

Gyuyeong Kim, Ph.D.

gykim08@korea.ac.kr

<https://gyuyeongkim.github.io/>

RESEARCH INTERESTS

Networked systems, Networking support for AI, big data, cloud, and IoT systems

EDUCATION

Ph.D. in Computer Science, Korea University

Mar. 2012 - Feb. 2020

Thesis: Buffer Sharing Mechanisms for Data Center Networks

Advisor: Prof. Wonjun Lee

B.S. in Computer Science, Korea University

Mar. 2008 - Feb. 2012

Interdisciplinary major: Brain and Cognitive Sciences

EMPLOYMENT HISTORY

Research Professor, Future Network Center, Korea University

Mar. 2020 - Present

Lecturer, Department of Information Security, Seoul Women's University

Mar. 2021 - Present

Lecturer, School of Cybersecurity, Korea University

Sept. 2019 - Feb. 2020

RESEARCH GRANTS

가변형 네트워크 디바이스를 활용한 인네트워크 자원 증강 기술

Mar. 2020 - Feb. 2023

In-Network Resource Augmentation utilizing Reconfigurable Network Devices, Young Research Program (신진연구지원사업), NRF, Grant: 294,000,000 KRW

Summary: This project aims at building high performance and reliable computing systems using emerging reconfigurable network devices including programmable switches and SmartNICs.

TEACHING EXPERIENCE

Instructor, Seoul Women's University

IP01024-01 Data Communication and Network (데이터통신및네트워크)

2021S

IP01024-02 Data Communication and Network (데이터통신및네트워크)

2021S

Instructor, Korea University

IMS301 Network Theory (네트워크개론)

2020S

IMS301 Network Theory (네트워크개론)

2019F

Teaching Assistant, Korea University

IMS301 Network Theory (네트워크개론)

2019S, 2018S, 2017F

IMS2012 Network Theory (네트워크개론)

2018 (Summer)

CYDF316 Computer Networks (컴퓨터네트워크)

2016F

CYDF321 Computer Networks (컴퓨터네트워크)

2016S

COSE342 Computer Networks (컴퓨터네트워크)

2015F

CYDF305 Communication Networks (통신네트워크)

2014S

CNCE407 Wireless Mobile Communications (무선통신)

2013S, 2012S

PROFESSIONAL REVIEWER ACTIVITIES

IEEE Transactions on Cloud Computing (TCC)

IEEE Networking Letters

IEEE International Conference on Computer Communications (INFOCOM), 2020

IEEE International Conference on Distributed Computing Systems (ICDCS), 2019

CONFERENCE PUBLICATIONS

1. **Gyuyeong Kim** and Wonjun Lee, "Protocol-Independent Service Queue Isolation for Multi-Queue Data Centers," in *Proc. of the 40th IEEE International Conference on Distributed Computing Systems (ICDCS 2020)*, Singapore, December 2020. (Acceptance rate: 17.98%=105/508, **NRF Top-tier Conference Grade 3**)
2. **Gyuyeong Kim** and Wonjun Lee, "Service Function Chaining on Programmable Data Plane," in *Proc. of the 5th International Conference On Consumer Electronics Asia (ICCE-Asia 2020)*, Busan, South Korea, November 2020.
3. **Gyuyeong Kim** and Wonjun Lee, "Stable Matching with Ties for Cloud-assisted Smart TV Services," in *Proc. of the 14th IEEE International Conference on Consumer Electronics (ICCE 2014)*, Las Vegas, NV, January 2014.
4. **Gyuyeong Kim** and Wonjun Lee, "Cannot Take My Allocation: Enforcing Fairness by Considering Demand and Payment in Clouds," in *Proc. of the 4th International Conference on Network of the Future (NoF 2013)*, Pohang, South Korea, October 2013.
5. **Gyuyeong Kim**, Hoorin Park, Jieun Yu, and Wonjun Lee, "Virtual Machines Placement for Network Isolation in Clouds," in *Proc. of 2012 Research in Applied Computation Symposium (RACS 2012)*, San Antonio, TX, October 2012.

JOURNAL PUBLICATIONS

1. **Gyuyeong Kim** and Wonjun Lee, "LossPass: Absorbing Microbursts by Packet Eviction for Data Center Networks," to appear in *IEEE Transactions on Cloud Computing (TCC)*, Vol. xx, No. xx, pp. xxxx-xxxx, January 2021. (JCR2019 I/F 4.714, **Top 10.19%** in Computer Science, Theory & Methods)
2. **Gyuyeong Kim** and Wonjun Lee, "Enabling Service Queue Isolation in Multi-Tenant Data Centers," *IEEE Communications Letters (CL)*, Vol. 23, No. 11, pp. 1949-1952, November 2019. (JCR2019 I/F 3.419, Top 35.55% in Telecommunications)
3. **Gyuyeong Kim** and Wonjun Lee, "Absorbing Microbursts without Headroom for Data Center Networks," *IEEE Communications Letters (CL)*, Vol. 23, No. 5, pp. 806-809, May 2019. (JCR2019 I/F 3.419, Top 35.55% in Telecommunications)
4. **Gyuyeong Kim** and Wonjun Lee, "Tardy Flow Scheduling in Data Center Networks," *IEICE Transactions on Information and Systems*, Vol. E99-D, No. 9, pp. 2400-2403, September 2016. (JCR2019 I/F 0.449, Top 98.71% in Computer Science, Information Systems)

PATENTS

1. Wonjun Lee and **Gyuyeong Kim**, "Method to Enforce Network Policy with Commodity Multiqueue, Recording Medium and Device for Performing the Method (다중 큐를 지원하는 네트워크 정책 적용 방법, 이를 수행하기 위한 기록 매체 및 장치)," *Korean Patent Registration No. 10-2179769*, November 11, 2020.
2. Wonjun Lee and **Gyuyeong Kim**, "Method for Data Processing (데이터 처리 방법)," *Korean Patent Registration No. 10-2064679*, January 3, 2020.
3. Wonjun Lee and **Gyuyeong Kim**, "Method and Device for Scheduling Flow of Packet for Reducing Delay Time Due To Retransmit of Packet (패킷의 재전송으로 인한 지연을 단축시키기 위한 패킷의 플로우 스케줄링 방법 및 장치)," *Korean Patent Registration No. 10-1841143*, March 16, 2018.

RESEARCH EXPERIENCE

Big Data/AI/Cloud Acceleration with Programmable Networking Hardware

- In-Network Resource Augmentation utilizing Reconfigurable Network Devices, NRF, PI:Dr. Gyuyeong Kim, Korea University Mar. 2020 - Feb. 2023
- Development of Core Technologies for Programmable Switch in Multi-Service Networks, IITP, PI:Prof. Sangheon Park, Korea University Jan. 2017 - Dec. 2020

Intelligent and Autonomous Networking

- aSTEAM: App-Specialized Transport for Evolvability, Autonomicity, and Measurability, NRF, PI:*Prof. Wonjun Lee, Korea University* Oct. 2018 - Dec. 2020

Cloud Computing Systems and Data Center Networks

- Cloud Bridges-Piers: Optimization Technologies towards Higher Performance of Wireless Networking Cloud, NRF, PI:*Prof. Wonjun Lee, Korea University* Jun. 2013 - May 2016
- A Fair Network Performance Isolation Framework in Multi-Tenancy Cloud Data Center Networks, Global Ph.D. Fellowship, NRF Mar. 2012 - Feb. 2014

INVITED TALKS

- P4 Switch Architecture
SDN/NFV Forum P4 WG 2020 1st Meetup, Seoul, South Korea Dec. 14, 2020
- Tutorial: P4 SFC
SDN/NFV Forum P4 WG 2019 1st Meetup, Seoul, South Korea Apr. 19, 2019
- Service Function Chaining in P4-enabled Programmable Switches
SDN/NFV Forum P4 WG 2018 2nd Meetup, Seoul, South Korea Oct. 12, 2018
- Controller-independent Loss-aware Low Latency State Migration in Network Functions Virtualization
ONOS-P4 Brigade Work Days 2017, Seoul, South Korea Sept. 19, 2017

AWARDS AND HONORS

- IEEE Seoul Section International Student Paper Contest Bronze Paper Award 2014
Global Ph.D. Fellowship (GPF), NRF, South Korea 2012 - 2014

REFERENCES

Available upon request.

April 22, 2021