Xianghang Mi

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Research Overview

My research spans security and network, with a primary focus on cybercrime, and an increasing interest in emerging IoT platforms such as voicec assistant devices. Among those areas, I have a strong preference for previous unknown security problems involving common users as victims or complicits. To understand and address those problems, various techniques will be utilized if necessary, including machine learning, network traffic analysis, data-driven measurement, natural language processing, and human-subject studies. And in general, my research projects aim to publish high-quality research papers, open source datasets and source code, provide real-world products or services, and ultimately improve the awareness and addressing of the security problems.

Education

08/2015 – 05/2019: Indiana University, Bloomington IN
Ph.D. Student, Department of Computer Science, School of Informatics & Computing
Advisors: Professor Feng Qian and Professor XiaoFeng Wang
Research Areas: Cybercrime, IoT security, Network.

09/2009 – 06/2013: Beijing Institute of Technology, Beijing, China
B.S. Degree, Department of Software Engineering
GPA: 85 / 100 (3.5 / 4.5)
Undergraduate Thesis: An FTP server and client on Android platform
Designed and implemented FTP/FTPS client and server software on Android platform.
Won the Excellent Undergraduate Thesis Award in Beijing Institute of Technology.

Work

06/2019 – Now: Facebook, Inc
Research Scientist in Security Infrastructure
Distributed and Continuous Fuzzing Platform

05/2018 – 08/2018: Facebook, Inc
Software engineer intern in Community Integrity
Netowrk entity reputation: understanding, prediction and application.

05/2017 – 07/2017: AT&T Research Lab
Research intern
Automatic onboarding of virtual network functions in cloud platforms
Deploy OpenStack, onboard VNFs and measure bottlenecks during VNF onboarding.

05/2014 – 05/2015: Baidu, Inc
Researcher & Software developer.
Developed the mobile website for Nuomi (Baidu's business-to-team group-buying service).
Engineered user account modules, improved the performance and robustness of the system.

06/2013 – 11/2013: China Asset Management Co., Ltd
Software engineer (web application development).
Developed multiple online payment gateways using Java and PHP.
Provided technical support for several large banks as well as 3rd party payment services.

Selected Publications

Security'19, **Understanding iOS-based Crowdturfing through Hidden UI Analysis**

*Yeonjoon Lee, Xueqiang Wang, Kwangwuk Lee, Xiaojing Liao, XiaoFeng Wang, Tongxin Li, **Xianghang Mi***
To appear in Proceeding of USENIX Security Symposium (Security), 2019.

Oakland'19, **Resident Evil: Understanding Residential IP Proxy as a Dark Service**
***Xianghang Mi**, Xuan Feng, Xiaojing Liao, Baojun Liu, Xiaofeng Wang, Feng Qian, Zhou Li, Sumayah Alrwais, Limin Sun, Ying Liu*
IEEE Symposium on Security and Privacy 2019.

Oakland'19, **Dangerous Skills: Understanding and Mitigating Security Risks of Voice-Controlled Third-Party Functions on Virtual Personal Assistant Systems**
*Nan Zhang, **Xianghang Mi**, Xuan Feng, XiaoFeng Wang, Yuan Tian, Feng Qian.*
IEEE Symposium on Security and Privacy 2019.

NDSS'19, **Cracking the Wall of Confinement: Understanding and Analyzing Malicious Domain Take-downs**, Distinguished Paper Award
*Eihal Alowaisheq, Peng Wang, Sumayah A Alrwais, Xiaojing Liao, XiaoFeng Wang, Tasneem Alowaisheq, **Xianghang Mi**, Siyuan Tang, Baojun Liu*
Network and Distributed System Security Symposium 2019, San Diego, CA.

NDSS'18, **Game of Missuggestions: Semantic Analysis of Search-Autocomplete Manipulations**
*Peng Wang, **Xianghang Mi**, Xiaojing Liao, XiaoFeng Wang, Kan Yuan, Feng Qian, and Raheem Beyah*
Network and Distributed System Security Symposium 2018, San Diego, CA.

IMC'17, **An Empirical Characterization of IFTTT: Ecosystem, Usage, and Performance**
***Xianghang Mi**, Feng Qian, Ying Zhang, and Xiaofeng Wang*
ACM Internet Measurement Conference 2017, London, UK.

Security'17, **Picking Up My Tab: Understanding and Mitigating Synchronized Token Lifting and Spending in Mobile Payment**
*Xiaolong Bai, Zhe Zhou, XiaoFeng Wang, Zhou Li, **Xianghang Mi**, Nan Zhang, Tongxin Li, S. Hu, Kehuan, Zhang*
USENIX Security Symposium 2017, VANCOUVER, BC, CANADA.

Oakland'17, **Under the Shadow of Sunshine: Understanding and Detecting BulletProof Hosting on Legitimate Service Provider Networks**
*Sumayah Alrwais, Xiaojing Liao, **Xianghang Mi**, Peng Wang, XiaoFeng Wang, Feng Qian, Raheem Beyah, Damon McCoy*
IEEE Symposium on Security and Privacy 2017, San Jose, CA.

arXiv'17, **Understanding IoT Security Through the Data Crystal Ball: Where We Are Now and Where We Are Going to Be**
*Nan Zhang, Soteris Demetriou, **Xianghang Mi**, Wenrui Diao, Kan Yuan, Peiyuan Zong, Feng Qian, XiaoFeng Wang, Kai Chen, Yuan Tian, Carl A Gunter, Kehuan Zhang, Patrick Tague, Yue-Hsun Lin*
arXiv preprint, 2017.

CoNEXT'16, **SMig: Stream Migration Extension For HTTP/2**
***Xianghang Mi**, Feng Qian, and XiaoFeng Wang.*
International Conference on emerging Networking EXperiments and Technologies 2016, Irvine, CA.

HONORS AND AWARDS

Student Travel Grant: ACM CoNEXT 2016.

2013 Excellent Undergraduate Thesis Award at Beijing Institute of Technology.

2013 Top 10 of National College Student Innovation and Practice Projects at Beijing Institute of

Technology.

2012 1st Class Prize of Beijing 6th Mechanic and Electronic Innovation Contest.

2010/2011/2012 1st Class Scholarship at Beijing Institute of Technology.

2010 2nd Class Prize of the Asia Info Cup Programming Contest at Beijing Institute of Technology.

2010 National Motivational Scholarship at Beijing Institute of Technology.

PROFESSIONAL SERVICES

Reviewer: IEEE Transaction on Mobile Computing.
External Reviewer: IEEE Security & Privacy 2020, ACM CCS 2019, IEEE INFOCOM 2019, NDSS 2019/2018, IEEE ICDCS 2017, ACM AsiaCCS 2016, BIGCOM 2016.

TEACHING

Guest Lecturer: CSCI P438 (Computer Networks, IU, Fall 2016), CSCI P538 (Advanced Computer Networks, IU, Fall 2016).

SKILLS

Security & Network: TLS(PKI), code analysis, network proxy protocols, cybercrime.
Programming Languages: C/C++, Python, Haskell, PHP, Bash, Javascript.
Artifical Intelligence: Machine Learning, Natural Language Processing.