2013 IEEE Conference on Communications and Network Security

(CNS 2013)

Washington, DC, USA 14-16 October 2013



IEEE Catalog Number: CFP13CNM-POD ISBN:

978-1-4799-0894-3

Program

2013 IEEE Conference on Communications and Network Security (CNS)

Cognitive Radio Security

	Dynamic Adaptive Anti-Jamming via Controlled Mobility	
	Xiaofan He (North Carolina State University, USA), Huaiyu Dai (NC State University, USA),	
	Peng Ning (North Carolina State University, USA)	
	PHY-Layer Authentication by Introducing Controlled Inter Symbol Interference Vireshwar Kumar (Virginia Tech, USA), Jung-Min Park (Virginia Polytechnic Institute and State	
	University, USA), T. Charles Clancy (Virginia Tech, USA), Kaigui Bian (Peking University, P.R.	
	China)	1
	Secure Cooperative Spectrum Sensing in Cognitive Radio Networks Using Interference	
	Signatures	
	Seunghyun Choi (University of Michigan, USA), Kang G. Shin (University of Michigan, USA)	1
	Competing Mobile Network Game: Embracing Antijamming and Jamming Strategies with Reinforcement Learning	
	Youngjune L Gwon (Harvard University, USA), Siamak Dastangoo (MIT Lincoln Lab, USA), Carl E. Fossa (MIT Lincoln Laboratory, USA), Ht Kung (Harvard University, USA)	2
	T -dominance: Prioritized Defense Deployment for BYOD Security	
	Wei Peng (Indiana University-Purdue University Indianapolis, USA), Feng Li (Indiana	
	University-Purdue University Indianapolis, USA), Keesook J Han (Air Force Research Laboratory, USA), Xukai Zou (School of Science, Purdue University-Indianapolis, USA), Jie Wu	
	(Temple University, USA)	3
Internet	Security I	
	On the Impact of Social Botnets for Spam Distribution and Digital-influence Manipulation	
	Jinxue Zhang (Arizona State University, USA), Rui Zhang (University of Hawaii at Manoa,	
	USA), Yanchao Zhang (Arizona State University, USA), Guanhua Yan (Los Alamos National Laboratory, USA)	4
	NOMAD: Towards Non-Intrusive Moving-Target Defense against Web Bots	
	Shardul Vikram (Texas A&M University, USA), Chao Yang (Texas A&M University, USA), Guofei Gu (Texas A&M University, USA)	5
	Gangs of the Internet: Towards Automatic Discovery of Peer-to-Peer Communities	
	Liyun Li (Polytechnic Institute of NYU, USA), Suhas Mathur (AT&T Labs, USA), Baris Coskun (AT&T Labs, Security Research Center, USA)	6
	A Game-Theoretic Approach for Deceiving Remote Operating System Fingerprinting	
	Mohammad Ashiqur Rahman (University of North Carolina at Charlotte, USA), Mohammad	
	Hossein Manshaei (University of North Carolina Charlotte, Switzerland), Ehab Al-Shaer	_
	(University of North Carolina Charlotte, USA)	/
	Leveraging the Crowds to Disrupt Phishing	•
	Jason Gustafson (University of Oregon, USA), Jun Li (University of Oregon, USA)	8
Security	and Privacy in Emerging Networks	
Occurry	and I fivacy in Emerging Networks	
	Low-Complexity Secure Protocols to Defend Cyber-Physical Systems Against Network Isolation Attacks	
	Dong-Hoon Shin (Arizona State University, USA), Jinkyu Koo (Purdue University, USA), Lei	
	Yang (Arizona State University, USA), Xiaojun Lin (Purdue University, USA), Saurabh Bagchi (Purdue University, USA), Junshan Zhang (Arizona State University, USA)	c

	Secure Pervasive Social Networking based on Multi-Dimensional Trust Levels	
	Zheng Yan (Aalto University, Finland), Mingjun Wang (Xidian University, P.R. China), Valtteri Niemi (University of Turku, Finland), Raimo Kantola (Aalto University, Finland)	100
	A Vulnerability Study of Geographic Routing in Underwater Acoustic Networks	
	Michael Zuba (University of Connecticut, USA), Michael Fagan (University of Connecticut,	
	USA), Jun-Hong Cui (University of Connecticut, USA), Zhijie Shi (University of Connecticut, USA)	109
	Privacy-preserving Revocable Content Sharing in Geosocial Networks	
	Linke Guo (University of Florida, USA), Chi Zhang (University of Science of Technology of China, P.R. China), Yuguang Fang (University of Florida, USA)	118
	Towards Self-Healing Smart Grid via Intelligent Local Controller Switching under Jamming	
	Hongbo Liu (Stevens Institute of Technology, USA), Yingying Chen (Stevens Institute of	
	Technology, USA), Mooi Choo Chuah (Lehigh University, USA), Jie Yang (Oakland University, USA)	127
Security a	nd Privacy in Cloud Computing	127
	Certificateless Public Auditing for Data Integrity in the Cloud	
	Boyang Wang (Xidian University, P.R. China), Baochun Li (University of Toronto, Canada), Hui	
	Li (Xidian University, P.R. China), Fenghua Li (Xidian University, P.R. China)	136
	Secure and Constant Cost Public Cloud Storage Auditing with Deduplication	
	Jiawei Yuan (University of Arkansas at Little Rock, USA), Shucheng Yu (University of Arkansas at Little Rock, USA)	145
	A Cooperative Botnet Profiling and Detection in Virtualized Environment	
	Shun-Wen Hsiao (Academia Sinica, Taiwan), Yi-Ning Chen (National Taiwan University, Taiwan), Yeali S. Sun (National Taiwan University, Taiwan), Meng Chang Chen (Academia	154
	Sinica, Taiwan)	154
	Gang Xu (Iowa State University, USA), George T Amariucai (Iowa State University, USA),	
	Yong Guan (Iowa State University, USA)	163
	CloudSafe: Securing Data Processing within Vulnerable Virtualization Environments in the Cloud	
	Huijun Xiong (Virginia Tech, USA), Qingji Zheng (University of Texas at San Antonio, USA), Xinwen Zhang (Samsung, USA), Danfeng Yao (Virginia Tech, USA)	172
	Aniwen Zhang (Samsung, OSA), Dameng Tao (Virginia Tech, OSA)	1/2
Informatio	n Theoretical Security	
	Francy Efficient Coows Crown Key Assessment for Ad Hos Nativerly	
	Energy-Efficient, Secure Group Key Agreement for Ad Hoc Networks Thomas R Halford (TrellisWare Technologies, Inc., USA), Thomas Courtade (Stanford	
	University, USA), Keith M Chugg (University of Southern California, USA)	181
	Privacy-Preserving Item-Based Collaborative Filtering Using Semi-Distributed Belief Propagation	
	Jun Zou (Georgia Institute of Technology, USA), Arash Einolghozati (Georgia Tech, USA), Faramarz Fekri (Georgia Institute of Technology, USA)	189
	Exponential Secrecy Against Unbounded Adversary using Joint Encryption and Privacy Amplification	
	Yahya Khiabani (Louisiana State University, USA), Shuangqing Wei (Louisiana State University, USA)	198
	On the Secrecy Capacity of the Space-Division Multiplexed Fiber Optical Communication Systems	
	Kyle C Guan (Bell Labs, Alcatel-Lucent, USA), Peter Winzer (Lucent Technologies, USA), Emina Soljanin (Bell Labs, Alcatel - Lucent, USA), Antonia Tulino (Bell Labs, USA)	207
	Efficient Codes for Limited View Adversarial Channels	
	Reihaneh Safavi-Naini (University of Calgary, Canada), Pengwei Wang (University of Calgary, Canada)	215

Internet Security II

	Fragmentation Considered Poisonous, or: One-Domain-to-Rule-them-All.ORG	
	Amir Herzberg (Bar-Ilan University, Israel), Haya Shulman (Bar Ilan University, Israel)	224
	Secure Hierarchical Virtual Private LAN Services for Provider Provisioned Networks	
	Madhusanka Liyanage (University of Oulu, Finland), Mika Ylianttila (University of Oulu, Finland), Andrei Gurtov (Aalto University, Finland)	233
	Byzantine Robustness, Hierarchy, and Scalability	
	Radia Perlman (Intel Laboratories, USA), Charlie Kaufman (Microsoft, USA)	242
	A Viewable E-voting Scheme for Environments with Conflict of Interest	
	Huian Li (Purdue University Indianapolis, USA), Yan Sui (Purdue University Indianapolis, USA), Wei Peng (Indiana University-Purdue University Indianapolis, USA), Xukai Zou (School of Science, Purdue University-Indianapolis, USA), Feng Li (Indiana University-Purdue University Indianapolis, USA)	251
	Efficient Random Route Mutation Considering Flow and Network Constraints	
	Qi Duan (University of North Carolina at Charlotte, USA), Ehab Al-Shaer (University of North Carolina Charlotte, USA), Jafar Haadi Jafarian (CyberDNA, UNC Charlotte, USA)	260
Wireless N	letwork Security	
	EasyScale: Easy Mapping for Large-Scale Network Security Experiments	
	Wei-Min Yao (Purdue University, USA), Sonia Fahmy (Purdue University, USA), Jiahong Zhu (Purdue, USA)	269
	A Moving Target Defense Mechanism for MANETs Based on Identity Virtualization	
	Massimiliano Albanese (George Mason University, USA), Alessandra De Benedictis (University of Naples Federico II, Italy), Sushil Jajodia (George Mason University, USA), Kun Sun (George Mason University, USA)	278
	Identifying High-Cardinality Hosts from Network-wide Traffic Measurements	
	Yang Liu (Iowa State University, USA), Wenji Chen (Iowa State University, USA), Yong Guan (Iowa State University, USA)	287
	LISA: Location Information ScrAmbler for Privacy Protection on Smartphones	
	Zhigang Chen (University of Michigan, USA), Xin Hu (IBM Research, USA), Xiaoen Ju (University of Michigan, Ann Arbor, USA), Kang G. Shin (University of Michigan, USA)	296
	A Passive Technique for Fingerprinting Wireless Devices with Wired-side Observations	
	Selcuk Uluagac (Georgia Institute of Technology, USA), Sakthi Vignesh Radhakrishnan (Georgia Institute of Technology, USA), Cherita L Corbett (Johns Hopkins University Applied Physics Lab, USA), Antony Baca (JHUAPL, USA), Raheem Beyah (Georgia Institute of Technology, USA)	305
Intrusion [Detection	
	Scalable Hardware Monitors to Protect Network Processors from Data Plane Attacks	
	Kekai Hu (University of Massachusetts Amherst, USA), Harikrishnan Chandrikakutty (University of Massachusetts, USA), Russell Tessier (University of Massachusetts, USA), Tilman Wolf (University of Massachusetts, USA)	314
	Using Instruction Sequence Abstraction for Shellcode Detection and Attribution	
	Ziming Zhao (Arizona State University, USA), Gail-Joon Ahn (Arizona State University, USA)	323
	Limitations to Threshold Random Walk Scan Detection and Mitigating Enhancements	
	Peter Mell (National Institute of Standards and Technology, USA), Richard Harang (ICF	
	International, USA)	332
	Harvesting Unique Characteristics in Packet Sequences for Effective Application Classification	
	Zhenlong Yuan (Tsinghua University, P.R. China), Yibo Xue (Tsinghua university, P.R. China), Yingfei Dong (University of Hawaii, USA)	341

IEEE CNS 2013 - Poster Session: IEEE Conference on Communications and Network Security 2013 - Poster Session

Poster Session

Simulating Attack Behaviors in Enterprise Networks	
Stephen Moskal (Rochester Institute of Technology, USA), Derek Kreider (Rochester Institute of Technology, USA), Lydia Hays (Rochester Institute of Technology, USA), Ben Wheeler (Rochester Institute of Technology, USA), Shanchieh Jay Yang (Rochester Institute of Technology, USA), Michael Kuhl (Rochester Institute of Technology, USA)	359
Performance of Interval-based Features for Anomaly Detection in Network Traffic	
Kriangkrai Limthong (The Graduate University for Advanced Studies (Sokendai), Japan)	361
ISP Traceback - Attack Path Detection	
Björn Stelte (Universität der Bundeswehr München, Germany)	363
DNSSEC: Security and Availability Challenges	
Amir Herzberg (Bar-Ilan University, Israel), Haya Shulman (Bar Ilan University, Israel)	365
Provenance of Exposure: Identifying Sources of Leaked Documents	
Christian Collberg (Arizona University, USA), Aaron Gibson (Arizona University, USA), Amir Herzberg (Bar-Ilan University, Israel), Sam Martin (Arizona University, USA), Nitin Shinde (Arizona University, USA), Haya Shulman (Bar Ilan University, Israel)	367
FADEC: Fast Authentication for Dynamic Electric Vehicle Charging	
Hongyang Li (University of Illinois at Urbana-Champaign, USA), György Dán (KTH, Royal Institute of Technology, Sweden), Klara Nahrstedt (University of Illinois, USA)	369
Cloud of Secure Elements, Perpectives for Mobile and Cloud Applications Security	
Pascal Urien (Télécom ParisTech, France)	371
Privacy-Preserving Handover Mechanism in 4G	
Hasen Nicanfar (The University of British Columbia, Canada), Javad Hajipour (The University of British Columbia, Canada), Farshid Agharebparast (University of British Columbia, Canada), Peyman TalebiFard (The University of British Columbia, Canada), Victor CM Leung (The University of British Columbia, Canada)	373
Design and Implementation of a Skype Protocol Analyzer	
Ray-Guang Cheng (National Taiwan University of Science and Technology, Taiwan), Chia- Liang Lian (National Taiwan University of Science and Technology, Taiwan), Ping-Chen Lin (National Taiwan University of Science and Technology, Taiwan), Po-Yao Tsai (National Taiwan University of Science and Technology, Taiwan), Tse-Han Liu (National Taiwan University of Science and Technology, Taiwan), Hsien-Cheng Chou (National Taiwan University, Taiwan), Shiao-Li Tsao (National Chiao Tung University, Taiwan), Shanchieh Jay Yang (Rochester Institute of Technology, USA)	375
S-Match: An Efficient Privacy-preserving Profile Matching Scheme	
Xiaojing Liao (Georgia Institute of Technology, USA), Selcuk Uluagac (Georgia Institute of Technology, USA), Raheem Beyah (Georgia Institute of Technology, USA)	377
A Novel Detection Scheme for Malicious Nodes in Smart Meter System	
Hong Wen (UESTC, P.R. China), Yixin Jiang (University of Waterloo, Canada)	379
Dynamic Control for Cooperative Jamming with a Non-altruistic Node	
Yunus Sarikaya (Sabanci University, Turkey), Ozgur Ercetin (Sabanci University, Turkey), Ozgur Gurbuz (Sabanci University, Turkey)	381
The Security Issue of WSNs Based on Cloud Computing	
Hong Wen (UESTC, P.R. China), Yixin Jiang (University of Waterloo, Canada)	383

Locating Tor hidden services through an interval-based traffic-correlation attack Juan Elices (University of New Mexico, USA), Fernando Pérez-González (University of Vigo, Spain)	385
Characterization of the Dynamics and Interactions of Domain Names and Name Server Mansurul Bhuiyan (IUPUI, USA), Aziz Mohaisen (Verisign Labs, USA), Yannis Labrou (Verisign, Inc., USA)	387
Sequential Modeling for Obfuscated Network Attack Action Sequences	
Haitao Du (Rochester Institute of Technology, USA), Shanchieh Jay Yang (Rochester Institute of Technology, USA)	389
User-adaptive Energy-aware Security for Mobile Devices	
Sriram Sankaran (University at Buffalo, USA), Ramalingam Sridhar (University at Buffalo, USA)	391
Providing context-based security for inter-organizational electronic business processes	
Maurizio Talamo (University of Rome Tor Vergata and Nestor Laboratory, Italy), Franco Arcieri (Nestor Laboratory, University of Rome Tor Vergata, Italy), Christian Schunck (Nestor Laboratory, University of Rome Tor Vergata, Italy), Andrea Callia D'Iddio (Tor Vergata	
University of Rome, Italy)	393
A P2P Recommended Trust Nodes Selection Algorithm Based on Topological Potential	205
Hong Wen (UESTC, P.R. China), Yixin Jiang (University of Waterloo, Canada)	395
Secure Zones: an Attribute-Based Encryption Advisory System for Safe Firearms	
Marcos Portnoi (University of Delaware, USA), Chien-Chung Shen (University of Delaware, USA)	397
ADAM: Automated Detection and Attribution of Malicious Webpages	
Ahmed E. Kosba (University of Maryland, College Park, USA), Aziz Mohaisen (Verisign Labs, USA), Andrew West (University of Pennsylvania, USA), Trevor Tonn (Verisign, USA)	399
Maintaining Trajectory Privacy in Mobile Wireless Sensor Networks	
Osman Kiraz (Sabanci University, Turkey), Albert Levi (Sabanci University, Turkey)	401
An Architecture for Supervising COTS Products	
Robert Koch (Universität der Bundeswehr München, Germany), Mario Golling (Universität der Bundeswehr München, Germany), Gabi Dreo Rodosek (Universität der Bundeswehr München, Germany)	403
Location-Aware Sign-on and Key Exchange using Attribute-Based Encryption and Bluetooth Beacons	
Marcos Portnoi (University of Delaware, USA), Chien-Chung Shen (University of Delaware, USA)	405
Babble: Identifying Malware by Its Dialects	
Aziz Mohaisen (Verisign Labs, USA), Omar Alrawi (Qatar Foundation, USA), Andrew West (University of Pennsylvania, USA), Allison Mankin (U.S. National Science Foundation, USA)	407
Attracting Sophisticated Attacks to Secure Systems: A new Honeypot Architecture	
Robert Koch (Universität der Bundeswehr München, Germany), Mario Golling (Universität der Bundeswehr München, Germany), Gabi Dreo Rodosek (Universität der Bundeswehr München, Germany)	409
NICE: Network Introspection by Collaborating Endpoints	
Darrell Kienzle (Symantec, USA), Nathan S. Evans (Symantec, USA), Matthew C. Elder (Symantec, USA)	411
An Efficient and Secure Search Database Scheme for Cloud Computing in Smart Grid	
Yixin Jiang (University of Waterloo, Canada), Xiaobin Guo (EPRI, China Southern Power Grid Co. Ltd., P.R. China), Chao Li (Tsinghua University, P.R. China), Hong Wen (UESTC, P.R. China), Lei Cai (Yunnan YundianTongfang Technology Co. Ltd, P.R. China), Rui Zhang	
(Yunnan Power Grid Corporation, P.R. China)	413

SafeConfig 2013: 6th Symposium on Security Analytics and Automation 2013

Secure Configuration & Architecture

Safe Configuration of TLS Connections	
Michael Atighetchi (BBN Technologies, USA), Nathaniel Soule (BBN Technologies, USA), Partha Pal (BBN Technologies, USA), Joseph P. Loyall (BBN Technologies, USA), Asher Sinclair (Air Force Research Laboratory, USA), Robert Grant (AFRL, USA)	415
A secure architecture design based on application isolation, code minimization and randomization	
Aditi Gupta (Purdue University, USA), Michael Kirkpatrick (James Madison University, USA), Elisa Bertino (Purdue University, USA)	423
Security Analytics and Risk and Mitigation	
Wireless Spreading of WiFi APs Infections using WPS Flaws: an Epidemiological and Experimental Study	
Amirali Sanatinia (Northeastern University, USA), Sashank Narain (Northeastern University, USA), Guevara Noubir (Northeastern University, USA)	430
Discovering emergent norms in security logs	
Olgierd Pieczul (IBM / University College Cork, Ireland), Simon Foley (University College Cork, Ireland)	
Challenge Tracing and Mitigation under Partial Information and Uncertainty	
Christian Doerr (Delft University of Technology, The Netherlands)	446
Avoiding Inconsistencies in the Security Content Automation Protocol	
William Michael Fitzgerald (University College Cork, Ireland), Simon Foley (University College Cork, Ireland)	454
A Framework for Risk-Aware Role Based Access Control	
Khalid Bijon (University of Texas at San Antonio, USA), Ram Krishnan (University of Texas at San Antonio, USA), Ravi Sandhu (University of Texas at San Antonio, USA)	462
Metrics and Specification Method	
Objective Metrics for Firewall Security: A Holistic View	
Mohammed Noraden Alsaleh (UNC Charlotte, USA), Saeed Al-Haj (University of North Carolina Charlotte, USA), Ehab Al-Shaer (University of North Carolina Charlotte, USA)	470
Aggregated Representations and Metrics for Scalable Flow Analysis	
Jérôme François (University of Luxembourg, Luxemburg), Radu State (University of Luxembourg, Luxemburg), Thomas Engel (University of Luxemburg, Luxemburg)	478
Specification Method for Analyzing Fine Grained Network Security Mechanism Configurations	
Hicham EL Khoury (University Paul Sabatier, Lebanon), Romain Laborde (Université Paul Sabatier, France), François Barrère (Université Paul Sabatier, France), Abdelmalek Benzekri (Université Paul Sabatier, France), Maroun Chamoun (Saint Joseph University Beirut,	
Lebanon)	483

CNS-SPCC 2013: 4th International Workshop on Security and Privacy in Cloud Computing 2013

Technical Session I

A Cloud Computing Based Architecture for Cyber Security Situation Awareness	
Wei Yu (Towson University, USA), Guobin Xu (Towson University, USA), Zhijiang Chen (Towson University, USA), Paul Moulema (Towson University, USA)	488
Looking at the Overheads of Transmitting Encrypted Data to the Cloud	
Yufeng Wang (Temple University, USA), Chiu C. Tan (Temple University, USA)	493
Rootkit Detection on Virtual Machines through Deep Information Extraction at Hypervisor level	
Xiongwei Xie (University of North Carolina at CHARLOTTE, USA), Weichao Wang (University of North Carolina at Charlotte, USA)	498
Keynote II and Technical Session II	
Computing Encrypted Cloud Data Efficiently under Multiple Keys	
Boyang Wang (Xidian University, P.R. China), Ming Li (Utah State University, USA), Sherman S. M. Chow (Chinese University of Hong Kong, Hong Kong), Hui Li (Xidian University, P.R. China)	504
Cloud-assisted Access Privacy and Auditability for Electronic Health Data	
Yue Tong (University of Tennessee, USA), Jinyuan (Stella) Sun (University of Tennessee, USA), Sherman S. M. Chow (Chinese University of Hong Kong, Hong Kong), Pan Li (Mississippi State University, USA)	514
Flexible and Publicly Verifiable Aggregation Query for Outsourced Databases in Cloud	
Jiawei Yuan (University of Arkansas at Little Rock, USA), Shucheng Yu (University of Arkansas at Little Rock, USA)	520