

Daniel Ricardo dos Santos, PhD

CONTACT INFORMATION

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WORK EXPERIENCE

Eindhoven University of Technology

Eindhoven, The Netherlands

Researcher

Apr/2017 - Current

- Working on the design and development of network intrusion detection for industrial control systems.

SAP Labs

Sophia Antipolis, France

Visiting researcher

Feb-Jun/2014; Apr-Jun/2015; Feb-Jun/2016

- Designed and developed a tool to test web application exploits in multiple environments, using Selenium and Docker.
- Integrated research prototypes for run-time workflow monitoring into SAP platforms.

Fondazione Bruno Kessler

Trento, Italy

Researcher

Sep/2013 - Mar/2017

- Designed and developed techniques and tools based on formal methods for security enforcement of workflows and web applications.
- Tested the security of Android apps and web applications, in collaboration with PosteItaliane.

SecPlus

Florianópolis, Brazil

Security consultant

Oct/2012 - Jul/2013

- Conducted penetration testing and security assessments for several companies.
- Contributed to open source projects for the analysis of Linux malware and for secure development in PHP.

AltoQi

Florianópolis, Brazil

C++ developer

Oct/2011 - Apr/2012

- Implemented parts of the graphics and database modules of a CAD software for civil engineering, using the Windows API and SQLite.
- Worked as part of a Scrum team using agile methodology.

Federal University of Santa Catarina

Florianópolis, Brazil

Research assistant

Jul/2010 - Jul/2011; May/2012 - Jul/2013

- Implemented identity management, access control, and security monitoring systems for cloud computing, using technologies such as SAML, OpenStack, and Nessus.

EDUCATION

University of Trento

Trento, Italy

PhD. in Computer Science (ICT)

Nov/2013 - Mar/2017

Federal University of Santa Catarina

Florianópolis, Brazil

MSc. in Computer Science

Oct/2011 - Aug/2013

BSc. in Computer Science

Mar/2007 - Jul/2011

SKILLS	Programming languages: Python, Java, C/C++, PHP, JavaScript.		
	Technical expertise: Agile methodology (TDD, Scrum, XP), Linux/UNIX systems, databases (MySQL, HANA, SQLite), version control (SVN, Git), penetration testing (network, web, and mobile), formal methods (model checking, SMT).		
	Soft skills: Quick learner with good communication skills (verbal and written). Capable of working independently and in teams. Efficient project manager.		
	Languages: Portuguese (Native), English (Fluent), Italian (Intermediate).		
FURTHER EDUCATION	Summer/Winter Schools:		
	Executive School on Post-Quantum Cryptography		2017
	European Summer School in Logic, Language, and Information		2016
	SECENTIS Winter School - Security of Enterprise Information Systems		2016
	IEEE Italy Section School of Career Boosting		2015
	Marktoberdorf Summer School - Dependable Software Systems Engineering		2014
	UFSC Mathematics Summer School - Axiomatic Set Theory, Real Analysis		2011
	Online:		
	Machine Learning (Coursera - Andrew Ng, Stanford)		2015
OTHER INTERESTS	Martial arts: Wado-ryu Karate black belt (1st dan)		
	Volunteering: Boy Scout leader (2010-2013)		
	Others: Reading, traveling		

List of publications

STATISTICS (GOOGLE SCHOLAR)

- Refereed publications: **23** (7 journals, 16 conferences and workshops)
- Citations: **164**
- h-index: **6**

JOURNALS

- J1. S. Dashevskiy, **D.R. dos Santos**, F. Massacci, A. Sabetta. “*TestREx: a Framework for Repeatable Exploits*” in International Journal on Software Tools for Technology Transfer, 2017 (In press)
- J2. **D.R. dos Santos**, S. Ranise, L. Compagna, S.E. Ponta. “*Automatically Finding Execution Scenarios to Deploy Security-Sensitive Workflows*” in Journal of Computer Security, vol. 25, no. 3, 2017
- J3. **D.R. dos Santos**, R. Marinho, G.R. Schmitt, C.M. Westphall, C.B. Westphall. “*A Framework and Risk Assessment Approaches for Risk-based Access Control in the Cloud*” in Journal of Network and Computer Applications, vol. 74, 2016
- J4. E.A. Rigon, C.M. Westphall, **D.R. dos Santos**, C.B. Westphall. “*A Cyclical Evaluation Model of Information Security Maturity*” in Information Management and Computer Security, vol. 22, no. 3, 2014
- J5. **D.R. dos Santos**, T.J. Nascimento, C.M. Westphall, M.A.P. Leandro, C.B. Westphall. “*Privacy-preserving identity federations in the cloud: a proof of concept*” in International Journal of Security and Networks, vol. 9, no. 1, 2014
- J6. C.B. Westphall, C.M. Westphall, F.L. Koch, G.A. Geronimo, J. Werner, R.S. Mendes, P.F. Silva, **D.R. dos Santos**, R.F. Souza, M.M. Mattos, S.R. Villareal, R. Weingartner, L. Defenti, A.A. Flores, R.R. Freitas, G.B. Brascher. “*Operation, Management, Security and Sustainability for Cloud Computing*” in Revista de Sistemas de Informação da FSMA, vol. 2014, no. 13, 2014
- J7. R.F. de Souza, C.B. Westphall, **D.R. dos Santos**, C.M. Westphall. “*A Review of PACS on Cloud for Archiving Secure Medical Images*” in International Journal of Privacy and Health Information Management, vol. 1, no. 1, 2013

CONFERENCES AND WORKSHOPS

- C1. D. Fauri, **D.R. dos Santos**, E. Costante, J. den Hartog, S. Etalle, S. Tonetta. “*From System Specification to Anomaly Detection (and back)*” in 3rd ACM Workshop on Cyber-Physical Systems Security & Privacy (CPS-SPC), Proceedings of the ACM Conference on Computer and Communications Security (CCS), 2017
- C2. **D.R. dos Santos**, S. Ranise. “*On Run-time Enforcement of Authorization Constraints in Security-Sensitive Business Processes*” in Proceedings of the 15th International Conference on Software Engineering and Formal Methods (SEFM), 2017
- C3. L. Compagna, **D.R. dos Santos**, S.E. Ponta, S. Ranise. “*Aegis: Automatic Enforcement of Security Policies in Workflow-driven Web Applications*” in Proceedings of the 7th ACM Conference on Data and Applications Security and Privacy (CODASPY), 2017
- C4. **D.R. dos Santos**, S.E. Ponta, S. Ranise. “*Modular Synthesis of Enforcement Mechanisms for the Workflow Satisfiability Problem: Scalability and Reusability*” in Proceedings of the 21st ACM Symposium on Access Control Models and Technologies (SACMAT), 2016
- C5. L. Compagna, **D.R. dos Santos**, S.E. Ponta, S. Ranise. “*Cerberus: Automated Synthesis of Enforcement Mechanisms for Security-sensitive Business Processes*” in Proceedings of the 22nd International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2016
- C6. **D.R. dos Santos**, S. Ranise, L. Compagna, S.E. Ponta. “*Assisting the Deployment of Security-Sensitive Workflows by Finding Execution Scenarios*” in Proceedings of the 29th Annual IFIP WG 11.3 Conference on Data and Applications Security and Privacy (DBSec), 2015. **Best Student Paper Award**

- C7. C. Bertolissi, **D.R. dos Santos**, S. Ranise. “*Automated Synthesis of Run-time Monitors to Enforce Authorization Policies in Business Processes*” in Proceedings of the 10th ACM Symposium on Information, Computer and Communications Security (ASIACCS), 2015
- C8. S. Dashevskiy, **D.R. dos Santos**, F. Massacci, A. Sabetta. “*TESTREX: a Testbed for Repeatable Exploits*” in 7th Workshop on Cyber Security Experimentation and Test (CSET), Proceedings of the 23rd USENIX Security Symposium, 2014
- C9. P.A.F. Vitti, **D.R. dos Santos**, C.B. Westphall, C.M. Westphall, K.M.M. Vieira. “*Current Issues in Cloud Computing Security and Management*” in Proceedings of the 8th International Conference on Emerging Security Information, Systems and Technologies (SECURWARE), 2014
- C10. **D.R. dos Santos**, C.M. Westphall, C.B. Westphall. “*A dynamic risk-based access control architecture for cloud computing*” in Proceedings of the IEEE/IFIP Network Operations and Management Symposium (NOMS), 2014
- C11. P. Silva, C.B. Westphall, C.M. Westphall M. Mattos, **D.R. dos Santos**. “*An Architecture for Risk Analysis in Cloud*” in Proceedings of the 10th International Conference on Networking and Services (ICNS), 2014
- C12. **D.R. dos Santos**, C.M. Westphall, C.B. Westphall. “*Risk-based Dynamic Access Control for a Highly Scalable Cloud Federation*” in Proceedings of the 7th International Conference on Emerging Security Information, Systems and Technologies (SECURWARE), 2013
- C13. R.F. de Souza, C.B. Westphall, **D.R. dos Santos**, C.M. Westphall. “*Challenges of Operationalizing PACS on Cloud Over Wireless Networks*” in Proceedings of the 9th International Conference on Wireless and Mobile Communications (ICWMC), 2013
- C14. R.B. Brinhosa, C.M. Westphall, C.B. Westphall, **D.R. dos Santos**, F. Grezele. “*A Validation Model of Data Input for Web Services*” in Proceedings of the 12th International Conference on Networks (ICN), 2013
- C15. M.A.P. Leandro, T.J. Nascimento, **D.R. dos Santos**, C.M. Westphall, C.B. Westphall. “*Multi-Tenancy Authorization System with Federated Identity for Cloud-Based Environments Using Shibboleth*” in Proceedings of the 11th International Conference on Networks (ICN), 2012
- C16. **D.R. dos Santos**, C.M. Westphall, “*Uma aplicação de privacidade no gerenciamento de identidades em nuvem com uApprove*” in Workshop de Trabalhos de Iniciação Científica e Graduação (WTICG), Anais do Simpósio Brasileiro em Segurança da Informação e de Sistemas Computacionais (SBSEG), 2011

THESES

- T1. **D.R. dos Santos**, “*Automatic Techniques for the Synthesis and Assisted Deployment of Security Policies in Workflow-based Applications*”, PhD. thesis, University of Trento, 2017
- T2. **D.R. dos Santos**, “*Uma Arquitetura de Controle de Acesso Dinâmico Baseado em Risco para Computação em Nuvem*”, MSc. thesis, Federal University of Santa Catarina, 2013
- T3. **D.R. dos Santos**, “*Gerenciamento de Identidades e Privacidade em Ambientes de Computação em Nuvem*”, BSc. thesis, Federal University of Santa Catarina, 2011

TECHNICAL REPORTS

- R1. **D.R. dos Santos**, S. Ranise. “*A Survey on Workflow Satisfiability, Resiliency, and Related Problems*”, 2017

PATENTS

- P1. S.E. Ponta, L. Compagna, **D.R. dos Santos**, S. Ranise, “*Secure and Compliant Execution of Processes*”. Filed on 13/04/2016 (under USPTO review)
- P2. A. Sabetta, L. Compagna, S.E. Ponta, S. Dashevskiy, **D.R. dos Santos**, F. Massacci. “*Multi-context Exploit Test Management*”. United States Patent 20160314302

VULNERABILITIES V1. [CVE-2013-2618](#), Network Weathermap 0.97a Cross Site Scripting
 V2. [CVE-2013-2619](#), Aspen 0.8 Directory Traversal

Academic activities

RESEARCH PROJECTS	<ul style="list-style-type: none"> • CITADEL - Critical Infrastructure Protection Using Adaptive MILS 2017 - 2019 • SECENTIS - Security and Trust of Next Gen. Enterprise Inf. Systems 2013 - 2016 • AutoManSec4Cloud - Autonomic Management and Security for Cloud 2010 - 2013
TEACHING ASSISTANCE	<ul style="list-style-type: none"> • Offensive Security (MSc., University of Trento) 2014 • Operating Systems (BSc., University of Santa Catarina) 2013 • Computer Networks (BSc., University of Santa Catarina) 2013
REVIEWER FOR JOURNALS	<ul style="list-style-type: none"> • Computer Networks • Journal of Networks and Systems Management • Security and Communication Networks
EXTERNAL REVIEWER FOR CONFERENCES	<ul style="list-style-type: none"> • 9th IEEE Int. Conf. on Cloud Computing Technology and Science CloudCom 2017 • 19th International Conference on Formal Engineering Methods ICFEM 2017 • 21st ACM Symposium on Access Control Models and Technologies SACMAT 2017 • 4th International Conference on Tools and Methods of Program Analysis TMPA 2017 • 6th ACM Conf. on Data and Application Security and Privacy CODASPY 2016 • 11th International Workshop on Data Privacy Management DPM 2016 • 11th International Workshop on Security and Trust Management STM 2015 • 29th IFIP Conference on Data and Applications Security and Privacy DBSec 2015 • 8th Int. Conf. on Language and Automata Theory and Applications LATA 2014
MEMBER OF THESIS COMMITTEES	<ul style="list-style-type: none"> • Gustavo Roecker Schmitt, “<i>Utilização do Modelo de Controle de Acesso RAdAC (Risk-Adaptive Access Control) em um Ambiente de Computação em Nuvem</i>”, BSc. thesis, Federal University of Santa Catarina, 2014. • Max Alexandre Zanelato, “<i>Proposta de um modelo de biblioteca cliente para o Shibboleth: Facilitando a adaptação das aplicações</i>”, BSc. thesis, Federal University of Santa Catarina, 2014.
SCIENTIFIC AND PROFESSIONAL ASSOCIATIONS	<ul style="list-style-type: none"> • Association for Computing Machinery (ACM) 2015 - Current • IFIP Data and Applications Security and Privacy (WG11.3) 2015 - Current • Marie Curie Alumni Association (MCAA) 2014 - Current • IEEE Communications Society (ComSoc) 2014 - 2015