

CONTACT INFORMATION	University of California, Santa Barbara Department of Computer Science Santa Barbara, CA 93106-5110 United States of America	+1 (805) 364-3186 kevin@borgolte.me <a href="https://kevin.borgolte.me">https://kevin.borgolte.me</a>
BIOGRAPHY SKETCH	Ph.D. candidate at the University of California, Santa Barbara; Researching large-scale Internet abuse, web-based security, automatic vulnerability discovery/exploitation, and cybercrime; Member of Shellphish, and DARPA Cyber Grand Challenge 3 <sup>rd</sup> place winner (1 <sup>st</sup> place academic and 1 <sup>st</sup> place self-funded teams).	
RESEARCH INTERESTS	Data-driven security; Large-scale Internet abuse, and web-based threats; Internet-wide IPv6 security measurements; Software and system security, focusing on automatic vulnerability discovery, exploitation, and mitigation, with a particular focus on algorithmic complexity (denial-of-service) attacks; Adversarial machine learning: breaking and evading existing systems by 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; Underground economy, and cybercrime; Economics and development life cycles of software and system vulnerabilities; Fraud and vulnerabilities in blockchain-based systems (e.g., cryptocurrencies).	
EDUCATION	<b>Doctor in Philosophy (Ph.D.), Computer Science</b> University of California, Santa Barbara, United States of America	<i>since September 2013</i>
	<ul style="list-style-type: none"><li>○ Ph.D. candidate</li><li>○ Main area of study: Computer and Information Security</li><li>○ Advisors: Professor Dr. Christopher Kruegel Professor Dr. Giovanni Vigna</li><li>○ Committee: Professor Dr. Christopher Kruegel Professor Dr. Giovanni Vigna Professor Dr. Ben Zhao, The University of Chicago</li></ul>	
	<b>Master of Science ETH (M.Sc. ETH), Computer Science</b> Swiss Federal Institute of Technology Zurich (ETH Zurich), Switzerland	<i>September 2010 – September 2012</i>
	<ul style="list-style-type: none"><li>○ Main area of study: Information Security</li><li>○ Thesis: <i>Identification of Web-Based Infection Vectors</i></li><li>○ Advisors: Professor Dr. Srdjan Capkun (Srđan Čapkun) Professor Dr. Christopher Kruegel, University of California, Santa Barbara</li></ul>	
	<b>Bachelor of Science (B.Sc.), Computer Science</b> University of Bonn, Germany	<i>October 2007 – September 2010</i>
	<ul style="list-style-type: none"><li>○ Minor: Economics and Business Studies</li><li>○ Thesis: <i>Development of an Effective Userland Packet Capturing Method for High-Performance Networks</i></li><li>○ Advisors: Professor Dr. Peter Martini Dr. Jens Tölle, Fraunhofer FKIE</li><li>○ Student in the International Program of Excellence at the Bonn-Aachen International Center of Information Technology</li></ul>	

**Conferences**

- [C11] *Rampart: Protecting Web Applications from CPU-Exhaustion Denial-of-Service Attacks*  
W. Meng, C. Qian, S. Hao, K. Borgolte, G. Vigna, C. Kruegel, W. Lee  
27<sup>th</sup> USENIX Security Symposium (USENIX Security), August 2018, to appear
- [C10] *Enumerating Active IPv6 Hosts for Large-scale Security Scans via DNSSEC-signed Reverse Zones*  
K. Borgolte, S. Hao, T. Fiebig, G. Vigna  
39<sup>th</sup> IEEE Symposium on Security and Privacy (Oakland), May 2018
- [C9] *In rDNS We Trust: Revisiting a Common Data-Source's Reliability*  
T. Fiebig, K. Borgolte, S. Hao, C. Kruegel, G. Vigna, A. Feldmann  
19<sup>th</sup> Passive and Active Measurement Conference (PAM), March 2018
- [C8] *Cloud Strife: Mitigating the Security Risks of Domain Validated Certificates*  
K. Borgolte, T. Fiebig, S. Hao, C. Kruegel, G. Vigna  
24<sup>th</sup> Network and Distributed System Security Symposium (NDSS), February 2018
- [C7] *Something From Nothing (There): Collecting Global IPv6 Datasets From DNS*  
T. Fiebig, K. Borgolte, S. Hao, C. Kruegel, G. Vigna  
18<sup>th</sup> Passive and Active Measurement Conference (PAM), March 2017
- [C6] *Drops for Stuff: An Analysis of Reshipping Mule Scams*  
S. Hao, K. Borgolte, N. Nikiforakis, G. Stringhini, M. Egele, B. Krebs, G. Vigna  
22<sup>nd</sup> ACM Conference on Computer and Communications Security (CCS), October 2015
- [C5] *Meerkat: Detecting Website Defacements through Image-based Object Recognition*  
K. Borgolte, C. Kruegel, G. Vigna  
24<sup>th</sup> USENIX Security Symposium (USENIX Security), August 2015  
Finalist for the Facebook Internet Defense Prize 2015
- [C4] *Protecting Web Single Sign-on against Relying Party Impersonation Attacks through a Bi-directional Secure Channel with Authentication*  
Y. Cao, Y. Shoshitaishvili, K. Borgolte, C. Kruegel, G. Vigna, Y. Chen  
17<sup>th</sup> International Symposium on Research in Attacks, Intrusions and Defenses (RAID), September 2014
- [C3] *Ten Years of iCTF: The Good, The Bad, and The Ugly*  
G. Vigna, K. Borgolte, J. Corbetta, A. Doupé, Y. Fratantonio, L. Invernizzi, D. Kirat, Y. Shoshitaishvili  
1<sup>st</sup> USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE), August 2014
- [C2] *Relevant Change Detection: A Framework for the Precise Extraction of Modified and Novel Web-based Content as a Filtering Technique for Analysis Engines*  
K. Borgolte, C. Kruegel, G. Vigna  
23<sup>rd</sup> International World Wide Web Conference (WWW), Developer's Track, April 2014
- [C1] *Delta: Automatic Identification of Unknown Web-based Infection Campaigns*  
K. Borgolte, C. Kruegel, G. Vigna  
20<sup>th</sup> ACM Conference on Computer and Communications Security (CCS), November 2013

**Journals**

- [J2] *Cyber Grand Shellphish*  
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, January 2017
- [J1] *What You Submit is Who You Are: A Multi-Modal Approach for Deanonimizing Scientific Publications*  
M. Payer, L. Huang, N. Gong, K. Borgolte, M. Frank  
IEEE Transactions on Information Forensics & Security (TIFS), Volume 10, Issue 1, January 2015

**Magazines**

- [M1] *Mechanical Phish: Resilient Autonomous Hacking*  
Y. Shoshitaishvili, A. Bianchi, K. Borgolte, J. Corbetta, F. Disperati, A. Dutcher, J. Grosen, P. Grosen, A. Machiry, C. Salls, N. Stephens, G. Vigna, R. Wang  
IEEE Security & Privacy, Volume 16, Issue 2, March/April 2018

PUBLICATIONS (CONTINUED)	<b>Talks</b>	
	○ CODEGATE 2017, The Mechanization of Infosec - Automate Everything! (Invited)	<i>April 2017</i>
	○ POC 2016, Opening Keynote on Autonomous Hacking (Invited)	<i>November 2016</i>
	○ Hack.lu 2016, Cyber Grand Shellphish: Shellphish and the DARPA CGC	<i>October 2016</i>
	○ DEFCON 24, Cyber Grand Shellphish: Shellphish and the DARPA CGC	<i>August 2016</i>
AWARDS	<b>DARPA Cyber Grand Challenge</b>	
	○ 3 <sup>rd</sup> Place (1 <sup>st</sup> Place Self-funded Teams, 1 <sup>st</sup> Place Academic Teams)	<i>August 2016</i>
	<b>Outstanding Graduate Student Award</b>	
	○ Department of Computer Science, University of California, Santa Barbara	<i>May 2016</i>
	<b>Ph.D. Student Progress Award</b>	
	○ Department of Computer Science, University of California, Santa Barbara	<i>March 2014</i>
	<b>Best Reviewer Award</b>	
	○ 10 <sup>th</sup> Graduate Student Workshop on Computing (GSWC)	<i>March 2016</i>
	○ 9 <sup>th</sup> Graduate Student Workshop on Computing (GSWC)	<i>October 2014</i>
	COMMUNITY SERVICE	<b>Program Committee Memberships</b>
○ 38 <sup>th</sup> IEEE International Conference on Distributed Computing Systems (ICDCS)		<i>July 2018</i>
○ 17 <sup>th</sup> ACM Internet Measurement Conference (IMC) (Shadow PC)		<i>November 2017</i>
○ 10 <sup>th</sup> USENIX Workshop on Cyber Security Experimentation and Test (CSET)		<i>August 2017</i>
○ 1 <sup>st</sup> Intl. Conference on Advances in Cyber-Technologies and Cyber-Systems (CYBER)		<i>October 2016</i>
○ 10 <sup>th</sup> Graduate Student Workshop on Computing (GSWC) (Program Chair)		<i>March 2016</i>
○ 9 <sup>th</sup> Graduate Student Workshop on Computing (GSWC)		<i>October 2014</i>
<b>External Reviewer</b>		
○ 15 <sup>th</sup> Conf. on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA)		<i>June 2018</i>
○ 26 <sup>th</sup> USENIX Security Symposium (USENIX Security)		<i>August 2017</i>
○ 1 <sup>st</sup> IEEE European Symposium on Security and Privacy (EuroS&P)		<i>March 2016</i>
○ 22 <sup>nd</sup> ACM Conference on Computer and Communications Security (CCS)		<i>October 2015</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>
RESEARCH AND PROFESSIONAL EXPERIENCE	<b>Graduate Student Researcher at University of California, Santa Barbara</b>	<i>since September 2013</i>
	Department of Computer Science, Computer Security Group	
	<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>	<i>February 2012 – September 2013</i>
	Department of Computer Science, Computer Security Group	
	<b>Research Assistant at ETH Zurich</b>	<i>August 2011 – July 2012</i>
	Department of Management, Technology and Economics, Chair of System Design	
	<b>Research at University of Bonn</b>	<i>January – September 2009</i>
Department of Computer Science, Chair of Communication Systems		

TEACHING EXPERIENCE	<p><b>University of California, Santa Barbara</b>  Department of Computer Science, Computer Security Group</p> <ul style="list-style-type: none"> <li>○ Organization of the International Capture the Flag Competition (iCTF) <span style="float: right;"><i>since March 2013</i></span></li> <li>○ Teaching Assistant in Compilers, CS 160 <span style="float: right;"><i>January – March 2016</i></span></li> </ul> <p><b>University of Bonn</b>  Department of Computer Science, Chair of Communication Systems</p> <ul style="list-style-type: none"> <li>○ Teaching Assistant in Computer Architecture, BA-INF 023 <span style="float: right;"><i>April – September 2010</i></span></li> <li>○ Teaching Assistant in Systems Programming, BA-INF 034 <span style="float: right;"><i>October 2009 – March 2010</i></span></li> </ul>
MENTORING EXPERIENCE	<p><b>University of California, Santa Barbara</b>  Department of Computer Science, Computer Security Group</p> <ul style="list-style-type: none"> <li>○ Mentoring of three high-school students through the Research Mentorship Program <span style="float: right;"><i>June – July 2016</i></span></li> </ul>
MEDIA COVERAGE	<p><b>Online</b></p> <ul style="list-style-type: none"> <li>○ WIRED: Hackers Don't Have to Be Human Anymore. This Bot Battle Proves It <span style="float: right;"><i>August 5, 2016</i></span></li> <li>○ Christian Science Monitor: With the drama but not the bruises [...] <span style="float: right;"><i>August 5, 2016</i></span></li> <li>○ Yahoo Finance: These grad students want to make history by crushing the world's hackers <span style="float: right;"><i>August 4, 2016</i></span></li> <li>○ The Guardian: These engineers are developing artificially intelligent hackers <span style="float: right;"><i>March 3, 2016</i></span></li> <li>○ CNN: Are bank hackers creating a global shipping empire? <span style="float: right;"><i>February 19, 2016</i></span></li> <li>○ Schneier on Security: Analyzing Reshipping Mule Scams <span style="float: right;"><i>November 4, 2015</i></span></li> <li>○ The Standard Deviant: #13 - Kevin Borgolte on money mule scams and credit card fraud <span style="float: right;"><i>October 27, 2015</i></span></li> <li>○ Slashdot: Study: \$1.8 Billion In Reshipping Fraud With Stolen Cards Each Year <span style="float: right;"><i>September 28, 2015</i></span></li> <li>○ Krebs on Security: With Stolen Cards, Fraudsters Shop to Drop <span style="float: right;"><i>September 15, 2015</i></span></li> <li>○ Network World: DARPA's \$4M cyber-threat clash down to seven challengers <span style="float: right;"><i>July 8, 2015</i></span></li> </ul>
INVITED EVENTS	<p><b>Judge at WCTF 2016 (Belluminar)</b>, Beijing, China <span style="float: right;"><i>June 2016</i></span></p> <p><b>Google Ph.D. Student Summit on Web Application Security</b>, Munich, Germany <span style="float: right;"><i>April 2016</i></span></p>
EXTRACURRICULAR ACTIVITIES	<p><b>Security-relevant Bug Bounties and Reports (selected)</b></p> <ul style="list-style-type: none"> <li>○ United Airlines: Disclosed a medium severity bug, 100,000 miles bug bounty (\$2,000). <span style="float: right;"><i>February 2018</i></span></li> <li>○ United Airlines: Disclosed a medium severity bug, 250,000 miles bug bounty (\$5,000). <span style="float: right;"><i>February 2017</i></span></li> <li>○ United Airlines: Disclosed a medium severity bug, 250,000 miles bug bounty (\$5,000). <span style="float: right;"><i>July 2016</i></span></li> <li>○ United Airlines: Disclosed a medium severity bug, 250,000 miles bug bounty (\$5,000). <span style="float: right;"><i>March 2016</i></span></li> <li>○ AndroidID-18417850: Guest mode leaks content of notifications when in sensitive mode. <span style="float: right;"><i>November 2014</i></span></li> </ul> <p><b>Open Source Contributions (selected)</b></p> <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> <p><b>Capture the Flag Competitions, Computer Security</b>  I am a member of the Capture the Flag team Shellphish. Before joining Shellphish, I was a member of team gn00bz.</p>