Mohammad Taha Khan

Contact Information

Department of Computer Science
Washington & Lee University
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Research Interests

Computer Security, Online Privacy, Usable Security, Internet Freedom, Human Computer Interaction, Computer Science Education

Education

PhD in Computer Science — **Jan 2015 - Aug 2020**
University of Illinois at Chicago, IL

- Adviser: Chris Kanich
- Thesis: Enabling Retrospective Management of Data in The Cloud
- Thesis Committee: Ajay Kshemkalyani (UIC); Blase Ur (U Chicago); Chris Kanich (UIC); Narseo Rodriguez (IMDEA/ICSI); Robert Sloan (UIC)

BS in Electrical Engineering — **Aug 2009 - Jun 2013**
Lahore University of Management Sciences, Lahore, Pakistan

- Thesis: An Experimental Platform for a Cooperative Communication Network

Professional Experience

Assistant Professor — **July 2020 - Present**
Department of Computer Science
Washington & Lee University, Lexington, VA

Graduate Assistant — **Jan 2015 - May 2020**
Department of Computer Science
University of Illinois at Chicago, Chicago, IL

Graduate PhD Intern — **Jun 2019 - Aug 2019**
Strategy and Analytics Division
Verisign Labs, Reston, VA

Research Intern — **Jun 2017 - Dec 2017**
International Computer Science Institute (ICSI), Berkeley, CA

Summer Research Intern — **May 2016 - Aug 2016**
NEC Labs America, Princeton, NJ

Research Assistant — **Jul 2013 - May 2014**
Lahore University of Management Sciences, Lahore, Pakistan

Publications

[1] **Blind In/On-Path Attacks and Applications to VPNs**
William J. Tolley, Beau Kujath, **Mohammad Taha Khan**, Narseo Vallina-Rodriguez and Jedidiah R. Crandall. In *Proceedings of the USENIX Security Symposium (**Usenix 21**)*, Vancouver, BC, Canada, August 2021

[2] **Helping Users Automatically Find and Manage Sensitive, Expendable Files in Cloud Storage**

Mohammad Taha Khan Christopher Tran, Shubham Singh, Dimitri Vasilkov, Chris Kanich, Blase Ur and Elena Zheleva. In *Proceedings of the USENIX Security Symposium (**Usenix 21**)*, Vancouver, BC, Canada, August 2021

[3] **Moving Beyond Set-It-And-Forget-It Privacy Settings on Social Media**

Mainack Mondal, Günce Su Yilmaz, Noah Hirsch, **Mohammad Taha Khan**, Michael Tang Christopher Tran, Chris Kanich, Elena Zheleva and Blase Ur. In *Proceedings of the 26th ACM Conference on Computer and Communications Security (**CCS 19**)*, London UK, November 2019

[4] **An Empirical Analysis of the Commercial VPN Ecosystem**

Mohammad Taha Khan, Joe DeBlasio, Geoff Voelker, Alex Snoeren, Chris Kanich and Narseo Rodriguez. In *Proceedings of the ACM SIGCOMM Internet Measurement Conference (**IMC 18**)*, Boston, MA, November 2018

[5] **Making Retrospective Data Management Usable (Poster)**

Noah Hirsch, Chris Kanich, **Mohammad Taha Khan**, Xuefeng Liu, Mainack Mondal, Michael Tang, Christopher Tran, Blase Ur, William Wang, Günce Su Yilmaz and Elena Zheleva. In *Proceedings of the 14th Symposium On Usable Privacy and Security (**SOUPS 18**)*, Baltimore, MD, August 2018

[6] **Integrating Ethics in Cybersecurity Education**

Mohammad Taha Khan, Chris Kanich and Cynthia Taylor. In *Proceedings of the New Approaches to Cybersecurity Education (**NACE 18**)*, New Orleans, LA, June 2018

[7] **Identifying the Need for Longitudinal Data Management in Cloud Storage**

Mohammad Taha Khan, Maria Hyun, Chris Kanich and Blase Ur. In *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (**CHI 18**)*, Montreal, QC, Canada, April 2018

[8] **Old is Still Gold: A Comparison of Cyber and Regular Fraud in the United States**

Mohammad Taha Khan and Chris Kanich. In *Proceedings of the 38th IEEE Symposium on Security and Privacy Workshop on Technology and Consumer Protection (**ConPro 17**)*, San Jose, CA, May 2017

[9] **Sneak Peek: High Speed Covert Channels in Data-Center Networks**

Rashid Tahir, **Mohammad Taha Khan**, Xun Gong, Adnan Ahmed, Amiremad Ghassami, Hasanat Kazmi, Matthew Caesar, Negar Kiyawash and Fareed Zaffar. In *Proceedings of the IEEE Conference on Computer Communications (**INFOCOM 16**)*, San Francisco, CA, April 2016

[10] **High Fidelity, High Risk, High Reward: Using High Fidelity Networking Data in Ethically Sound Research**

Mohammad Taha Khan and Chris Kanich. In *Proceedings of the ACM SIGCOMM Workshop on Ethics in Networked Systems (**NS Ethics 15**)*, London, UK, August 2015

[11] **A Classification Based Framework to Predict Viral Threads**

Hashim Sharif, Saad Ismail, Shehroze Farooqi, **Mohammad Taha Khan**, Muhammad Ali Gulzar, Hasnain Lakhani, Fareed Zaffar and Ahmed Abbasi. In *Proceedings of the Pacific Asia Conference on Information Systems (**PACIS 15**)*, Singapore, July 2015

[12] **Every Second Counts: Quantifying the Negative Externalities of Cybercrime via Typosquatting**

Mohammad Taha Khan, Xiang Huo, Zhou Li and Chris Kanich. In *Proceedings of the 36th IEEE Symposium on Security and Privacy (**IEEE S&P 15**)*, San Jose, CA, May 2015

[13] **Efficient Relaying Strategy Selection and Signal Combining using Error Estimation Codes**

Mohammad Taha Khan, Talha Anwar, Muhammad Kumail Haider and Momin Uppal. In *Proceedings of the IEEE Wireless Communication and Networking Conference (**IEEE WCNC 14**)*, Istanbul, Turkey, April 2014

Teaching Experience

Washington and Lee University

- CSCI 397 - Computer and Network Security — **Fall 2021**
- CSCI 111 - Fundamentals of Programming I — **Fall 2021**
- CSCI 321 - Computer Networks — **Winter 2021**
- CSCI 210 - Computer Organization — **Winter 2021**
- CSCI 112 - Fundamentals of Programming II — **Fall 2020**

University of Illinois at Chicago

Course Instructor

- CS 211 - Programming Practicum — **Summer 2019**

Teaching Assistant

- ECE 294 - Early Research Scholars Program — **Fall 2019**
- CS 494 - Network Security — **Spring 2019**
- CS 341 - Programming Languages Design and Implementation — **Spring 2019**
- CS 450 - Computer Networking — **Spring 2018**

Stony Brook University

Teaching Assistant

- CSE 215 - Foundations of Computer Science — **Fall 2014**

Lahore University of Management Sciences

Teaching Assistant

- CS 473 - Network Security — **Spring 2014**
- CS 471 - Computer Networks: Principles and Practices — **Fall 2013**

Awards and Honors

Illinois Technology Foundation, Fifty For The Future Award — **Jun 2018**

Nominated among the top 50 students across universities and high schools in Illinois contributing towards the field of technology.

Open Technology Fund Information Controls Fellowship — **Jun 2017 - Jun 2018**

Award Amount: $52,900

Received an individual fellowship grant to study the security and privacy of VPN services and develop an accessible toolset to test VPNs.

Graduate Student Fellowship — **Aug 2014**

Award Amount: $5000

Awarded a welcome fellowship at Stony Brook University for being an outstanding first year Ph.D. student.

Talks

1. Retrospective Management of the Cloud
   Guest lecture for CSCI 339 at Washington and Lee University, Lexington, VA, May 2021

2. Blockchain: A Technical Overview
   Guest lecture for BUS 301A 194 at Washington and Lee University, Lexington, VA, May 2021

3. Understanding How VPNs Work
   Guest lecture for ENGR 194 at the University of Illinois at Chicago, Chicago, IL, November 2018

4. An Empirical Analysis of the Commercial VPN Ecosystem
   *ACM Internet Measurement Conference (**IMC '18**)*, Boston, MA, November 2018

5. An End to End Analysis of VPN Services
   *Citizen Lab Summer Institute (**CLSI**)*, Toronto, ON, Canada, Jun 2018

6. Identifying the Need for Longitudinal Data Management in Cloud Storage
   *ACM Conference on Human Factors in Computing Systems (**CHI '18**)*. Montreal, QC, Canada, April 2018

7. Security and Privacy Aspects of VPN Services
   Internship talk at International Computer Science Institute, Berkeley, CA, September 2017

8. A Comparison of Cyber and Regular Fraud in the United States
   *IEEE Symposium on Security and Privacy Workshop on Technology and Consumer Protection (**ConPro '17**)*, San Jose, CA, May 2017

9. Understanding Tenant Level Characteristics in Software Defined Datacenters
   Internship talk at NEC Labs, America, Princeton, NJ, August 2016

10. High Speed Covert Channels in Data-Center Networks
    *IEEE Conference on Computer Communications (**INFOCOM '16**)*, San Francisco, CA, April 2016

11. Using High Fidelity Networking Data in Ethically Sound Research
    *ACM SIGCOMM Workshop on Ethics in Networked Systems (**NSEthics '15**)*, London, UK, August 2015

12. Quantifying the Negative Externalities of Cybercrime via Typosquatting
    *IEEE Symposium on Security and Privacy (**IEEE S&P '15**)*, San Jose, CA, May 2015

Research Community Services

Program Committees

- ACM Internet Measurement Conference (IMC), 2018, *Shadow PC member*

External Reviewer

- ACM Conference on Human Factors in Computing Systems (CHI) Late Breaking Work, 2019, 2020
- ACM Proceedings on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 2018

Technical Skills

Languages: Python, C/C++, Java, Bash, R, x86 Assembly
Data Analytics: Spark, Hadoop, SQL
Networking: Wireshark, TCPdump, NS2, OpenFlow, MiniNet, Bro
Web Technologies: HTML/CSS, JavaScript

Tools: Awk, GDB, WEKA, MATLAB, Git, SVN, Simulink, LaTeX, Microsoft Office

Cloud Platforms: Amazon EC2, Microsoft Azure, Rackspace, Emulab

Penetration Testing: Backtrack, Kali Linux, Metasploit Framework

Other Interests

Social Work: Volunteer for HOPES Kids Foundation Chicago. Fund raiser for 2005 earthquake victims in Pakistan.

Activities: Photography, Skateboarding, Rock Climbing, Swimming

Languages: English (Native), Urdu (Native)