

# **2015 10th International Conference on Malicious and Unwanted Software (MALWARE 2015)**

**Fajardo, USA**  
**20 – 22 October 2015**



IEEE Catalog Number: CFP1559F-POD  
ISBN: 978-1-4673-8472-8

**Copyright © 2015 by the Institute of Electrical and Electronic Engineers, Inc  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\*This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1559F-POD
ISBN (Print-On-Demand):	978-1-4673-8472-8
ISBN (Online):	978-1-5090-0319-8

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

---

## **Session 1 – Broad Spectrum Malware, Defense Strategies and Mechanisms**

<b>Using Inherent Command and Control Vulnerabilities to Halt DDoS Attacks .....</b>	<b>3</b>
<i>Lanier Watkins, Kurt Silberberg, Jose Andre Morales and William H. Robinson</i>	

<b>Deep Neural Network based Malware Detection using Two Dimensional Binary Program Features .....</b>	<b>11</b>
<i>Joshua Saxe and Konstantin Berlin</i>	

<b>Run-Time Classification of Malicious Processes using System Call Analysis .....</b>	<b>21</b>
<i>Raymond Canzanese, Spiros Mancoridis and Moshe Kam</i>	

## **Session 2 – Broad Spectrum Malware, Defense Strategies and Mechanisms**

<b>Variant: A Malware Similarity Testing Framework .....</b>	<b>31</b>
<i>Jason Upchurch and Xiaobo Zhou</i>	

<b>A Framework for Empirical Evaluation of Malware Detection Resilience Against Behavior Obfuscation .....</b>	<b>40</b>
<i>Sebastian Banescu, Tobias Wüchner, Aleieldin Salem, Marius Guggenmos, Martín Ochoa and Alexander Pretschner</i>	

<b>Automatically Combining Static Malware Detection Techniques .....</b>	<b>48</b>
<i>David De Lille, Bart Coppens, Daan Raman and Bjorn De Sutter</i>	

## **Session 3 – Mechanisms and Strategies to Thwart Attacks**

<b>Segmented Sandboxing – A Novel Approach to Malware Polymorphism Detection .....</b>	<b>59</b>
<i>Fernando C. Colón Osorio, Hongyuan Qiu and Anthony Arrott</i>	

<b>Sandboxing and Reasoning on Malware Infection Trees .....</b>	<b>69</b>
<i>Krishnendu Ghosh, Jose Andre Morales, William Casey and Bud Mishra</i>	

<b>Covert Remote Syscall Communication at Kernel Level: A SPOOKY Backdoor .....</b>	<b>74</b>
<i>Florian Kerber, Dominik Teubert and Ulrike Meyer</i>	

<b>Gorille Sniffs Code Similarities, The Case Study of Qwerty versus Regin .....</b>	<b>82</b>
<i>Guillaume Bonfante, Jean-Yves Marion and Fabrice Sabatier</i>	

## **Session 4 – The Measurement Problem: Inherent Limitations of Current Measurement Frameworks**

<b>Measuring the Information Security Risk in an Infrastructure .....</b>	<b>93</b>
<i>Ferenc Leitold, Kálmán Hadarics, Eszter Oroszi and Krisztina Győrffy</i>	
<b>Measuring the Health of Antivirus Ecosystems .....</b>	<b>101</b>
<i>Fanny Lalonde Lévesque, Anil Somayaji, Dennis Batchelder and José M. Fernandez</i>	
<b>Stealthy Malware Traffic – Not as Innocent as It Looks .....</b>	<b>110</b>
<i>Xingsi Zhong, Yu Fu, Lu Yu, Richard Brooks and G. Kumar Venayagamoorthy</i>	

## **Session 5 – Mechanisms and Strategies to Detect Mobile Malware**

<b>GroddDroid: A Gorilla for Triggering Malicious Behaviors .....</b>	<b>119</b>
<i>A. Abraham, R. Andriatsimandefitra, A. Brunelat, J.-F. Lalande and V. Viet Triem Tong</i>	
<b>Clustering Android Malware Families by Http Traffic .....</b>	<b>128</b>
<i>Marco Aresu, Davide Ariu, Mansour Ahmadi, Davide Maiorca and Giorgio Giacinto</i>	
<b>Targeted DoS on Android: How to Disable Android in 10 Seconds or Less .....</b>	<b>136</b>
<i>Ryan Johnson, Mohamed Elsabagh, Angelos Stavrou and Vincent Sritapan</i>	
<b>Counterfeit Mobile Devices – The Duck Test .....</b>	<b>144</b>
<i>John O'Brien and Kimmo Lehtonen</i>	