

Stefan Achleitner

Curriculum vitae

Staff Security Researcher, Palo Alto Networks
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Education

- 08/2013 – 01/2018 **Pennsylvania State University, University Park, PA, USA**
Ph.D. in Computer Science and Engineering
Focus on network security and virtualization – Security in Software Defined Networking (SDN), Internet of Things, Cloud platform security, Virtual Machine security
- 10/2008 – 10/2010 **Vienna University of Technology, Vienna, Austria**
M.S. in Software Engineering and Internet Computing (graduated with distinction)
- 10/2008 – 12/2010 **Vienna University of Technology, Vienna, Austria**
M.S. in Business Engineering (graduated with distinction)
- 06/2009 – 09/2009 **Stanford University, Stanford, CA, USA**
Visiting student, Courses in Computer Science, Management Science & Engineering
- 10/2005 – 09/2008 **Vienna University of Technology, Vienna, Austria**
B.S. in Computer Science
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Skills and expertise

- **Software Engineering**
 - Working knowledge: Java, Python, C, C++, SQL, JavaScript, HTML, Matlab,
 - Basic knowledge: PHP, Assembly, Ruby, Perl
 - Test driven software development, agile software project management, code management such as Git, SVN, etc.
 - Knowledge of system architecture design, software design patterns
 - Development of optimization models, linear programming
 - **Computer Networks**
 - Software Defined Networking (OpenFlow, Floodlight, OpenDaylight)
 - Protocols such as TCP/IP, UDP, ICMP, DNS, etc.
 - Network scanning and fingerprinting, Internet of Things, network coding
 - **Computer Security**
 - Symmetric and public key cryptography (OpenSSL, Libgcrypt)
 - Network security: Firewalls, Next Generation Firewalls, Intrusion Detection Systems
 - Knowledge of cyber attack strategies (DDoS, Man in the Middle, traffic analysis, etc.)
 - **Machine Learning**
 - Classification and prediction algorithms (KNN, Neural Networks, SVM, etc.)
 - Data processing and analysis
 - **Cloud Computing**
 - OpenStack, security of cloud systems and virtual machines
 - **Virtualization**
 - VM hypervisors including KVM/QEMU, XEN, network virtualization
 - **Operating Systems**
 - Linux, Android, TinyOS, Windows
 - Fluent in German and English, basic knowledge of French
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Professional experience

- 01/2018 – present **Palo Alto Networks, Santa Clara, CA, USA**
Staff Security Researcher
 - Working on the content engine for the Next Generation Firewall
- 08/2013 – 01/2018 **Pennsylvania State University, University Park, PA, USA**
Research assistant – Institute for Networking and Security Research
 - Secure network configuration in SDN-based networks
 - Adversarial reconstruction of SDN flow rules on the data-plane
 - Software Defined Networking based cyber deception as a dynamic defense technique
 - Security issues of virtual machine migration on the network
 - Communication optimization in wireless networks with network coding

- 08/2011 – 05/2013 **University of California, Merced, CA, USA**
 Research and teaching assistant – Adaptive Networking Distributed Embedded Systems Group
- Wireless sensor network design for energy efficiency of building HVAC systems
 - Sensor network systems for energy output prediction of solar plants
 - Teaching assistant in Computer Networks, Operating Systems, Introduction into programming
- 10/2010 – 08/2011 **Vienna University of Technology, Vienna, Austria**
 Researcher and lecturer – Department of Management Science
- Development of a web based system for the software based planning and control of financial instruments (master thesis)
 - Lecturer in: Applied Business Administration, Design of Enterprise Resource Planning Systems
- 08/2003 – 04/2011 **Actynos, Vienna, Austria**
 Freelancer/Founder – IT consulting, software- and web-engineering
- Development of a distributed staff management system for Sony Pictures in Germany (2005)
 - Implementation of a marketing web platform for Nike Corporation in Austria (2010)
 - Various web and software projects for small and medium-sized businesses in Europe
 - Development of Android apps

Internships

- 05/2016 – 08/2016 **Ericsson – San Jose, California**, Systems and Technology Engineering intern
- Developed an automated cryptography module for Ericsson's IPOS platform
- 05/2015 – 08/2015 **Vencore Labs – Basking Ridge, New Jersey**, Network Security Research intern
- Developed a SDN based network cyber deception system to defend adversarial scanning
- 06/2012 – 08/2012 **Accenture – Vienna, Austria**, IT Technology Consulting intern (Strategy, Infrastructure and Security)
- Worked on a software and data migration project for a major bank in Europe
- 07/2008 – 08/2008 **Siemens – Vienna, Austria**, Software Engineering intern
- Software developer for a data management system for hospitals

Publications (selected)

- 08/2017 **A Policy Preserving Multilevel Security Framework for Software Defined Networking**
 S. Achleitner, P. McDaniel, T. Jaeger, T. La Porta, S. V. Krishnamurthy
in Submission to Network and Distributed Systems Security (NDSS) 2018, 15 pages
- 07/2017 **Deceiving Network Reconnaissance using SDN-based Virtual Topologies**
 S. Achleitner, T. La Porta, P. McDaniel, S. Sugrim, S. V. Krishnamurthy, R. Chadha
2017 IEEE Transactions on Network and Service Management (TNSM), 14 pages
- 05/2017 **Stealth Migration: Hiding Virtual Machine on the Network**
 S. Achleitner, T. La Porta, S. V. Krishnamurthy, P. McDaniel, A. Poylisher, C. Serban
2017 IEEE International Conference on Computer Communications (INFOCOM), 9 pages, acceptance rate: 20%
- 04/2017 **Adversarial Network Forensics in Software Defined Networking**
 S. Achleitner, T. La Porta, T. Jaeger, P. McDaniel
2017 ACM Symposium on SDN Research (SOSR), 13 pages, acceptance rate: 21% - Best Student Paper Award
- 10/2016 **Cyber Deception: Virtual Networks to Defend Reconnaissance**
 S. Achleitner, T. La Porta, P. McDaniel, S. Sugrim, S. V. Krishnamurthy, R. Chadha
2016 ACM CSS International Workshop on Managing Insider Security Threats (MIST), 12 pages
- 10/2014 **SIPS: Solar Irradiance Prediction System**
 S. Achleitner, T. Liu, A. Kahmte, A. Cerpa
*2014 IEEE/ACM International Conference on Information Processing in Sensor Networks (IPSN)
 12 pages, acceptance rate: 21%*

Awards (selected)

- 2017 **Best Student Paper Award** – ACM Symposium on SDN Research (SOSR)
- 2017 **Graduate Research Award** – Department of Computer Science and Engineering, Pennsylvania State University
- 2013 **Audience Choice Poster Award** – University of California Solar Symposium
- 2009 **Scholarship for outstanding academic achievements** – Austrian Federal Ministry of Education