data Analytics**

2016-2017

Sponsor: Pacific Northwest National Laboratory (PNNL) High Performance Data Analytics

\$500,000

#### **Co-PI: Dynamic Defense Strategy Planning for Research and Development and Infrastructure Networks**

2017-2020

Sponsor: US Army Corps of Engineers, Engineer Research and Development Center

\$1,312,315

#### **PI: Autonomic Security for Next Generation Health Care Systems**

2018

Sponsor: MSU Global Discovery Seed Grant Program

\$15,000

#### **PI: Intrusion Response Systems Evaluation**

2020-2021

Sponsor: Google Cloud Platform Research Credits

\$5,000

#### **Co-PI: Enhanced Network Cybersecurity Research**

2021-2024

Sponsor: US Army Corps of Engineers, Engineer Research and Development Center

\$2,690,225

## PARTICIPATION AND DIRECTION OF RESEARCH GROUPS

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### **Application-specific Benchmarking for Big Data Analytics.**

08/2016 - 05/2017

Project Participants:

Mississippi State University

- **Dr. Stefano Iannucci, Assistant Research Professor, Project Lead**
- Dr. Arindam Khaled, full-time postdoc
- Dr. Hisham Kholidy, part-time postdoc
- Dr. Rui Jia, part-time research assistant
- Dr. Ioana Banicescu, Professor
- Mr. Stefano Cordio, full-time research engineer
- Ms. Amrita Ghimre, Ph.D. student
- Mr. Justin Lewis, undergraduate student
- Mr. Spencer Callicott, undergraduate student

### **Dynamic Defense Strategy Planning for Research and Development and Infrastructure Networks.**

08/2017 - 04/2020

Project Participants:

Mississippi State University

- **Dr. Stefano Iannucci, Assistant Professor, Project Lead**
- Mr. Andrea Montemaggio, full-time research engineer
- Ms. Melissa Hannis, full-time research engineer
- Mr. Russell Girault, part-time research engineer
- Mr. Justin Lewis, undergraduate student
- Mr. Spencer Callicott, undergraduate student

### **Enhanced Network Cybersecurity Research**

10/2021 - 09/2024

Project Participants:

Mississippi State University

- **Dr. Stefano Iannucci, Assistant Professor, Project Lead**
- Dr. Shahram Rahimi, Professor and Department Head
- Dr. Ioana Banicescu, Professor
- Mr. William Anderson, Graduate Student
- Mr. Jesse Ables, Graduate Student
- Mr. Bhuvanesh Abburi, Graduate Student
- Post-doc to be identified

Furthermore, during my Ph.D. studies, I participated in the activities of the “*Distributed And MObile systems eNginneering (DAMON)*” research group at the University of Rome “Tor Vergata”. The DAMON group conducts research in the area of distributed systems, networks, mobile systems, cloud computing with an emphasis on analysis and optimization of the quality of service for adaptive and autonomic systems. The DAMON group collaborates/collaborated with national and international research groups: Politecnico di Milano, Università di Bologna, Università di Modena e Reggio Emilia, Sapienza University of Rome, Consiglio Nazionale delle Ricerche, ENEA, IBM T.J. Watson Research Center (USA), AT&T Labs, Univerisy of Massachussets at Amherst (USA), George Mason University (USA), Blekinge Institute of Technology (SE). With the research group, I carried out research on:

- Quality of Service aware scheduling in grid systems;
- Optimal run-time composition and adaptation of web services in Service Oriented Architectures;
- Optimal Quality of Service aware adaptation of Cloud systems.

## RESPONSIBILITY OF SCIENTIFIC RESEARCH ASSIGNED BY PRIVATE OR PUBLIC INSTITUTIONS

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In the period 09/2015 – 08/2016 I was assigned, with a Postdoc contract at Mississippi State University, the responsibility of a research in collaboration with the Pacific Northwest National Laboratory (PNNL) for the design and realization of a novel Intrusion Response System for High Performance Computing clusters.

## RESULTS OBTAINED IN THE TECHNOLOGICAL TRANSFER IN TERMS OF PARTICIPATION TO THE CREATION OF NEW COMPANIES (SPIN-OFF)

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In 2012 I received a grant of EUR 98,000 for a project submitted to POR FESR Lazio 2007/2013 FILAS SO 2011 – 1046. The project regarded the creation of a start-up company focused on research, design and realization of a Desktop as a Service (DaaS) cloud provider. I was co-founder of this start-up, named grep srl, for which I worked full-time from 2012 to 2015. As a consequence, I have a gap in the publications in that time range. However, the start-up obtained excellent results, both in terms of research and development of the service, and in terms of commercial success. In 2015, I sold my share of grep srl to focus on research and I accepted a Postdoc position at MSU. Grep srl is still active and currently employing 5 people.

## RESEARCH ACTIVITIES

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My research interest is in Distributed Systems with an emphasis on Performance Optimization (and hence performance evaluation), Autonomic computing, Automated Intrusion Response, Optimal service composition, scheduling, and workload distribution.

### **Research Interest 1 - Keywords: Autonomic Computing, Intrusion Response, Non-Stationary Systems**

The continuous increase in the quantity and sophistication of cyberattacks is making it more difficult and error prone for system administrators to handle the alerts generated by intrusion detection systems (IDSs). To deal with this problem, several intrusion response systems (IRSs) have been proposed lately. IRSs extend the IDSs by providing an automatic response to the detected attack. Such a response is usually selected either with a static attack-response mapping or by quantitatively evaluating all available responses, given a set of predefined criteria. In this research, I investigated a probabilistic model-based IRS built on the Markov decision process (MDP) framework. In contrast to most existing approaches to intrusion response, the proposed IRS effectively captures the dynamics of both the defended system and the attacker and is able to compose atomic response actions to plan optimal multiobjective long-term response policies to protect the system. With time, I refined the MDP-based approach by proposing a framework based on Model Integrated Computing for the design of Autonomic Security Management (ASM) systems. A solid software engineering work enabled me to quickly perform research on different challenges related to the MDP-based approach. Currently, I am working on three different interdisciplinary lines of research:

1. Application of pure/hybrid reinforcement learning techniques for the automatic control of non-stationary systems. Although the MDP-based approach is good to model the behavior of a system, one of the characteristics of computer systems is that they exhibit a non-stationary behavior due to many factors, among which, configuration changes, software updates, change of the user behavior, and so on. Computer systems could be monitored, and the resulting data could be used to change the parameters of the model. However, in order to take into account all the changes, a new MDP-based planning must be run, which is computationally expensive and time consuming. For these reasons, I am investigating the possibility of using pure/hybrid reinforcement learning and deep reinforcement learning techniques to automatically learn the system behavior and produce a security system that evolves together with the protected system.
2. Modeling of a n-agents stochastic game between (possibly multiple collaborating) attackers and (possibly multiple collaborating) defenders. Modelling the behavior of a system allows us to predict its evolution, and therefore to plan for a sequence of actions that are supposed to drive the system from a given state into a “safe region” of the state space. However, this is only part of the problem, because it does not consider possible changes of strategy of the attacker. For this reason, I am investigating a multi-agent extension of the MDP-based approach, which results in the creation of a stochastic game. With the latter it is possible to model a set of multiple cooperative agents competing with another set of cooperative agents, which in our case could be the attackers and the defenders. If the defenders have a partial knowledge of the strategy of the attackers, and vice-versa, it is possible to devise proactive defense and attack strategies.

3. Addressing the “curse of dimensionality” resulting from a state-based approach with the introduction of novel optimal and sub-optimal heuristics and with the usage of many-core architectures, such as, Intel Xeon Phi and Nvidia GPGPUs. One of the main problems with a stateful approach is that the state space grows exponentially with the size of the modeled system. This makes the approach unusable even for relatively small systems. However, I am tackling the “curse of dimensionality” from several perspectives. In [J4] I proposed, and formally demonstrated, that it is possible to compute optimal solutions using a reduced state space when certain structural conditions of the MDP are met. Furthermore, I showed that, if sub-optimal solutions are acceptable, it is possible to build MDPs that have a state space that depends on the scope of the attack (i.e., the extension of the attack), instead of the size of the system, thus making the MDP-based approach usable for systems of arbitrary size.

The overarching goal of this research is to combine the approaches proposed in the three aforementioned lines of research, in order to obtain a fully autonomous security system.

### **Research Interest 2 - Keywords: Autonomic Computing, Service-Oriented Systems, Self-Adaptation, Non-Functional Requirements**

Architecting software systems according to the service-oriented paradigm and designing runtime self-adaptable systems are two relevant research areas in today’s software engineering. In this research, I addressed issues that lie at the intersection of these two important fields. The Autonomic Computing paradigm, with the Monitor, Analyze, Plan, Execute, Knowledge (MAPE-K) framework has been employed in this research as the reference architecture. Research work has been carried out for all the phases of the MAPE loop, going from passive/active monitoring techniques, to time-series based analysis of non-functional parameters, such as, availability and response time. Several planning approaches have been proposed, each aimed at providing different Quality of Service assurances to the end user. All the aforementioned features and functionalities have been implemented in a state-of-the-art software prototype named MOSES. This research alone led to 10 high quality publications, including one journal article on IEEE Transactions on Software Engineering.

### **Research Interest 3 - Keywords: Intrusion Detection, Performance Benchmarking, Big Data**

A common trend in Intrusion Detection Systems (IDSs) is to consider data structures based on graphs to analyze network traffic and attack patterns. Timely detecting a threat is fundamental to reduce the risk to which the system is exposed, but no current study aims at providing useful information to size Cloud or HPC infrastructures to meet certain service level objectives.

The purpose of this research was the design and implementation of a distributed benchmark for the evaluation of the performance of next-generation IDSs.

Several studies employing big data benchmarks have been conducted over the years to evaluate and characterize various big data systems and architectures. However, most of the state-of-the-art big data benchmarks are designed for specific types of systems, and lack diversity of data and workloads. Moreover, the diversity and rapid evolution of big data systems imposes challenges on workload selection and implementation, as it is impractical to implement all big data workloads.

Furthermore, the fidelity of the performance results in context of real applications, such as in the area of Cyber-Security, mandates the use of application-specific benchmarks that require application-specific data generators which synthetically scale up and down a synthetic data set while maintaining its characteristics. For the above reasons, I carried out research and directed (as the PI) a research group (2 postdocs, 1 research engineer, 2 graduate students and several undergraduate students) for the implementation of a comprehensive suite, which provides:

- Fast and flexible synthetic data generators with high degree veracity
- Intrusion detection representative workloads
- A user-friendly interface to monitor the cluster performance, showing application and system metrics

**Editorial Service**

<b>Guest Editor</b> Springer Cluster Computing	2018
<b>Member of the Editorial Board</b> Springer Cluster Computing	2019 - present
<b>Guest Editor for the special issue “Advances in Self-Protecting Systems”</b> Elsevier Future Generation Computer Systems	2019 - 2021

**Panel Service**

<b>Panelist</b> National Science Foundation	2018
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**Conference Organization**

<b>Program Chair</b> IEEE 12th Workshop on Feedback Computing	2017
<b>Co-Chair</b> International Workshop on Container-based Systems for Big Data, Distributed and Parallel computing (co-located with IEEE ICCAC 2017)	2017
<b>Workshops Chair</b> IEEE International Conference on Cloud and Autonomic Computing (ICCAC)	2017
<b>Co-Chair</b> International Workshop on Container-based systems for Big data, Distributed and Parallel computing (CBDP'2018), co-located with EuroPar 2018.	2017
<b>Co-Chair</b> 1st International Workshop on Self-Protecting Systems (SPS) co-located with IEEE ICAC 2019	2019
<b>Co-Chair</b> 2nd International Workshop on Self-Protecting Systems (SPS) co-located with IEEE ACSOS 2020	2020
<b>Co-Chair</b> 3rd International Workshop on Self-Protecting Systems (SPS) co-located with IEEE ACSOS 2021	2021

**Participation to Technical Program Committees**

<b>TPC Member</b> IEEE International Conference on Cloud and Autonomic Computing (ICCAC)	2016
<b>TPC Member</b> 10th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO)	2016
<b>TPC Member</b> The sixth Workshop of the Italian group on Quantitative Methods in Informatics (InfQ)	2016
<b>TPC Member</b> 1st International Workshop on Autonomic Management of Large Scale Container-Based Systems (AMLCS)	2017
<b>TPC Member</b> International Workshop on Autonomous Control for Performance and Reliability Trade-offs in Internet of Services (ACPROSS)	2017



<b>TPC Member</b> IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON)	2018
<b>TPC Member</b> IEEE/ACS International Conference on Computer Systems and Applications (AICCSA)	2018, 2019
<b>TPC Member</b> International Workshop on Automation of Cloud Configuration and Operations	2019
<b>TPC Member</b> IEEE/ACM International Conference on Utility and Cloud Computing (UCC)	2019
<b>TPC Member</b> The Sixth International Conference on Software Defined Systems	2019, 2020
<b>TPC Member</b> IEEE International Conference on Fog Computing (ICFC)	2020
<b>TPC Member</b> International Conference on Advanced Engineering, Technology and Applications (ICAETA)	2021

## Journal Reviews

<b>Journal Reviewer</b> Elsevier Ad-Hoc Networks	2016
<b>Journal Reviewer</b> IEEE Transactions on Software Engineering	2016, 2018
<b>Journal Reviewer</b> IEEE Transactions on Cloud Computing	2017 - 2020
<b>Journal Reviewer</b> Elsevier Future Generation Computer Systems	2018
<b>Journal Reviewer</b> Elsevier Computers and Security	2020
<b>Journal Reviewer</b> IEEE Transactions on Parallel and Distributed Computing	2021
<b>Journal Reviewer</b> Springer Neural Processing Letters	2021
<b>Journal Reviewer</b> ACM Computing Surveys	2021
<b>Journal Reviewer</b> Elsevier Journal of Information Security and Applications	2021

## ACADEMIC SERVICE

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### Teaching Service

<b>Faculty Advisor for the Facebook University Program</b> Facebook - Mississippi State University Raised \$70K for participation of 30 students in International Conferences, including: Usenix Enigma, BlackHat, DefCon, Women in Cyber-Security, Facebook F8.	2017/2018, 2018/2019
<b>Faculty Advisor for the DevNet Student Association</b> Mississippi State University	2018/2019, 2019/2020
<b>Faculty Advisor for the Department of Energy CyberForce Competition</b> Mississippi State University	2018/2019, 2019/2020

## University Service

<b>Graduate Studies Committee</b>	2017/2018, 2018/2019, 2019/2020, 2020/2021
Computer Science and Engineering, Mississippi State University	
<b>Cyber-Security and Operations Ad-Hoc Committee</b>	2017/2018, 2018/2019, 2019/2020, 2020/2021
Computer Science and Engineering, Mississippi State University	
<b>General Search Committee</b>	2018/2019, 2020/2021
Computer Science and Engineering, Mississippi State University	
<b>Cyber-Security Search Committee</b>	2019/2020
Computer Science and Engineering, Mississippi State University	
<b>Artificial Intelligence Search Committee</b>	2019/2020
Computer Science and Engineering, Mississippi State University	
<b>Cyber-Security Analyst Search</b>	2019/2020
National Strategic Planning & Analysis Research Center, Mississippi State University	
<b>Cyber-Security Studies Committee</b>	2021/2022
Computer Science and Engineering, Mississippi State University	
<b>Undergraduate Studies Committee</b>	2021/2022
Computer Science and Engineering, Mississippi State University	

## COMPLETE LIST OF INTERNATIONAL PUBLICATIONS

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The authors of the publications marked with \* made an equal contribution to the paper, thus are listed in alphabetical order. Authors reported in italic are students.

## Journal Articles

- J8 **S. Iannucci**, E. Casalicchio, B. Williams, "Editorial for FGCS Special Issue: Advances in Self-Protecting Systems", Elsevier Future Generation Computer Systems, May 2021. doi: <https://doi.org/10.1016/j.future.2021.05.005>  
Q1 SJR Quartile
- J7 *P. Day*, **S. Iannucci**, I. Banicescu, "Autonomic Feature Selection Using Computational Intelligence", Elsevier Future Generation Computer Systems, April 2020. doi: <https://doi.org/10.1016/j.future.2020.04.01>  
Q1 SJR Quartile
- J6 **S. Iannucci**, V. Cardellini, *O. D. Barba*, I. Banicescu, "A hybrid model-free approach for the near-optimal intrusion response control of non-stationary systems", Elsevier Future Generation Computer Systems, April 2020. doi: <https://doi.org/10.1016/j.future.2020.03.018>  
Q1 SJR Quartile
- J5 E. Casalicchio, **S. Iannucci**, "The State-of-the-Art in Container Technologies: Application, Orchestration and Security", Concurrency and Computation: Practice and Experience, Wiley, 2020. doi: <https://doi.org/10.1002/cpe.5668>  
Q3 SJR Quartile
- J4 **S. Iannucci**, S. Abdelwahed, *A. Montemaggio*, *M. Hannis*, L. Leonard, J. King, J. Hamilton, "A Model-Integrated Approach to Designing Self-Protecting Systems", IEEE Transactions on Software Engineering (TSE), Vol. 46, Issue 12, pp.1380-1392, Dec. 2020 doi: <https://doi.ieeecomputersociety.org/10.1109/TSE.2018.2880218>  
Q1 SJR Quartile

- J3 **S. Iannucci**, S. Abdelwahed, "Model-Based Response Planning Strategies for Autonomic Intrusion Protection", *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Vol. 13, No. 1, May 2018. doi: <https://doi.org/10.1145/3168446>  
Q2 SJR Quartile
- J2\* V. Cardellini, V. Di Valerio, V. Grassi, **S. Iannucci**, F. Lo Presti, "QoS driven per-request load-aware service selection in service oriented architectures", *International Journal of Software and Informatics, Special Issue on Service Oriented Systems Engineering*, Vol. 7, No. 2, pp. 195-220, 2013  
No SJR Classification
- J1\* V. Cardellini, E. Casalicchio, V. Grassi, **S. Iannucci**, F. Lo Presti, R. Mirandola, "MOSES: a framework for QoS driven runtime adaptation of service-oriented systems", *IEEE Transactions on Software Engineering*, Vol. 38, No. 5, pp. 1138-1159, Sept./Oct. 2012. doi: <http://dx.doi.org/10.1109/TSE.2011.68>  
Q1 SJR Quartile

## Conference Papers

- IC17 **S. Iannucci**, E. Casalicchio, M. Lucantonio. "An Intrusion Response Approach for Elastic Applications Based on Reinforcement Learning". In *Proc. of IEEE Symposium on Computational Intelligence in Cyber Security (CICS 2021)*, Virtual, December 2021
- IC16 **S. Iannucci**, J. Ables, W. Anderson, B. Abburi, V. Cardellini, I. Banicescu. "A Performance-Oriented Comparison of Neural Network Approaches for Anomaly-based Intrusion Detection". In *Proc. of IEEE Symposium on Computational Intelligence in Cyber Security (CICS 2021)*, Virtual, December 2021
- IC15 S. M. Imtiaz, M. Amin, Q. A. Do, **S. Iannucci**, T. Bhowmik. "Predicting Vulnerability for Requirements". In *Proc. of 2021 IEEE 22nd International Conference on Information Reuse and Integration for Data Science (IRI 2021)*, Virtual, August 2021
- IC14 A. Montemaggio, **S. Iannucci**, T. Bhowmik, J. Hamilton. "Designing a Methodological Framework for the Empirical Evaluation of Self-Protecting Systems". In *Proc. of 2020 IEEE 5th International Workshops on Foundations and Applications of Self\* Systems (FAS\*W)*, Washington, DC, USA, August 2020. doi: <https://doi.org/10.1109/ACSOS-C51401.2020.00059>
- IC13 **S. Iannucci**, O. D. Barba, V. Cardellini, I. Banicescu. "A Performance Evaluation of Deep Reinforcement Learning for Model-Based Intrusion Response". In *Proc. of 2019 IEEE 4th International Workshops on Foundations and Applications of Self\* Systems (FAS\*W)*, Umea, Sweden, July 2019. doi: [10.1109/FAS-W.2019.00047](https://doi.org/10.1109/FAS-W.2019.00047)
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