





Aravind Machiry

AFFILIATION	Ph.D. Candidate in Computer Security, University of California Santa Barbara		
CONTACT INFORMATION	University of California, Santa Barbara Department of Computer Science 2104 Harold Frank Hall Santa Barbara, CA 93106-5110 United States of America	machiry@cs.ucsb.edu machiry.github.io machiry machiry.msdc	   
RESEARCH INTERESTS	My research focuses on various aspects of system security, such as vulnerability detection, mobile security, trusted execution environments, static and dynamic analysis of source code, and binaries. I am also interested in developing novel static/dynamic program analysis techniques for system security problems.		
POSITIONS & EDUCATION	Ph.D in Computer Science University of California, Santa Barbara, USA Advisors: Giovanni Vigna, and Christopher Kruegel Thesis: Securing smart devices from the bottom-up Supported by: Symantec Research Labs Graduate Fellowship UCSB Graduate Division Dissertation Fellowship	2014-2020 (Expected)	
	Visiting Researcher University of Maryland, College Park, USA Advisor: Micheal Hicks Project: Automatically converting legacy code to Checked C	Jun 2019-Sep 2019	
	Research Intern Symantec Research Labs (SRL), LA, USA Advisor: Daniel Marino Project: Interactive static vulnerability detection	Jun 2018-Sep 2018	
	Graduate Research Assistant University of California, Santa Barbara, USA Advisors: Giovanni Vigna, and Christopher Kruegel	Sep 2014-Present	
	Software Security Engineer Qualcomm, R&D, USA Project: Static type checkers to find multiple address space vulnerabilities	2013-2014	
	M.S in Information Security Georgia Institute of Technology, Atlanta, USA Advisor: Mayur Naik Thesis: Dynodroid: Automated testing of Smartphone Apps	2011-2013	
HONORS & AWARDS	<ul style="list-style-type: none">• CSAW Applied Research Finalist for DIFUZE• Internet Defense Prize Runner up for DR.CHECKER• Distinguished Paper Award for Ramblr• Best Paper Award for CLAPP• Distinguished Artifact Award for Dynodroid• College of Computing MS Research award	CSAW 2017 USENIX Security 2017 NDSS 2017 Grad Workshop 2016 FSE 2013 2013	
PUBLICATIONS	<p>[21] Aravind Machiry, N. Redini, E. Cammellini, C. Kruegel and G. Vigna. "SPIDER: Enabling Fast Patch Propagation in Related Software Repositories." <i>Proceedings of the 41st IEEE Symposium on Security and Privacy (S&P)</i>, 2020</p> <p>[20] N. Redini, Aravind Machiry, R. Wang, C. Spensky, A. Continella Y. Shoshitaishvili, C. Kruegel and G. Vigna. "KARONTE: Detecting Insecure Multi-binary Interactions in Embedded Firmware." <i>Proceedings of the 41st IEEE Symposium on Security and Privacy (S&P)</i>, 2020</p>		

- [19] **Aravind Machiry**, H. Touma, R. Chen, M. Hicks. "(POSTER) Automated conversion of legacy code to Checked C." *Proceedings of the IEEE Secure Development Conference (SecDev)*, 2019
- [18] E. Gustafson, M. Muench, C. Spensky, N. Redini, **Aravind Machiry**, Y. Fratantonio, D. Balzarotti, A. Francillon, Y. E. Choe, C. Kruegel, G. Vigna. "Toward the Analysis of Embedded Firmware through Automated Re-hosting." *Proceedings of the 22nd International Symposium on Research in Attacks, Intrusions and Defenses (RAID)*, 2019
- [17] N. Redini, R. Wang, **Aravind Machiry**, Y. Shoshitaishvili, C. Kruegel and G. Vigna. "BinTrimmer: Towards Static Binary Debloating Through Abstract Interpretation." *Proceedings of the 16th International Conference on Detection of Intrusions and Malware, and Vulnerability Assessment (DIMVA)*, 2019
- [16] **Aravind Machiry**, N. Redini, E. Gustafson, H. Aghakhani, C. Kruegel and G. Vigna. "Detecting Deceptive Reviews using Generative Adversarial Networks." *Proceedings of the 2nd Binary Analysis Research Workshop (BAR)*, 2019.
- [15] **Aravind Machiry**, N. Redini, E. Gustafson, Y. Fratantonio, Y. E. Choe, C. Kruegel and G. Vigna. "Using Loops For Malware Classification Resilient to Feature-unaware Perturbations." *Proceedings of the 34th Annual Application Security Application Conference (ACSAC)*, 2018
- [14] H. Aghakhani, **Aravind Machiry**, S. Nilizadeh, C. Kruegel and G. Vigna. "Detecting Deceptive Reviews using Generative Adversarial Networks." *Proceedings of the 1st Deep Learning and Security Workshop (DLS)*, 2018.
- [13] A. Bianchi, Y. Fratantonio, **Aravind Machiry**, C. Kruegel, G. Vigna, S. Chung, W. Lee. "Broken Fingers: On the Usage of the Fingerprint API in Android." *Proceedings of the ISOC Network and Distributed System Security Symposium (NDSS)*, 2018.
- [12] A. Bianchi, K. Borgolte, J. Corbetta, F. Disperati, A. Dutcher, J. Grosen, P. Grosen, **Aravind Machiry**, C. Salls, N. Stephens, G. Vigna, R. Wang (Authors listed alphabetically). "Mechanical Phish: Resilient Autonomous Hacking." *IEEE Security & Privacy Magazine - SPSI: Hacking without Humans* 2018.
- [11] N. Redini, **Aravind Machiry**, D. Das, Y. Fratantonio, A. Bianchi, E. Gustafson, Y. Shoshitaishvili, C. Kruegel, G. Vigna. "BootStomp: On the Security of Bootloaders in Mobile Devices." *Chaos Communication Congress (34C3)*, 2017.
- [10] J. Corina, **Aravind Machiry**, C. Salls, Y. Shoshitaishvili, Shuang Hao, C. Kruegel, and G. Vigna. "DI-FUZZING Android Kernel Drivers." *Black Hat Europe London, UK December (BH EU)*, 2017.
- [9] J. Corina, **Aravind Machiry**, C. Salls, Y. Shoshitaishvili, Shuang Hao, C. Kruegel, and G. Vigna. "DI-FUZZE: Interface Aware Fuzzing for Kernel Drivers." *Proceedings of the 24th ACM Conference on Computer and Communications Security (CCS)*, 2017.
- [8] **Aravind Machiry**, C. Spensky, J. Corina, N. Stephens, C. Kruegel, G. Vigna. "DR.CHECKER: A Soundy Analysis for Linux Kernel Drivers." *Proceedings of the 26th USENIX Security Symposium (USENIX Security)*, 2017.
- [7] N. Redini, **Aravind Machiry**, D. Das, Y. Fratantonio, A. Bianchi, E. Gustafson, Y. Shoshitaishvili, C. Kruegel, G. Vigna. "BootStomp: On the Security of Bootloaders in Mobile Devices." *Proceedings of the 26th USENIX Security Symposium (USENIX Security)*, 2017.
- [6] **Aravind Machiry**, E. Gustafson, C. Spensky, C. Salls, N. D. Stephens, R. Wang, A. Bianchi, Y. E. Choe, C. Kruegel, G. Vigna. "BOOMERANG: Exploiting the Semantic Gap in Trusted Execution Environments." *Proceedings of the ISOC Network and Distributed System Security Symposium (NDSS)*, 2017.
- [5] R. Wang, Y. Shoshitaishvili, A. Bianchi, **Aravind Machiry**, J. Grosen, P. Grosen, C. Kruegel, G. Vigna. "Ramblr: Making Reassembly Great Again." *Proceedings of the ISOC Network and Distributed System Security Symposium (NDSS)*, 2017.
- [4] A. Bianchi, K. Borgolte, J. Corbetta, F. Disperati, A. Dutcher, J. Grosen, P. Grosen, **Aravind Machiry**, C. Salls, N. Stephens, G. Vigna, R. Wang (Authors listed alphabetically). "Cyber Grand Shellphish." *Phrack*, 2017.

[3] Y. Fratantonio, **Aravind Machiry**, A. Bianchi, C. Kruegel, G. Vigna. “CLAPP: Characterizing Loops in Android Applications.” *Proceedings of the ACM Symposium on Foundations of Software Engineering (FSE)*, **2015**.

[2] Y. Fratantonio, **Aravind Machiry**, A. Bianchi, C. Kruegel, G. Vigna. “CLAPP: Characterizing Loops in Android Applications (Invited Talk).” *Proceedings of the International Workshop on Software Development Lifecycle for Mobile (DeMobile)*, **2015**.

[1] **Aravind Machiry**, R. Tahiliani, M. Naik. “Dynodroid: An Input Generation System for Android Apps.” *Proceedings of the ACM Symposium on Foundations of Software Engineering (FSE)*, **2013**.

TALKS	• Unleashing D on Android Kernel Drivers	Nullcon 2018
	• Piston: Uncooperative Remote Runtime Patching	ACSAC 2018
	• Cyber Grand Shellphish	DEFCON, USA, 2016
	• Million Dollar Baby: Towards ANGRly conquering DARPA CGC	Nullcon 2016

PROFESSIONAL ACTIVITIES	Conferences	
	• Program Committee Member, Shadow PC	S&P 2018
	• External Reviewer	USENIX 2017
	• External Reviewer	NDSS 2016
	Journals	
	• Reviewer, Artificial Intelligence Review	2018
	• Reviewer, Journal of Information Security and Applications	2018
	• Reviewer, Journal of Information and Software Technology	2017

TEACHING	Teaching Assistant, CS8 - Introduction to Computer Science	Summer 2018
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REFERENCES	Christopher Kruegel Professor at University of California, Santa Barbara chris@cs.ucsb.edu ✉	Giovanni Vigna Professor at University of California, Santa Barbara vigna@cs.ucsb.edu ✉
	Mayur Naik Professor at University of Pennsylvania mhnaik@cis.upenn.edu ✉	Michael Hicks Professor at University of Maryland, College Park mwh@cs.umd.edu ✉