

Mohammad Taha Khan

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Research Interests	My research interests span the domain of security and privacy on the Internet. I focus on using empirical methods to understand and evaluate the privacy leakage of the Internet users, socio-technical aspects of cybercrime, human factors in security and Internet censorship.	
Education	Ph.D. in Computer Science University of Illinois at Chicago, Illinois, USA <i>GPA: 4.0/4.0 Adviser: Chris Kanich</i>	Jan 2015 - Present
	Bachelor of Science in Electrical Engineering School of Science and Engineering, LUMS, Lahore, Pakistan <i>GPA: 3.5/4.0 Graduated with High Merit</i>	2009 - 2013
Publications	<p>M. Taha Khan, Joe DeBlasio, Geoff Voelker, Alex Snoeren, Chris Kanich & Narseo Rodriguez, “An Analysis of The Commercial VPN Ecosystem”, <i>ACM IMC '18</i></p> <p>M. Taha Khan, Maria Hyun, Chris Kanich, & Blase Ur, “Forgotten But Not Gone: Identifying the Need for Longitudinal Data Management in Cloud Storage”, <i>ACM CHI '18</i></p> <p>M. Taha Khan, & Chris Kanich “Old is Still Gold : A Comparison of Cyber and Regular Fraud in the United States”, <i>ConPro, IEEE S&P (Oakland) '17</i></p> <p>Rashid Tahir, M. Taha Khan, X. Gong, A. Ahmed, A. Ghassami, H. Kazmi, Matt Caesar, N. Kiyawash & Fareed Zaffar “Sneak Peek: High Speed Covert Channels in Data-Center Networks”, <i>IEEE INFOCOM '16</i></p> <p>M. Taha Khan, & Chris Kanich “High Fidelity, High Risk, High Reward: Using High-Fidelity Networking Data in Ethically Sound Research”, <i>NS Ethics, SIGCOMM '15</i></p> <p>M. Taha Khan, Xiang Huo, Zhou Li, & Chris Kanich “Every Second Counts: Quantifying the Negative Externalities of Cybercrime via Typosquatting”, <i>IEEE S&P (Oakland) '15</i></p> <p>H. Sharif, S. Ismail, S. Farooqi, M. Taha Khan, MA. Gulzar, H. Lakhani, F. Zaffar & A. Abbasi “A Classification Based Framework to Predict Viral Threads”, <i>PACIS '15</i></p> <p>M. Taha Khan, T. Anwar, K. Haider & M. Uppal “Efficient Relaying Strategy Selection and Signal Combining using Error Estimation Codes”, <i>IEEE WCNC '14</i></p>	
Professional Experience	Graduate Research Assistant <i>University of Illinois at Chicago</i>	Jan 2015 - Present
	Research Intern <i>International Computer Science Institute, Berkeley, CA</i> Conducted research on the the privacy and traffic leakage aspects of VPN services.	June 2016 - Dec 2017
	Summer Research Intern <i>NEC Labs, America</i> Performed large scale data analysis on data-center configuration logs to derive routing optimizations for flows and tenant VM placement within datacenters.	May 2016 - Aug 2016
	Graduate Teaching Assistant <ul style="list-style-type: none">CS 450 Computer Networking (<i>University of Illinois at Chicago</i>)CSE 215 Foundations of Computer Science (<i>Stony Brook University</i>)	Fall 2017 Fall 2014

Research Summary

Enabling Long Term Security and Privacy through Retrospective Data Management

With the passage of time, clouds have become more efficient in providing users with boundless capacity and global availability for data. While online storage has its obvious merits, the latent risk of exposing data inadvertently, or to cybercriminals is not well understood. By incorporating multiple user studies, this umbrella project aims to better understand user perceptions of the cloud across the dimensions of storage, sensitivity, and privacy. We also incorporate the use of state of the art machine learning and image classification tools to enable users to perform semi-automated management of their cloud resources.

Evaluating User Privacy and the Transparency of Commercial VPN Services

Commercial Virtual Private Networks (VPNs) play a key role in Internet freedom allowing individuals to achieve privacy, anonymity, and the ability to access geo-restricted content. These services claim certain privacy guarantees, however, there is no way for end users to verify them. Instances of traffic leakage or intentional manipulation by VPNs exposes users to inherent security risks. The project conducts a comprehensive evaluation of the commercial VPN ecosystem. It focuses on the privacy and routing aspects, and uncover the operational details of these services, In addition to the research angle, as a service goal, we plan on publishing our VPN analysis results on a website.

Comparing Cyber and Traditional Fraud in the United States

By partitioning the FTC Consumer Sentinel complaint dataset into cyber and traditional categories, we investigate the differences in fraudulent activity mediated by the Internet with traditional forms of fraud. We summarize the difference in fraud trends across time, distance and location metrics. We also evaluate fraud variations across different ethnic and socioeconomic factors.

Negative Externalities of Cybercrime via Typosquatting

Negative Externalities of Typosquatting domains are one of the most common forms of scams on the Internet. While not all typos might lead to a malicious website, they certainly cause a loss of time and revenue. In this work, we classify different typosquatting websites and quantify the amount of negative externalities associated with each specific category.

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, L^AT_EX, Microsoft Office

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

Penetration Testing : Backtrack, Kali Linux, Metasploit Framework

Communication Skills : Proficient in Spoken English, Strong Presentation Skills, Experience in Research and Technical Report Writing

Achievements

- External Reviewer for PETS 2018
- Information Controls Fellow for 2017, sponsored by the Open Technology Fund
- Receipt of various NSF based travel awards to attend conferences and workshops
- Received the CS Department fellowship at Stony Brook University
- Placed on Dean's honors list during the years (2012-2013) at LUMS
- 1st prize in CASM Mathematics Symposium at LUMS in 2010
- Scholarship for high achievement in the University of Cambridge (CIE) Advanced Levels and Ordinary Levels

Other Interests

- **Social Work:** Volunteer for HOPES Kids Foundation Chicago, Fund raiser and social worker for flood and earthquake victims in Pakistan.
- **Activities:** Photography, Skateboarding, Traveling, Rock Climbing, Swimming
- **Languages:** English (Native), Urdu (Native), Spanish (Basic Proficiency)

References

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Narseo Rodriguez (*International Computer Science Institute*)

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Fareed Zaffar (*LUMS*)

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