Hun Namkung

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Research Interest

My research interest lies in the intersection between **network telemetry** and **programmable network devices**. Sketch-based network telemetry system will give network operators far more fine-grained and richer visibility into the network compared to the state-of-the-art sampling-based technique (e.g., NetFlow). My works solve practical problems of sketch deployment in both data and control plane so that sketch-based network telemetry on programmable switches become feasible and practical.

Education

Carnegie Mellon University (CMU), *Pittsburgh, PA.* — Sep '16 - Aug '17, Jan '19 - Present
Ph.D. student, Electrical and Computer Engineering Department
Advisor: Peter Steenkiste and Vyas Sekar

Olin College of Engineering, *Needham, MA.* — Feb '10 - May '10
Exchange Student

Korea Advanced Institute of Science and Technology (KAIST), *Daejeon, South Korea.* — Feb '08 - Jun '16
B.S. in Computer Science

Publication

Sketchovsky: Enabling Ensembles of Sketches on Programmable Switches — NSDI '23
Hun Namkung, Zaoxing Liu, Daehyeok Kim, Vyas Sekar, Peter Steenkiste
In 20th USENIX Symposium on Networked Systems Design and Implementation (NSDI) 2023

SketchLib: Enabling Efficient Sketch-based Monitoring on Programmable Switches — NSDI'22
Hun Namkung, Zaoxing Liu, Daehyeok Kim, Vyas Sekar, Peter Steenkiste
In 19th USENIX Symposium on Networked Systems Design and Implementation (NSDI) 2022

Telemetry Retrieval Inaccuracy in Programmable Switches: Analysis and Recommendations — SOSR'21
Hun Namkung, Daehyeok Kim, Zaoxing Liu, Vyas Sekar, Peter Steenkiste
In Proceedings of the Symposium on SDN Research (SOSR) 2021, published as short paper

Jaqen: A high-performance switch-native approach for detecting and mitigating volumetric ddos attacks with programmable switches — Security'21
Zaoxing Liu, Hun Namkung, Georgios Nikolaidis, Jeongkeun Lee, Changhoon Kim, Xin Jin, Vladimir Braverman, Minlan Yu, and Vyas Sekar
In 30th USENIX Security Symposium (USENIX Security) 2021

Sketchy With a Chance of Adoption: Can Sketch-Based Telemetry Be Ready for Prime Time? — TaPoPf'21
Zaoxing Liu, Hun Namkung, Anup Agarwal, Antonis Manousis, Peter Steenkiste, Srinivasan Seshan, and Vyas Sekar
In 2021 IEEE 7th International Conference on Network Softwarization (NetSoft) 2021

Enabling Automatic Protocol Behavior Analysis for Android Applications — CoNEXT'16
Jeongmin Kim, Hyunwoo Choi, Hun Namkung, Woohyun Choi, Byungkwon Choi, Hyunwook Hong, Yongdae Kim, Jonghyup Lee, and Dongsu Han
In Proceedings of the 12th International on Conference on emerging Networking EXperiments and Technologies (CoNEXT) 2016

Work Experience

Line Corporation, *South Korea.* Oct '17 - Oct '18
Machine Learning Engineer
- Line messenger serves 224M MAUs worldwide

Frankly Co, *San Francisco, CA.* Apr '13 - Aug '14
iOS Developer
- Frankly was a start up company that developed a mobile instant messenger with ephemeral messages

U.S. Army, *Camp Casey, South Korea.* Jun '11 - Mar '13
- As a member of KATUSA (Korean Augmentation To the United States Army) Program

Teaching Experience

Teaching Assistant, Computer Networks (18-441) at CMU Spring '22
Teaching Assistant, Network Security (18-731) at CMU Spring '20
Teaching Assistant, Introduction To Programming (CS101) at KAIST Spring '15

Honor and Awards

Dean's List for Academic Excellence Dec '14

KAIST Academic Excellence Scholarship Dec '14
Top 4 students in computer science department

12th place in 2010 ICPC Korea National Programming Contest Oct '10

10th place in 2009 ICPC Korea National Programming Contest Oct '09

Full Scholarship from KAIST (4 year) Feb '08

Korea Olympiad in Informatics - Bronze Aug '06

Seoul regional contest of Korea Olympiad in Informatics - Gold Jun '06