

CONTACT INFORMATION University of California, Santa Barbara +1 (805) 364-3186  
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United States of America

THREE-LINER PhD candidate at the University of California, Santa Barbara in the Computer Security group; Researching web-based security, large-scale abuse, automatic vulnerability discovery/exploitation, and cybercrime; Member of Shell-phish; DARPA Cyber Grand Challenge 3rd place winner (1st place self-funded teams).

RESEARCH INTERESTS Data-driven security; Web-based threat (infection vectors and campaigns); Malware analysis, detection, and classification; Large-scale abuse, underground economy, and cybercrime; Software and system security, namely automatic vulnerability discovery, exploitation, and mitigation, with a focus on algorithmic complexity and side-channel attacks; Economics and development life cycles of vulnerability markets; Adversarial machine learning: breaking and evading existing systems leveraging machine learning, and building systems that are robust against evasions; Large-scale applications of machine learning, representation-learning (deep learning), and meaningful feature extraction in the area of security, particularly for the use in proactive and detection systems.

EDUCATION **Doctor in Philosophy (PhD), Computer Science** *since September 2013*  
University of California, Santa Barbara, United States of America

- o PhD candidate (advanced to candidacy)
- o Main area of study: Computer and Information Security
- o Advisors:  
Professor Dr. Christopher Kruegel  
Professor Dr. Giovanni Vigna
- o Selected courses: Automated Verification by Tevfik Bultan, Advanced Topics in Program Analysis by Ben Hardekopf, Host-based Security and Malicious Code by Christopher Kruegel, Trustworthiness in Embedded Systems by Timothy Sherwood, and Advanced Topics in Combinatorial Algorithms by Subash Suri

**Master of Science ETH (MSc ETH), Computer Science** *September 2010 – September 2012*

Swiss Federal Institute of Technology Zurich (ETH Zurich), Switzerland

- o Main area of study: Information Security
- o Thesis: *Identification of Web-Based Infection Vectors*
- o Advisors:  
Professor Dr. Srdjan Čapkun at ETH Zurich  
Professor Dr. Christopher Kruegel at University of California, Santa Barbara
- o Selected courses: System Security by Srdjan Čapkun, Security Engineering and Applied Security Laboratory by David Basin, E-Privacy by Jan Camenisch, Technology Policy Research by Stefan Bechtold

**Bachelor of Science (BSc), Computer Science** *October 2007 – September 2010*

University of Bonn, Germany

- o Thesis: *Development of an Effective Userland Packet Capturing Method for High-Performance Networks*
- o Advisors:  
Professor Dr. Peter Martini  
Dr. Jens Tölle at Fraunhofer Institute for Communication, Information Processing and Ergonomics FKIE
- o Minor: Economics and Business Studies
- o Student in the International Program of Excellence at the Bonn-Aachen International Center of Information Technology

**Conferences**

- *Something From Nothing (There): Collecting Global IPv6 Datasets From DNS* March 2017  
T. Fiebig, K. Borgolte, S. Hao, C. Kruegel, G. Vigna  
13th Passive and Active Measurement Conference (PAM)
- *Drops for Stuff: An Analysis of Reshipping Mule Scams* October 2015  
S. Hao, K. Borgolte, N. Nikiforakis, G. Stringhini, M. Egele, B. Krebs, G. Vigna  
22nd ACM Conference on Computer and Communications Security (CCS)
- *Meerkat: Detecting Website Defacements through Image-based Object Recognition* August 2015  
K. Borgolte, C. Kruegel, G. Vigna  
24th USENIX Security Symposium (SEC)
- *Protecting Web Single Sign-on against Relying Party Impersonation Attacks through a Bi-directional Secure Channel with Authentication* September 2014  
Y. Cao, Y. Shoshitaishvili, K. Borgolte, C. Kruegel, G. Vigna, Y. Chen  
17th International Symposium on Research in Attacks, Intrusions and Defenses (RAID)
- *Ten Years of iCTF: The Good, The Bad, and The Ugly* August 2014  
G. Vigna, K. Borgolte, J. Corbetta, A. Doupé, Y. Fratantonio, L. Invernizzi, D. Kirat, Y. Shoshitaishvili  
1st USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE)
- *Relevant Change Detection: A Framework for the Precise Extraction of Modified and Novel Web-based Content as a Filtering Technique for Analysis Engines* April 2014  
K. Borgolte, C. Kruegel, G. Vigna  
Developers' Track of the 23rd International World Wide Web Conference (WWWdev)
- *Delta: Automatic Identification of Unknown Web-based Infection Campaigns* November 2013  
K. Borgolte, C. Kruegel, G. Vigna  
20th ACM Conference on Computer and Communications Security (CCS)

**Journals**

- *Cyber Grand Shellphish* January 2017  
A. Bianchi, K. Borgolte, J. Corbetta, F. Disperati, A. Dutcher, J. Grosen, P. Grosen, A. Machiry, C. Salls, Y. Shoshitaishvili, N. Stephens, G. Vigna, R. Wang (Authors listed alphabetically)  
Phrack
- *What You Submit is Who You Are: A Multi-Modal Approach for Deanonmizing Scientific Publications* January 2015  
M. Payer, L. Huang, N. Gong, K. Borgolte, M. Frank  
IEEE Transactions on Information Forensics & Security (TIFS), Volume 10, Issue 1

**Talks**

- CODEGATE 2017, The Mechanization of Infosec - Automate Everything! (Invited) April 2017
- POC 2016, Opening Keynote on Autonomous Hacking (Invited) November 2016
- Hack.lu 2016, Cyber Grand Shellphish: Shellphish and the DARPA CGC October 2016
- DEFCON 24, Cyber Grand Shellphish: Shellphish and the DARPA CGC August 2016

**Program Committee Memberships**

- 17th ACM Internet Measurement Conference (IMC '17, Shadow PC) November 2017
- 10th USENIX Workshop on Cyber Security Experimentation and Test (CSET '17) August 2017
- 1st International Conference on Advances in Cyber-Technologies and Cyber-Systems October 2016
- 10th Graduate Student Workshop on Computing (Program Chair) March 2016
- 9th Graduate Student Workshop on Computing October 2014

**External Reviewer**

- 26th USENIX Security Symposium (SEC) August 2017
- 1st IEEE European Symposium on Security and Privacy (EuroSP) March 2016
- 22nd ACM Conference on Computer and Communications Security (CCS) October 2015

COMMUNITY SERVICE (CONTINUED)	<b>Subreviewer</b>	
	○ 25th USENIX Security Symposium (SEC)	<i>August 2016</i>
	○ 20th Network and Distributed System Security Symposium (NDSS)	<i>February 2016</i>
	○ 24th USENIX Security Symposium (SEC)	<i>August 2015</i>
	○ 19th Network and Distributed System Security Symposium (NDSS)	<i>February 2015</i>
	○ 23rd USENIX Security Symposium (SEC)	<i>August 2014</i>
	<b>Journal Reviewer</b>	
	○ Journal of Information Security and Applications (Elsevier)	<i>March 2017</i>
	<b>University Committees and Service</b>	
	○ Graduate Student Senate	<i>since October 2015</i>
○ Graduate Student Member of the Faculty Recruitment Committee	<i>September 2014 – October 2015</i>	
AWARDS (SELECTED)	<b>Third Place (First Place Self-funded Teams, First Place Academic Teams)</b>	
	○ DARPA Cyber Grand Challenge	<i>August 2016</i>
	<b>Outstanding Graduate Student Award</b>	
	○ Department of Computer Science, University of California, Santa Barbara	<i>May 2016</i>
	<b>Best Reviewer Award</b>	
	○ Graduate Student Workshop on Computing 2016	<i>March 2016</i>
	○ Graduate Student Workshop on Computing 2014	<i>October 2014</i>
	<b>PhD Student Progress Award</b>	
	○ Department of Computer Science, University of California, Santa Barbara	<i>March 2014</i>
	MEDIA COVERAGE	<b>Online</b>
○ WIRED: Hackers Don't Have to Be Human Anymore. This Bot Battle Proves It		<i>August 5, 2016</i>
○ Christian Science Monitor: With the drama but not the bruises [...]		<i>August 5, 2016</i>
○ Yahoo Finance: These grad students want to make history by crushing the world's hackers		<i>August 4, 2016</i>
○ The Guardian: These engineers are developing artificially intelligent hackers		<i>March 3, 2016</i>
○ CNN Money: Are bank hackers creating a global shipping empire?		<i>February 19, 2016</i>
○ Schneier on Security: Analyzing Reshipping Mule Scams		<i>November 4, 2015</i>
○ The Standard Deviant: #13 - Kevin Borgolte on money mule scams and credit card fraud		<i>October 27, 2015</i>
○ Slashdot: Study: \$1.8 Billion In Reshipping Fraud With Stolen Cards Each Year		<i>September 28, 2015</i>
○ Krebs on Security: With Stolen Cards, Fraudsters Shop to Drop		<i>September 15, 2015</i>
○ Network World: DARPA's \$4M cyber-threat clash down to seven challengers	<i>July 8, 2015</i>	
RESEARCH AND PROFESSIONAL EXPERIENCE	<b>Graduate Student Researcher at University of California, Santa Barbara</b>	
	Department of Computer Science, Computer Security Group	<i>since September 2013</i>
	<b>Research Intern at Microsoft Research</b>	<i>June – September 2015</i>
	<b>Research Consultant for Oneconsult AG</b>	<i>January – February 2015</i>
	<b>Research Consultant for Lastline Inc.</b>	<i>July – September 2013</i>
	<b>Visiting Research Scholar at University of California, Santa Barbara</b>	
	Department of Computer Science, Computer Security Group	<i>February 2012 – September 2013</i>
	<b>Research Assistant at ETH Zurich</b>	
	Department of Management, Technology and Economics, Chair of System Design	<i>August 2011 – July 2012</i>
	<b>Research at University of Bonn</b>	
Department of Computer Science, Chair of Communication Systems	<i>January – September 2009</i>	

TEACHING EXPERIENCE	<b>University of California, Santa Barbara</b>	
	Department of Computer Science, Computer Security Group	
	<ul style="list-style-type: none"> <li>Organization of the International Capture the Flag Competition (iCTF) <i>since March 2013</i></li> <li>Teaching Assistant in Compilers, CS 160 <i>January – March 2016</i></li> </ul>	
	<b>University of Bonn</b>	
	Department of Computer Science, Chair of Communication Systems	
	<ul style="list-style-type: none"> <li>Teaching Assistant in Computer Architecture, BA-INF 023 <i>April – September 2010</i></li> <li>Teaching Assistant in Systems Programming, BA-INF 034 <i>October 2009 – March 2010</i></li> </ul>	
MENTORING EXPERIENCE	<b>University of California, Santa Barbara</b>	
	Department of Computer Science, Computer Security Group	
	<ul style="list-style-type: none"> <li>Mentoring of three high-school students through the Research Mentorship Program <i>June – July 2016</i></li> </ul>	
INVITED EVENTS	<b>Judge at WCTF 2016 (Belluminar)</b> , Beijing, China	<i>June 2016</i>
	<b>Google PhD Student Summit on Web Application Security</b> , Munich, Germany	<i>April 2016</i>
EXTRACURRICULAR ACTIVITIES	<b>Security-relevant Bug Reports</b>	
	<ul style="list-style-type: none"> <li>United Airlines: Awarded 250,000 miles bounty for reporting a medium severity bug. <i>February 2017</i></li> <li>United Airlines: Awarded 250,000 miles bounty for reporting a medium severity bug. <i>July 2016</i></li> <li>United Airlines: Awarded 250,000 miles bounty for reporting a medium severity bug. <i>March 2016</i></li> <li>AndroidID-18417850: Guest mode leaks content of notifications when in sensitive mode. <i>November 2014</i></li> </ul>	
	<b>Open Source Contributions (Selected)</b>	
	<ul style="list-style-type: none"> <li>mechaphish, Shellphish's Cyber Reasoning System for the DARPA CGC.</li> <li>ictf-framework, a framework to manage and host attack-defense Capture the Flag competitions.</li> </ul>	
	<b>Capture the Flag Competitions, Computer Security</b>	
	I am a member of the Capture the Flag team Shellphish. Please see <a href="http://ctftime.org">ctftime.org</a> for more details. Before joining Shellphish, I was a member of team gn00bz from 2011 to 2012.	