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 '17). Advisor – Prof. KyoungSoo Park

University of Pittsburgh, Pittsburgh, Pennsylvania, USA
- MS, Computer Science (Apr '10). Advisors – Prof. KyoungSoo Park & Prof. Daniel Mossé

Lahore University of Management Sciences, Pakistan
- BSc (Hons), Computer Science, (May '05).

Employment Experience (Selected)

Amazon Web Services (AWS), Seattle, WA
- SDE II, EC2 VPC (Aug '20-onwards). Reporting to Mustafa Arisoylu (SDM)

Intel Labs, Intel Jones Farm 2 (JF2), Hillsboro, OR
- Research Scientist, Telco Systems (May '17-Aug '20). Reporting to Christian Maciocco(Sr Principal Engineer)

International Computer Science Institute (ICSI), Berkeley, CA
- Research Intern (May '14-Aug '14, Oct '15-Dec '15). Mentor – Dr. Robin Sommer

Palmchip Corporation, Lahore, Pakistan
- Software Engineer (May '05-July '06). Reporting to Ahrar Naqvi (VP Engineering)

Projects/ Software (Selected)

1. **Aether Project** (https://github.com/omec-project/upf)
   - 4G/5G Control User Plane Separated (CUPS) TS23501 based packet core controlled by PFCP
   - *URL:* https://opennetworking.org/aether/
2. **Omec Project** (https://github.com/omec-project/ngic-rtc)
   - Control User Plane Separated (CUPS) TS23501 based EPC Service & Packet Gateways (SGW, PGW)
   - *URL:* https://www.opennetworking.org/omec/
3. **mOS Stack** (https://github.com/mos-stack/mOS-networking-stack)
   - A Specialized Network Programming Library for Stateful Middelboxes.
   - *Pub:* **NSDI 2017**, *URL:* http://mos.kaist.edu/
4. **Packet Bricks** (https://github.com/zeek/packet-bricks)
   - A netmap-based packet layer for distributing and filtering traffic.
5. **mTCP** (https://github.com/mtcp-stack/mtcp/)
   - A Highly Scalable User-level TCP Stack for Multicore Systems.
   - *Pub:* **NSDI 2014**, *URL:* http://shader.kaist.edu/mtcp/
6. **Kargus**
   - A Highly-scalable Software-based Network Intrusion Detection System.
   - *Pub:* **CCS 2012**, *URL:* http://shader.kaist.edu/kargus/

Publications (Selected)

[1] "AccelTCP: Accelerating Network Applications with Stateful TCP Offloading." NSDI '20
[2] "Reducing Tail Latency via Safe and Simple Duplication." CoNEXT '19
[3] "mOS: A Reusable Networking Stack for Flow Monitoring Middleboxes." NSDI '17 - **Best Paper Award**
[4] "APUNet: Revitalizing GPU as Packet Processing Accelerator." NSDI '17
[5] "DFC: Accelerating String Pattern Matching for Network Applications." NSDI '16
[6] "Haetae: Scaling the Performance of Network Intrusion Detection with Many-core Processors." RAID '15
[7] "mTCP: a Highly Scalable User-level TCP Stack for Multicore Systems." NSDI '14 - **Community Award**
[8] "Kargus: a Highly-scalable Software-based Intrusion Detection System." CCS '12
[9] "Suppressing Bot Traffic with Accurate Human Attestations." ApSys '10
[10] "Sentinel: Hardware-Accelerated Mitigation of Bot-Based DDoS Attacks." ICCCN '08

Awards

ONF OMEC/COMAC Community Award, & Intel Division Recognition Award for Aether & OMEC
NSDI Best Paper Award 2017 for mOS
2^{nd} Runner-up Samsung Humantech Paper Award 2016 for DFC
NSDI Community Award 2014, & Runner-up Samsung Humantech Paper Award 2014 for mTCP
"10 Achievements of 2012 that put KAIST on the Spotlight" for Kargus
Graduate Fellowship Spring 2006, & Undergraduate Dean's Honor List 2001-03

Skills

C/C++, C#, Java, Python, CUDA, Lua, Javascript, HTML/XML, Linux, x86 Assembly, TILE-Gx, Intel DPDK