Muhammad Asim Jamshed

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Contact Information

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Interests

Networked systems design & implementation, distributed systems, network security and operating systems.

Education

Korea Advanced Institute of Science & Technology (KAIST), Republic of Korea
- PhD, Electrical Engineering (Spring 2017). Advisor – Prof. KyoungSoo Park

University of Pittsburgh, Pittsburgh, Pennsylvania, USA
- MS, Computer Science (Apr 2010). Advisors – Prof. KyoungSoo Park & Prof. Daniel Mossé

Lahore University of Management Sciences, Pakistan
- BSc (Hons), Computer Science, (May 2005).
- Minor in Mathematics

Employment Experience (Selected)

International Computer Science Institute (ICSI), Berkeley, CA
- Research Intern (May 2014-Aug 2014, Oct 2015-Dec 2015). Mentor – Dr. Robin Sommer
- Developed Packet Bricks. See [2] in Projects section.

Palmchip Corporation, Lahore, Pakistan
- Software Engineer (May 2005-July 2006). Mentor – Ahrar Naqvi
- Optimized bootloader & filesystem performances for an system-on-chip network-attached storage device series.

Projects/ Software (Selected)

1. **mOS Stack** (https://github.com/ndsl-kaist/mOS-networking-stack)
   - A Specialized Network Programming Library for Stateful Middleboxes.
   - *Pub:* **NSDI 2017**, *URL:* http://mos.kaist.edu/
2. **Packet Bricks** (https://github.com/bro/packet-bricks)
   - A netmap-based packet layer for distributing and filtering traffic.
3. **mTCP** (https://github.com/eunyoung14/mtcp/)
   - A Highly Scalable User-level TCP Stack for Multicore Systems.
   - **NSDI Community Award 2014**, Runner-up **Samsung HumanTech Paper Award 2014**.
   - *Pub:* **NSDI 2014**, *URL:* http://shader.kaist.edu/mtcp/
4. **Kargus**
   - A Highly-scalable Software-based Network Intrusion Detection System.
   - **"10 Achievements of 2012 that put KAIST on the Spotlight."**
   - *Pub:* **CCS 2012**, *URL:* http://shader.kaist.edu/kargus/

Publications (Selected)

[1] "mOS: A Reusable Networking Stack for Flow Monitoring Middleboxes." NSDI 2017 - **Best Paper Award**
[2] "APUNet: Revitalizing GPU as Packet Processing Accelerator." NSDI 2017
[3] "DFC: Accelerating String Pattern Matching for Network Applications." NSDI 2016
[4] "Haetae: Scaling the Performance of Network Intrusion Detection with Many-core Processors." RAID 2015
[5] "A Case for a Stateful Middlebox Networking Stack." SIGCOMM CCR 2015
[6] "Scaling the Performance of Network Intrusion Detection with Many-core Processors." ANCS 2015 (Poster)
[7] "mTCP: a Highly Scalable User-level TCP Stack for Multicore Systems." NSDI 2014 - **Community Award**
[8] "Kargus: a Highly-scalable Software-based Intrusion Detection System." CCS 2012
[9] "Suppressing Bot Traffic with Accurate Human Attestations." ApSys 2010
[10] "Sentinel: Hardware-Accelerated Mitigation of Bot-Based DDoS Attacks." ICCCN 2008
[11] "In-Network Server-Directed Client Authentication and Packet Classification." LCN 2010

Awards

NSDI Best Paper Award 2017 for mOS
2^{nd} Runner-up Samsung Humantech Paper Award 2016 for DFC
NSDI Community Award 2014 for mTCP
Runner-up Samsung Humantech Paper Award 2014 for mTCP
"10 Achievements of 2012 that put KAIST on the Spotlight" for Kargus
ACM SIGCOMM Travel Grant 2010
Graduate Fellowship Spring 2006
Undergraduate Dean's Honor List 2001-03

Skills

C/C++, Java, C#, Python, CUDA, Lua, Awk, Javascript, Linux shell scripting, HTML, XML, Unix/GNU Linux, x86 Assembly, TILE-Gx programming, LaTeX