Mohammad Taha Khan

Contact Information

Email: tahak@cmu.edu **Phone:** +1 (631) 790 9553 **Website:** tahakhan.net

Research Interests

Computer and Internet Security; Machine Learning Applications in Security; Usable Security; Human-Computer Interaction; Trustworthy AI; Computer Science Education

Education

Ph.D. in Computer Science **Jan 2015 - Aug 2020**
University of Illinois at Chicago, IL

- Adviser: Chris Kanich
- Thesis: Enabling Longitudinal Privacy and Management of Data in Online Archives
- Committee: Ajay Kshemkalyani (UIC); Blase Ur (U Chicago); Chris Kanich (UIC); Narseo Rodriguez (IMDEA/ICSI); Robert Sloan (UIC)

Bachelor of Science 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

Associate Teaching Professor **Jul 2025 - Present**
Information Networking Institute
Carnegie Mellon University, Pittsburgh, PA

Assistant Professor (Tenure Track) **Jul 2020 - June 2025**
Department of Computer Science
Washington and Lee University (W&L), Lexington, VA

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

Graduate Research 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] **How Accurately Do Large Language Models Understand Code?**
Sabaat Haroon, Ahmad Faraz Khan, Ahmad Humayun, Waris Gill, Haddi Amjad, Ali R. Butt, Mohammad Taha Khan, and Muhammad Ali Gulzar. *arXiv preprint arXiv:2504.04372*, April 2025.

[2] **Examining Leading Pakistani Mobile Apps**
Sana Habib, Mohammad Taha Khan, and Jedidiah R. Crandall. In *Proceedings of Free and Open Communications on the Internet (**FOCI**)*, Washington, D.C., USA, June 2025.

[3] **An Empirical Evaluation of Method Signature Similarity in Java Codebases**
Mohammad Taha Khan, Mohamed Elhussin, Billy Tobin, and Muhammad Ali Gulzar. In *Proceedings of the Asia Service Sciences and Software Engineering Conference (**ASSE '24**)*, Tokyo, Japan, September 2024

[4] **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 30th USENIX Security Symposium (**USENIX '21**)*, Vancouver, BC, Canada, August 2021

[5] **Blind In/On-Path Attacks and Applications to VPNs**
William Tolley, Beau Kujath, **Mohammad Taha Khan**, Narseo Rodriguez and Jedidiah R. Crandall. In *Proceedings of the 30th USENIX Security Symposium (**USENIX '21**)*, Vancouver, BC, Canada, August 2021

[6] **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

[7] **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

[8] **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

[9] **Integrating Ethics in Cybersecurity Education**
Mohammad Taha Khan, Chris Kanich and Cynthia Taylor. In *Proceedings of New Approaches to Cybersecurity Education (**NACE '18**)*, New Orleans, LA, June 2018

[10] **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

[11] **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

[12] **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

[13] **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 (**NSEthics '15**)*, London, UK, August 2015

[14] **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

[15] **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

[16] **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

Carnegie Mellon University
Associate Teaching Professor
- 14-513 - Introduction to Computer Systems — **Fall 25**

Washington and Lee University
Assistant Professor
- CSCI 101 - Survey of Computer Science — **Fall 22**
- CSCI 111 - Introduction to Computer Science — **Fall 21, Winter 23, Fall 24**
- CSCI 112 - Data Structures — **Fall 20, Winter 22, Fall 23**
- CSCI 210 - Computer Organization — **Winter 21, Winter 22, Winter 23**
- CSCI 297 - Systems Programming — **Fall 23**
- CSCI 317 - Database Systems — **Fall 22**
- CSCI 321 - Computer Networks — **Winter 21**
- CSCI 323 - Computer and Network Security — **Fall 21, Fall 24**

Virginia Tech
Adjunct Faculty
- CS-4604 - Introduction to Database Management Systems — **Spring 24, Spring 25**
- CS-4254 - Computer Network Architecture and Programming — **Fall 24**
- CS-3704 - Intermediate Software Design and Engineering — **Spring 25**
- CS-3304 - Comparative Languages — **Summer 23, Summer 24, Summer 25**

University of Illinois at Chicago
Course Instructor
- CS 211 - Programming Practicum — **Summer 19**

Teaching Assistant
- ECE 294 - Early Research Scholars Program — **Fall 19**
- CS 494 - Network Security — **Spring 19**
- CS 341 - Programming Languages Design and Implementation — **Spring 19**
- CS 450 - Computer Networking — **Spring 18**

Stony Brook University
Teaching Assistant
- CSE 215 - Foundations of Computer Science (Discrete Mathematics) — **Fall 14**

Lahore University of Management Sciences
Teaching Assistant
- CS 473 - Network Security — **Spring 14**
- CS 471 - Computer Networks: Principles and Practices — **Fall 13**

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**

Award Amount: $50,400

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

Talks

[1] An Empirical Evaluation of Method Signature Similarity in Java Codebases
*ACM ASSE Conference (**ASSE '24**)*, Tokyo, Japan September 2024

[2] Protecting Users in a Data Driven Internet
Guest talk for Washington and Lee Admissions DIVE program, Lexington, VA, September 2023

[3] Helping Users Automatically Find and Manage Sensitive, Expendable Files in Cloud Storage
*USENIX Security Conference (**USENIX '21**)*, Virtual, August 2021

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

[5] Blockchain: A Technical Overview
Guest lecture for BUS 301A at Washington and Lee University, Lexington, VA, May 2021

[6] Understanding How VPNs Work
Guest lecture for ENGR 194 at the University of Illinois at Chicago, Chicago, IL, November 2018

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

[8] An End to End Analysis of VPN Services
*Citizen Lab Summer Institute (**CLSI**)*, Toronto, ON, Canada, June 2018

[9] 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

[10] Security and Privacy Aspects of VPN Services
Internship talk at International Computer Science Institute, Berkeley, CA, September 2017

[11] 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

[12] Understanding Tenant Level Characteristics in Software Defined Datacenters
Internship talk at NEC Labs, America, Princeton, NJ, August 2016

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

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

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

Professional and Research Service

Service at Washington and Lee University (2020-2025)

- Member of the Student Health Committee.
- Served twice on the CS Department hiring search committee to evaluate faculty candidates.
- Coordinator for CS Department teaching assistants.
- Faculty adviser for the W&L Cybersecurity Club.
- Interviewer for incoming Johnson Scholarship finalists in 2023.
- Director of Publicity for the AFCEA Rockbridge Shenandoah Chapter from 2021-2023.

Program Committees Membership

- Free and Open Communications on the Internet (FOCI), 2026
- ACM Special Interest Group Computer Science Education (SIGCSE), 2024
- IEEE International Conference on Computer Applications & Information Security (ICCAIS), 2020
- ACM Internet Measurement Conference (IMC), 2018, *Shadow PC member*

External Peer Reviewer

- Free and Open Communications on the Internet (FOCI), 2sana habib
- Human-Computer Interaction Journal, 2023
- USENIX Security Symposium, 2019
- ACM Journal on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 2019
- ACM Conference on Human Factors in Computing Systems (CHI) Late Breaking Work, 2019
- Privacy Enhancing Technologies Symposium (PETS), 2018

Student Mentorship

Graduate Students

- Sana Habib (PhD Student at Arizona State University)

W&L Undergraduate Summer Research Scholars

- **Summer 2024:** Nabil Youssef '25
- **Summer 2023:** Bianca Pham '26, James Xia '26 and Sarah Lathrop '25
- **Summer 2022:** Jack Bosco '24 and Mohamed Elhussainy '25
- **Summer 2021:** Billy Tobin '24 and Will Xue '24

W&L AIM Scholars (Diversity Research Experience)

- **Summer 2024:** Allison Beaudeux '28
- **Summer 2023:** Edison Wu '27 and Jaz Walker '27

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

Interests and Skills

Social Work : Volunteer for HOPES Kids Foundation, Chicago

Activities : Photography, Skateboarding, Rock Climbing, Swimming, Vintage Motorcycles

Languages : English (Native), Urdu (Native), Punjabi (Professional Proficiency)

References

Chris Kanich (*University of Illinois at Chicago*) ckanich@uic.edu
Blase Ur (*University of Chicago*) blase@uchicago.edu
Joseph Hummel (*Northwestern University*) joe.hummel@northwestern.edu
Narseo Rodriguez (*IMDEA Institute*) narseo.vallina@imdea.org