Aqsa Kashaf

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EDUCATION

Carnegie Mellon University   Pittsburgh, PA
PhD Student, Electrical And Computer Engineering Department (ECE)   *Aug. 2016 –*
Advisor: Vyas Sekar, Yuvraj Agarwal
Relevant Courses: Network Security (18-731), Introduction to Machine Learning (10-701), Programmable Networks (15-829),
Secure Software Systems (18-732), Network Economics, Advanced Operating Systems (15-712), Sensing and IoT (17-881),
Advanced Topics in Machine Learning and Game Theory (17-759)
LUMS University   Lahore, Pakistan
BS in Computer Science   *Aug. 2012 – May 2016*

PUBLICATIONS

[1] **Protecting Smart Homes from Unintended Application Actions**
Aqsa Kashaf, Vyas Sekar, Yuvraj Agarwal
In *Proceedings of the IEEE/ACM International Conference on Cuber-physical Systems (ICCPS)*, 2022

[2] **Analyzing Third Party Service Dependencies in Modern Web Services: Have We Learned from the Mirai-Dyn Incident?**
Aqsa Kashaf, Vyas Sekar, Yuvraj Agarwal
In *Proceedings of the ACM Internet Measurement Conference (IMC)*, 2020

[3] **Incentivizing censorship measurements via circumvention.**
Aqib Nisar, Aqsa Kashaf, Ihsan Ayyub Qazi, and Zartash Afzal Uzmi
In *Proceedings of the 2018 Conference of the ACM Special Interest Group on Data Communication (SIGCOMM)*, 2018.

[4] **A case for marrying censorship measurements with circumvention.**
Aqib Nisar, Aqsa Kashaf, Zartash Afzal Uzmi, and Ihsan Ayyub Qazi.
In *Proceedings of the 14th ACM Workshop on Hot Topics in Networks (HotNets)*, 2015.

[5] **Mitigating datacenter incast congestion using rto randomization**
Ubaid Ullah Hafeez, Aqsa Kashaf, Aisha Mushtaq, Hassan Zaidi, Ihsan Ayyub Qazi, and Zartash Afzal Uzmi.
In *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, 2015.

RESEARCH EXPERIENCE

Analysing the infrastructure health of websites with a focus on their availability | *On-going*
- Analysing remotely inferable insecure practices or exploitable vulnerabilities in websites infrastructure

Estimating the Resource Constraints of a DDoS Defence System | *Under-review*
- Remote Profiling of the processing capacity of Network Functions deployed in a DDoS Defence System
- Implemented a tool called NFTY to estimate the processing capacity of stateless network functions

Analysing Third Party Service Dependencies| *Published*
- Analysed the prevalence of third-party DNS, CDN and CA dependencies in modern web services
- Studied centralization among service providers

Formal Verification of Smart Home Applications| *Published*
- Designed and developed a formal verification tool for smart home applications to identify safety violations
- Modelled smart home applications using timed automata (TA) and built a parser to translate apps into TA.

Incentivizing Censorship Measurements with Circumvention | *Published*
- Designed and developed a platform to measure censorship in real-time and provide adaptive circumvention.

Mitigating Incast Congestion using RTO Randomization | *Published*
- Studied the impact of MIN_RTO randomization on incast congestion using NS2 simulations

REVIEW EXPERIENCE

Program Committee of Passive and Active Measurement Conference 2022
Shadow Program Committee of IEEE Security and Privacy 2021
Artifact Evaluation of Operating Systems Design and Implementation 2021

TEACHING ASSISTANTSHIP

18-732 Network Security, Carnegie Mellon University, Spring 2021
18-330 Introduction to Computer Security, Carnegie Mellon University, Fall 2018

Technical Skills

Languages: C, C++, Java, MATLAB, Python, Go, Lua, Node.js, Assembly Language, TCL, MySQL, JavaScript, Ruby, HTML, CSS, PHP, UNIX Shell scripts, Groovy, OCaml

Frameworks: Network Simulator (NS2), Docker, Suricata, Snort, Click Router, Rails, OpenGL, Visual Studio, Adobe Illustrator, Adobe Dreamweaver, Proteus, Creo Parametric, Unity(Game Engine)

Honors and Awards

Internet Research Task Force (IRTF) Applied Networking Research Prize	2021
Grace Hopper Celebration (GHC) Scholar	2016
Carnegie Institute of Technology Dean's Fellow	2016
Secured position in LUMS Dean's Honour List	2013,14,15

Extra-Curricular Activities

Member of CMU CyLab Diversity, Equity, Inclusion (DEI) Committee. 2020-Present

President of Pakistani Student Association, CMU, 2019

Director Design, LUMS Science Olympiad, 2014

Director Registrations, LUMS Olympiad, 2014

Volunteer work in LUMS Community Service Society and a trust named FAIDA