## Contents

### Mobile Security I

**AppShield: Enabling Multi-entity Access Control Cross Platforms for Mobile App Management** ......................................................... 3

Zhengyang Qu, Guanyu Guo, Zhengyue Shao, Vaibhav Rastogi, Yan Chen, Hao Chen, and Wangjun Hong


Dong Shen, Zhangkai Zhang, Xuhua Ding, Zhoujun Li, and Robert Deng

**Exploiting Android System Services Through Bypassing Service Helpers** ......... 44

Yacong Gu, Yao Cheng, Lingyun Ying, Yemian Lu, Qi Li, and Purui Su

**Secure Keyboards Against Motion Based Keystroke Inference Attack** ......... 63

Shaoyong Du, Yue Gao, Jingyu Hua, and Sheng Zhong

### Network Security

**Cloud-Based Privacy-Preserving Parking Navigation Through Vehicular Communications** ......................................................... 85

Jianbing Ni, Kuan Zhang, Xiaodong Lin, Yong Yu, and Xuemin (Sherman) Shen

**TruSDN: Bootstrapping Trust in Cloud Network Infrastructure** .............. 104

Nicolaes Paladi and Christian Gehrmann

**Key Update at Train Stations: Two-Layer Dynamic Key Update Scheme for Secure Train Communications** .................................. 125

Sang-Yoon Chang, Shaoying Cai, Hwajeong Seo, and Yih-Chun Hu

**Faulty Node Repair and Dynamically Spawned Black Hole Search** ........ 144

Wei Shi, Mengfei Peng, Jean-Pierre Corriveau, and William Lee Croft

### Applied Cryptography

**Attribute-Based Encryption with Granular Revocation** ........................ 165

Hui Cui, Robert H. Deng, Xuhua Ding, and Yingjiu Li

**Tokenisation Blacklisting Using Linkable Group Signatures** ................. 182

Assad Umar, Iakovos Gurulian, Keith Mayes, and Konstantinos Markantonakis
Privacy-Preserving Multi-pattern Matching ................................. 199
  Tao Zhang, Xiuhua Wang, and Sherman S.M. Chow

Parallel and Dynamic Structured Encryption .............................. 219
  Russell W.F. Lai and Sherman S.M. Chow

**ATCS Workshop - Session 1**

Secure IoT Using Weighted Signed Graphs ............................. 241
  Pinaki Sarkar and Morshed Uddin Chowdhury

A Multi-protocol Security Framework to Support Internet of Things .... 257
  Biplob R. Ray, Morshed U. Chowdhury, and Jemal H. Abawajy

Tinder Me Softly – How Safe Are You Really on Tinder? ............. 271
  Mark Carman and Kim-Kwang Raymond Choo

Biometric Authentication Using Facial Recognition ..................... 287
  Mozammel Chowdhury, Junbin Gao, and Rafiqul Islam

Platform as a Service (PaaS) in Public Cloud: Challenges and Mitigating Strategy .......................... 296
  Fidel Ikundi, Rafiqul Islam, and Peter White

**ATCS Workshop - Session 2**

Architecture Support for Controllable VMI on Untrusted Cloud ........ 307
  Jiangyong Shi and Yuexiang Yang

IacCE: Extended Taint Path Guided Dynamic Analysis of Android Inter-App Data Leakage .......................... 317
  Tianjun Wu and Yuexiang Yang

A Multi-layer Model to Detect Spam Email at Client Side ............ 334
  Kamini (Simi) Bajaj

**Cloud Security**

Access Control Management for Secure Cloud Storage ................ 353
  Enrico Bacis, Sabrina De Capitani di Vimercati, Sara Foresti,
  Stefano Paraboschi, Marco Rosa, and Pierangela Samarati

Attribution of Economic Denial of Sustainability Attacks in Public Clouds . 373
  Mohammad Karami and Songqing Chen
A Secure and Fast Dispersal Storage Scheme Based on the Learning with Errors Problem .......................... 392

Ling Yang, Fuyang Fang, Xianhui Lu, Wen-Tao Zhu, Qiongxiao Wang, Shen Yan, and Shiran Pan

ase-PoW: A Proof of Ownership Mechanism for Cloud Deduplication in Hierarchical Environments .......................... 412

Lorena González-Manzano, Jose Maria de Fuentes, and Kim-Kwang Raymond Choo

Web Security and Privacy

Website Forensic Investigation to Identify Evidence and Impact of Compromise .......................... 431

Yuta Takata, Mitsuaki Akiyama, Takeshi Yagi, Takeshi Yada, and Shigeki Goto

SecWeb: Privacy-Preserving Web Browsing Monitoring with w-Event Differential Privacy .......................... 454

Qian Wang, Xiao Lu, Yan Zhang, Zhibo Wang, Zhan Qin, and Kui Ren

A Behavioral Biometrics Based Approach to Online Gender Classification. . . 475

Nicolas Van Balen, Christopher T. Ball, and Haining Wang

Unique on the Road: Re-identification of Vehicular Location-Based Metadata .......................... 496

Zheng Xiao, Cheng Wang, Weili Han, and Changjun Jiang

System Security

BINDNN: Resilient Function Matching Using Deep Learning .......................... 517

Nathaniel Lageman, Eric D. Kilmer, Robert J. Walls, and Patrick D. McDaniel

TZ-SSAP: Security-Sensitive Application Protection on Hardware-Assisted Isolated Environment .......................... 538

Yanhong He, Xianyi Zheng, Ziyuan Zhu, and Gang Shi

SQLite Forensic Analysis Based on WAL .......................... 557

Yao Liu, Ming Xu, Jian Xu, Ning Zheng, and Xiaodong Lin

Impact of Environment on Branch Transfer of Software .......................... 575

Jianming Fu, Yan Lin, and Xu Zhang
## Mobile Security II

<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>DroidClassifier: Efficient Adaptive Mining of Application-Layer Header for Classifying Android Malware</td>
<td>597</td>
</tr>
<tr>
<td>Zhiqiang Li, Lichao Sun, Qiben Yan, Witawas Srisa-an, and Zhenxiang Chen</td>
<td></td>
</tr>
<tr>
<td>GreatEatlon: Fast, Static Detection of Mobile Ransomware</td>
<td>617</td>
</tr>
<tr>
<td>Chengyu Zheng, Nicola Dellarocca, Niccolò Andronio, Stefano Zanero, and Federico Maggi</td>
<td></td>
</tr>
<tr>
<td>Data Flow Analysis on Android Platform with Fragment</td>
<td>637</td>
</tr>
<tr>
<td>Yongfeng Li, Jinbin Ouyang, Shanqing Guo, and Bing Mao</td>
<td></td>
</tr>
<tr>
<td>Alde: Privacy Risk Analysis of Analytics Libraries in the Android Ecosystem</td>
<td>655</td>
</tr>
<tr>
<td>Xing Liu, Sencun Zhu, Wei Wang, and Jiqiang Liu</td>
<td></td>
</tr>
</tbody>
</table>

## Hardware Security

<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>FROPUF: How to Extract More Entropy from Two Ring Oscillators in FPGA-Based PUFs</td>
<td>675</td>
</tr>
<tr>
<td>Qinglong Zhang, Zongbin Liu, Cunqing Ma, Changting Li, and Lingchen Zhang</td>
<td></td>
</tr>
<tr>
<td>Extracting More Entropy for TRNGs Based on Coherent Sampling</td>
<td>694</td>
</tr>
<tr>
<td>Jing Yang, Yuan Ma, Tianyu Chen, Jingqiang Lin, and Jiwu Jing</td>
<td></td>
</tr>
<tr>
<td>A Very Compact Masked S-Box for High-Performance Implementation of SM4 Based on Composite Field</td>
<td>710</td>
</tr>
<tr>
<td>Hailiang Fu, Guoqiang Bai, and Xingjun Wu</td>
<td></td>
</tr>
<tr>
<td>Security Analysis of Vendor Customized Code in Firmware of Embedded Device</td>
<td>722</td>
</tr>
<tr>
<td>Muqing Liu, Yuanyuan Zhang, Junru Li, Junliang Shu, and Dawu Gu</td>
<td></td>
</tr>
</tbody>
</table>

## Poster Session

<table>
<thead>
<tr>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSTER: Security Analysis of Personal Unmanned Aerial Vehicles</td>
<td>743</td>
</tr>
<tr>
<td>Peng Chen and Hao Chen</td>
<td></td>
</tr>
<tr>
<td>Modeling User Browsing Activity for Application Layer DDoS Attack Detection</td>
<td>747</td>
</tr>
<tr>
<td>TungNgai Miu, Chenxu Wang, Daniel Xiapu Luo, and Jinhe Wang</td>
<td></td>
</tr>
</tbody>
</table>
POSTER: A Framework for IoT Reprogramming ................................. 751
   Nian Xue, Lulu Liang, Jie Zhang, and Xin Huang

Privacy Preserving Data Classification Using Inner Product Encryption ........................... 755
   Damien Ligier, Sergiu Carpov, Caroline Fontaine, and Renaud Sirdey

POSTER: Location Privacy Using Homomorphic Encryption .............................. 758
   Peizhao Hu and Siyu Zhu

SDNGuardian: Secure Your REST NBIs with API-Grained Permission Checking System ...................................................... 762
   Kailei Ren, Qiang Wei, Zehui Wu, and Qingxian Wang

POSTER: A Novel Wavelet Denoising Method Based on Robust Principal Component Analysis in Side Channel Attacks. ................................. 766
   Juan Ai, Zhu Wang, Xinping Zhou, and Changhai Ou

Exploitation of NetEm Utility for Non-payload-based Obfuscation Techniques Improving Network Anomaly Detection ................................. 770
   Ivan Homoliak, Martin Teknos, Maros Barabas, and Petr Hanacek

POSTER: Non-intrusive Face Spoofing Detection Based on Guided Filtering and Image Quality Analysis ................................. 774
   Fei Peng, Le Qin, and Min Long

Author Index  ............................................................................. 779
Security and Privacy in Communication Networks
12th International Conference, SecureComm 2016,
Guangzhou, China, October 10-12, 2016, Proceedings
Deng, R.; Weng, J.; Ren, K.; Yegneswaran, V. (Eds.)
2017, XV, 781 p. 256 illus., Softcover
ISBN: 978-3-319-59607-5