

# Qiuyu Xiao

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CONTACT INFORMATION	Department of Computer Science, CB 3175 University of North Carolina at Chapel Hill Chapel Hill, NC 27599-3175	qiuyu@cs.unc.edu <a href="https://qyx.me">https://qyx.me</a>
EDUCATION	<b>The University of North Carolina</b> , Chapel Hill, NC, USA  Ph.D. Candidate, Computer Science • Advisor: Dr. Michael K. Reiter  <b>The University of North Carolina</b> , Chapel Hill, NC, USA  M.S., Computer Science • Courses: Algorithm Analysis, Cryptography, Machine Learning, Security of Compute Clouds & Software Defined Networking, Computer Architecture, Distributed Collaborative Systems, Virtualization  <b>Shanghai Jiao Tong University</b> , Shanghai, China  B.S., Computer Science • GPA: 3.85/4.3	Aug. 2014 to present  Aug. 2014 to May. 2016  Sep. 2010 to Jul. 2014
EXPERIENCE	<b>Research Assistant</b> Department of Computer Science, University of North Carolina at Chapel Hill Advisor: Dr. Michael K. Reiter  • Using record and instrumented replay to do low-overhead dynamic taint analysis on multi-threaded x86 binaries. • Designed a cloud service to provide web user personalized pseudo domain name. Aimed to boost user's privacy in an usable and efficient manner. Implemented this service with OpenStack, Open vSwitch, Linux server, and tested it in Cloudlab testbed. • Applied differential privacy algorithm to provably mitigate side-channel attacks, which include timing side channel in virtualized system and storage side channel in Linux. The system was implemented and evaluated in Xen hypervisor and Linux kernel.  <b>Engineering Intern</b> Open vSwitch team, VMware Mentor: Dr. Ben Pfaff  • Designed, implemented, and tested a new tunnel encryption feature on Open vSwitch and Open Virtual Network. Tunneling traffic (VXLAN, STT, Geneve, GRE) between hypervisors is encrypted and integrity protected with IPSec. • This feature was added to Open vSwitch 2.10.9 and deployed in production systems.  <b>Research Intern</b> OSLab, Huawei Technologies Mentor: Dr. Haibo Chen  • Designed a solution to securely livepatch Linux ARM Kernel. The patch is verified and applied by the trusted OS running in TrustZone and can resist Downgrade attack. • The system is implemented with Linux kernel and OPTEE trusted OS, and tested in Hikey development board.	Aug. 2014 to present  May. 2018 to Aug. 2018  May. 2017 to Aug. 2017

## Undergraduate Research Assistant

Jun. 2012 to Jun. 2014

Department of Computer Science,  
Shanghai Jiao Tong University  
Advisor: Dr. Haojin Zhu

- Implemented a static analysis system for detecting privacy leakage in Android.
- Designed a framework in Android to improve location privacy.

## TECHNICAL SKILLS

- **System:** In-depth knowledge of operating system internals. Extensive experience in low-level system development, including Linux kernel, Xen hypervisor, OPTEE trusted OS, and JOS microkernel OS.
- **Networking:** Good understanding on network protocols (TCP/IP, HTTP, TLS, IPSec), web programming framework (Ruby on Rails), anonymous communication (Tor, VPN), and network virtualization (Ryu controller, Open vSwitch, Open Virtual Network).
- **Security:** Hands-on experience in various topics including side-channel security, differential privacy, anonymity, program analysis, encryption protocols, and trusted execution environment (Intel SGX, ARM TrustZone).
- **Programming languages:** C/C++, Python, UNIX shell scripting, Javascript, Java.
- **Tools:** Git, Vim, Wireshark, GDB, Intel Pin

## PUBLICATIONS

1. **Q. Xiao**, M. K. Reiter, and Y. Zhang. "Personalized Pseudonyms for Servers in the Cloud." In *Privacy Enhancing Technologies Symposium*, Jul. 2017.
2. **Q. Xiao**, M. K. Reiter, and Y. Zhang. "Mitigating Storage Side Channels Using Statistical Privacy Mechanisms." In *ACM Conference on Computer and Communication Security*, Oct. 2015.
3. **Q. Xiao**, J. Chen, L. Yu, H. Li, H. Zhu, M. Li, and K. Ren. "POSTER: LocMask: A Location Privacy Protection Framework in Android System." In *ACM Conference on Computer and Communication Security*, Nov. 2014.
4. S. Ma, Z. Tang, **Q. Xiao**, J. Liu, T. T. Duong, X. Lin, and H. Zhu. "Detecting GPS Information Leakage in Android Applications." In *IEEE Global Communications Conference*, Dec. 2013.

## TALKS

- "Encrypting OVN tunnels with IPSec." In Open vSwitch Conference, 2018.
- "Personalized Pseudonyms for Servers in the Cloud." In VMware, 2018.
- "Mitigating Storage Side Channels Using Statistical Privacy Mechanisms." In *ACM Conference on Computer and Communication Security*, 2015.

## PROFESSIONAL SERVICES

- Reviewer, ACM Transactions on Privacy and Security (TOPS)
- Reviewer, ACM Computing Surveys (CSUR)
- Student PC Member, 2018 IEEE Symposium on Security and Privacy (S&P)
- External Reviewer, 2017 ACM Symposium on Operating Systems Principles (SOSP)
- Publicity Chair, 2016 ACM Cloud Computing Security Workshop (CCSW)
- External Reviewer, 2016 IEEE Symposium on Security and Privacy (S&P)
- External Reviewer, 2016 ISOC Network and Distributed System Security Symposium (NDSS)

## AWARDS

- Student Travel Grant, ACM Conference on Computer and Communication Security 2015
- Academic Excellence Scholarship of Shanghai Jiao Tong University 2010-2013

## OTHER ACTIVITIES

- Volunteer, UNC Science Expo 2015, 2016