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United States of America

THREE-LINER Ph.D. candidate at the University of California, Santa Barbara; Researching large-scale abuse on the Internet, web-based security, automatic vulnerability discovery/exploitation, and cybercrime; Member of Shellphish, and DARPA Cyber Grand Challenge 3rd place winner (1st place academic and 1st place self-funded teams).

RESEARCH INTERESTS Data-driven security; Web-based threats (infection vectors and campaigns); Large-scale abuse, underground economy, and cybercrime; Software and system security, specifically automatic vulnerability discovery, exploitation, and mitigation, with a focus on algorithmic complexity (denial-of-service) attacks; Economics and development life cycles of vulnerability markets; 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, particularly for the use in proactive and detection systems; Fraud and vulnerabilities in cryptocurrencies.

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

- PhD candidate
- Main area of study: Computer and Information Security
- Advisors:
 - Professor Dr. Christopher Kruegel
 - Professor Dr. Giovanni Vigna
- Committee:
 - Professor Dr. Christopher Kruegel
 - Professor Dr. Giovanni Vigna
 - Professor Dr. Ben Zhao, The University of Chicago

Master of Science ETH (M.Sc. ETH), Computer Science *September 2010 – September 2012*
Swiss Federal Institute of Technology Zurich (ETH Zurich), Switzerland

- Main area of study: Information Security
- Thesis: *Identification of Web-Based Infection Vectors*
- Advisors:
 - Professor Dr. Srdjan Capkun (Srđan Čapkun)
 - Professor Dr. Christopher Kruegel, University of California, Santa Barbara

Bachelor of Science (B.Sc.), Computer Science *October 2007 – September 2010*
University of Bonn, Germany

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

Conferences

- *Enumerating Active IPv6 Hosts for Large-scale Security Scans via DNSSEC-signed Reverse Zones*
K. Borgolte, S. Hao, T. Fiebig, G. Vigna
39th IEEE Symposium on Security and Privacy (Oakland), May 2018 (accepted)
- *In rDNS We Trust: Revisiting a Common Data-Source's Reliability*
T. Fiebig, K. Borgolte, S. Hao, C. Kruegel, G. Vigna, A. Feldmann
19th Passive and Active Measurement Conference (PAM), March 2018 (accepted)
- *Cloud Strife: Mitigating the Security Risks of Domain Validated Certificates*
K. Borgolte, T. Fiebig, S. Hao, C. Kruegel, G. Vigna
24th Network and Distributed System Security Symposium (NDSS), February 2018
- *Something From Nothing (There): Collecting Global IPv6 Datasets From DNS*
T. Fiebig, K. Borgolte, S. Hao, C. Kruegel, G. Vigna
18th Passive and Active Measurement Conference (PAM), March 2017
- *Drops for Stuff: An Analysis of Reshipping Mule Scams*
S. Hao, K. Borgolte, N. Nikiforakis, G. Stringhini, M. Egele, B. Krebs, G. Vigna
22nd ACM Conference on Computer and Communications Security (CCS), October 2015
- *Meerkat: Detecting Website Defacements through Image-based Object Recognition*
K. Borgolte, C. Kruegel, G. Vigna
24th USENIX Security Symposium (USENIX Security), August 2015
Finalist for the Facebook Internet Defense Prize 2015
- *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
17th International Symposium on Research in Attacks, Intrusions and Defenses (RAID), September 2014
- *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
1st USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE), August 2014
- *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
23rd International World Wide Web Conference (WWW), Developer's Track, April 2014
- *Delta: Automatic Identification of Unknown Web-based Infection Campaigns*
K. Borgolte, C. Kruegel, G. Vigna
20th ACM Conference on Computer and Communications Security (CCS), November 2013

Journals

- *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
- *What You Submit is Who You Are: A Multi-Modal Approach for Deanonymizing 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

- *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 – Special Issue on Hacking without Humans (accepted)

PUBLICATIONS (CONTINUATION)	Talks	
	○ 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	DARPA Cyber Grand Challenge	
	○ Third Place (First Place Self-funded Teams, First Place Academic Teams)	<i>August 2016</i>
	Outstanding Graduate Student Award	
	○ Department of Computer Science, University of California, Santa Barbara	<i>May 2016</i>
	Best Reviewer Award	
	○ 10 th Graduate Student Workshop on Computing (GSWC)	<i>March 2016</i>
	○ 9 th Graduate Student Workshop on Computing (GSWC)	<i>October 2014</i>
	PhD Student Progress Award	
	○ Department of Computer Science, University of California, Santa Barbara	<i>March 2014</i>
COMMUNITY SERVICE	Program Committee Memberships	
	○ 38 th IEEE International Conference on Distributed Computing Systems (ICDCS)	<i>July 2018</i>
	○ 17 th ACM Internet Measurement Conference (IMC) (Shadow PC)	<i>November 2017</i>
	○ 10 th USENIX Workshop on Cyber Security Experimentation and Test (CSET)	<i>August 2017</i>
	○ 1 st Intl. Conference on Advances in Cyber-Technologies and Cyber-Systems (CYBER)	<i>October 2016</i>
	○ 10 th Graduate Student Workshop on Computing (GSWC) (Program Chair)	<i>March 2016</i>
	○ 9 th Graduate Student Workshop on Computing (GSWC)	<i>October 2014</i>
	External Reviewer	
	○ 26 th USENIX Security Symposium (USENIX Security)	<i>August 2017</i>
	○ 1 st IEEE European Symposium on Security and Privacy (EuroS&P)	<i>March 2016</i>
	○ 22 nd ACM Conference on Computer and Communications Security (CCS)	<i>October 2015</i>
	Journal Reviewer	
	○ Journal of Information Security and Applications (Elsevier)	<i>March 2017</i>
University Committees and Service		
○ 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	Graduate Student Researcher at University of California, Santa Barbara	<i>since September 2013</i>
	Department of Computer Science, Computer Security Group	
	Research Intern at Microsoft Research	<i>June – September 2015</i>
	Research Consultant for Oneconsult AG	<i>January – February 2015</i>
	Research Consultant for Lastline Inc.	<i>July – September 2013</i>
	Visiting Research Scholar at University of California, Santa Barbara	<i>February 2012 – September 2013</i>
	Department of Computer Science, Computer Security Group	
	Research Assistant at ETH Zurich	<i>August 2011 – July 2012</i>
	Department of Management, Technology and Economics, Chair of System Design	
Research at University of Bonn	<i>January – September 2009</i>	
Department of Computer Science, Chair of Communication Systems		

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