

Gyuyeong Kim, Ph.D.

Assistant Professor
Department of Computer Engineering
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RESEARCH INTERESTS

Networked systems, Distributed systems, Data center networking

EDUCATION

Ph.D. in Computer Science, **Korea University**, South Korea Mar. 2012 - Feb. 2020
- Dissertation: Buffer Sharing Mechanisms for Data Center Networks
- Advisor: Prof. Wonjun Lee
B.S. in Computer Science, **Korea University**, South Korea Mar. 2008 - Feb. 2012
- Interdisciplinary major: Brain and Cognitive Sciences
Exchange Student, **Lund University**, Sweden Jan. 2011 - Jun. 2011
- Faculty of Engineering (Lund Tekniska Högskola, LTH)

EMPLOYMENT HISTORY

Assistant Professor, Sungshin Women's University Mar. 2022 - Present
Research Professor, Korea University Mar. 2020 - Mar. 2022

CONFERENCE PUBLICATIONS

1. [SOSP'25 Poster] Jeongeun Kim, Zhuolong Yu, and **Gyuyeong Kim**, "Towards Fast, Centralized RDMA-based Lock Management with Commodity NICs," in *Proc. of the 31st ACM Symposium on Operating Systems Principles*, Seoul, South Korea, October 2025.
2. [SOSP'25 Poster] Nakyung Lee*, Eunjae Jo*, Yeon-sup Lim, and **Gyuyeong Kim**, "Balancing Distributed Key-Value Stores with Low-Overhead Commodity Caching," in *Proc. of the 31st ACM Symposium on Operating Systems Principles*, Seoul, South Korea, October 2025.
3. [eBPF'25] **Gyuyeong Kim** and Dongsu Han, "A Memory Pool Allocator for eBPF Applications," in *Proc. of the ACM SIGCOMM 2025 Workshop on eBPF and Kernel Extensions*, Coimbra, Portugal, September 2025.
4. [CCGrid'25] Jiyeon Bang and **Gyuyeong Kim**, "Network-Accelerated Multiget Coordination for Distributed Key-Value Stores," in *Proc. of the 25th IEEE International Symposium on Cluster, Cloud, and Internet Computing*, Tromsø, Norway, May 2025. (Acceptance rate: 25.1%=55/219)
5. [NSDI'25] **Gyuyeong Kim**, "Pushing the Limits of In-Network Caching for Key-Value Stores," in *Proc. of 22nd USENIX Symposium on Networked Systems Design and Implementation*, Philadelphia, PA, USA, April 2025. (Acceptance rate: 12.4%=83/666)
6. [SIGCOMM'23] **Gyuyeong Kim**, "NetClone: Fast, Dynamic Request Cloning for Microsecond-Scale RPCs," in *Proc. of 37th Annual Conference of the ACM Special Interest Group on Data Communication*, New York, NY, USA, September 2023. (Acceptance rate: 21.9%=71/323)
7. [VLDB'22] **Gyuyeong Kim** and Wonjun Lee, "In-Network Leaderless Replication for Distributed Data Stores," in *Proc. of 48th International Conference on Very Large Data Bases*, Sydney, Australia, September 2022. (Acceptance rate: 25.1%=189/751)
8. [ICDCS'20] **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*, Singapore, December 2020. (Acceptance rate: 17.9%=105/584)
9. [ICCE-Asia'20] **Gyuyeong Kim** and Wonjun Lee, "Service Function Chaining on Programmable Data Plane," in *Proc. of the 5th International Conference On Consumer Electronics Asia*, Busan, South Korea, November 2020.

10. [ICCE'14] **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*, Las Vegas, NV, January 2014.
11. [NoF'13] **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*, Pohang, South Korea, October 2013.
12. [RACS'12] **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*, San Antonio, TX, October 2012.

JOURNAL PUBLICATIONS

1. [TCC] **Gyuyeong Kim** and Wonjun Lee, "DynaQ: Enabling Protocol-Independent Service Queue Isolation in Cloud Data Centers," *IEEE Transactions on Cloud Computing*, Vol. 11, No. 1, pp. 704-715, January/March 2023.
2. [TCC] **Gyuyeong Kim** and Wonjun Lee, "LossPass: Absorbing Microbursts by Packet Eviction for Data Center Networks," *IEEE Transactions on Cloud Computing*, Vol. 10, No. 4, pp. 2717-2728, October/December 2022.
3. [IoTJ] **Gyuyeong Kim** and Wonjun Lee, "Network Policy Enforcement with Commodity Multiqueue NICs for Multi-Tenant Data Centers," *IEEE Internet of Things Journal*, Vol. 9, No. 8, pp. 6252-6263, April 2022.
4. [CL] **Gyuyeong Kim** and Wonjun Lee, "Enabling Service Queue Isolation in Multi-Tenant Data Centers," *IEEE Communications Letters*, Vol. 23, No. 11, pp. 1949-1952, November 2019.
5. [CL] **Gyuyeong Kim** and Wonjun Lee, "Absorbing Microbursts without Headroom for Data Center Networks," *IEEE Communications Letters*, Vol. 23, No. 5, pp. 806-809, May 2019.
6. [IECE] **Gyuyeong Kim** and Wonjun Lee, "Tardy Flow Scheduling in Data Center Networks," *IEEE Transactions on Information and Systems*, Vol. E99-D, No. 9, pp. 2400-2403, September 2016.

PROFESSIONAL Organizing Committee

ACTIVITIES

Local Organization Co-Chair, IEEE ICNP 2025
 Artifact Evaluation Committee (AEC) Co-Chair, ACM CoNEXT 2024

Technical Program Committee

2026: CoNEXT
 2025: NSDI, CoNEXT, ATC (ERC), MASS, GLOBECOM
 2024: MASS, GLOBECOM

External Reviewer

2025: IWQoS, CLOUD

Reviewer

IEEE/ACM Transactions on Networking
 IEEE Transactions on Cloud Computing
 IEEE Computer Architecture Letters
 IEEE Communications Letters
 IEEE Networking Letters
 IEEE Internet of Things Journal

GRANTS	벡터 RAG 기반 생성형 AI를 위한 NIC 중심 호스트 네트워킹 기술	Mar. 2025 - Feb. 2030
	NIC-Centric Host Networking Technologies for Vector RAG-Powered Generative AI	
	Young Researcher Program(우수신진연구-글로벌협력), NRF, Grant: KRW 1,308,770,000 Collaborator: Prof. Zhuolong Yu at University of Science and Technology of China (USTC)	
	분산 데이터저장소를 위한 프로그래머블 인-네트워크 컴퓨팅 기술	Jun. 2023 - May 2024
	Programmable In-Network Computing for Distributed Data Stores	
	Basic Research Program(기본연구), NRF, Grant: KRW 68,054,000	
	가변형 네트워크 디바이스를 활용한 인네트워크 자원 증강 기술	Mar. 2020 - Feb. 2023
	In-Network Resource Augmentation utilizing Reconfigurable Network Devices	
	Young Researcher Program(우수신진연구), NRF, Grant: KRW 294,000,000	
INVITED TALKS	Towards Network-Accelerated Distributed Systems	
	KIISE KCC 2025, Jeju, South Korea	July 3, 2025
	Pushing the Limits of In-Network Caching for Key-Value Stores	
	KIISE KCC 2025, Jeju, South Korea	July 3, 2025
	In-Kernel Offloading with eBPF/XDP for High-Performance Networked Systems	
	KRNET 2025, Seoul, South Korea	Jun. 23, 2025
	Towards Network-Accelerated Computing Systems in the Era of Network Programmability	
	CSE/GSAI Seminar Series, POSTECH, Pohang, South Korea	Mar. 19, 2025
	Towards Network-Accelerated Computing Systems in the Era of Network Programmability	
	SoC Colloquium, KAIST, Daejeon, South Korea	Mar. 10, 2025
	Towards Network-Accelerated Distributed Systems	
	KIISE Computer System Society Conference 2025, Pyeongchang, South Korea	Feb. 12, 2025
	Leveraging Network Switches as Domain-Specific Accelerators for Distributed Storage	
	KIISE SWCC 2024, Seoul, South Korea	Aug. 21, 2024
	Advances and Impacts of SmartNICs in Modern Datacenters	
	Panel Session, IEEE/IFIP NOMS 2024, Seoul, South Korea	May 8, 2024
	NetClone: Fast, Scalable, and Dynamic Request Cloning for Microsecond-Scale RPCs	
	KIISE Korea Software Congress 2023, Busan, South Korea	Dec. 21, 2023
	Network Switches as Domain-Specific Hardware for Distributed Storage	
	The 14th International Conference on ICT Convergence, Jeju, South Korea	Oct. 13, 2023
	In-Network Acceleration for Modern Data Center Systems	
	CSE Seminar Series, UNIST, Ulsan, South Korea	Sept. 6, 2023
HONORS AND AWARDS	Outstanding Paper Award, Korea Software Congress (KSC) 2024, KIISE	2024
	Global Ph.D. Fellowship (글로벌박사펠로우십), NRF, South Korea	2012 - 2014
	IEEE Seoul Section International Student Paper Contest Bronze Paper Award	2014
	ACM-ICPC Seoul Regional Contest 10th Place	2009
	National Collegiate Programming Contest Silver Prize, South Korea	2009

Sun Microsystems JavaFX Software Contest 3rd Prize	2009
ACM-ICPC Seoul Regional Contest Honorable Mentions	2008

TEACHING

Assistant Professor , Dept. of Computer Engineering, Sungshin Women's University	
LZ000800 Computer Networks	Fall'22, Fall'23, Fall'24, Fall'25
LC005000 Distributed Systems	Spring'23, Spring'24, Spring'25
LZ001200 Computer Architecture	Spring'23, Spring'24, Spring'25
LC001500 Operating Systems	Fall'22
LC001900 System Programming	Spring'22
LC001200 Databases	Fall'22
LZ001400 Advanced C++ Programming	Spring'22
LZ001300 Java Programming	Spring'23, Spring'24, Spring'25
LZ004100 Advanced Java Programming	Fall'23, Fall'24, Fall'25
LC002200 Project Design	Fall'22
LZ004600 Convergence Capstone Design	Fall'23, Fall'24, Fall'25
255501 Advanced Computer Network (Graduate-level)	Fall'23
1000541 Data Center Networking (Graduate-level)	Spring'23
1000542 Networked Systems (Graduate-level)	Spring'24
258811 Distributed Processing (Graduate-level)	Fall'22, Fall'25
Lecturer , Dept. of Information Security, Seoul Women's University	
IP01020 Computer Architecture	Spring'22
IP01019 Operating Systems	Fall'21
IP01024 Data Communication and Network	Spring'21
Research Professor , Graduate School of Cybersecurity, Korea University	
IMS301 Network Theory (Graduate-level)	Spring'20, Fall'19

EDUCATIONAL SERVICES

Department Chair Sungshin Women's University	Mar. 2023 - Feb. 2025
Appointed Admissions Officer, Sungshin Women's University	Jun. 2022 - Feb. 2025

STUDENT ADVISING

Masters Students	
1. Jiyeon Bang (5th-year M.S., Fall'22 - Fall'24)	
2. Jihyun Lee (5th-year M.S., Fall'22 - Fall'24)	
3. Yuje Tak (M.S., Spring'24 - Present)	
4. Jeongeun Kim (5th-year M.S., Fall'23 - Present)	
5. Eunjae Jo (M.S., Spring'25 - Present)	
6. Nakyung Lee (5th-year M.S., Fall'24 - Present)	
Undergraduate Interns	
1. Subin Cho (Winter'24 - Present)	
2. Minseon Jeon (Winter'24 - Present)	
3. Eunjae Jo (Winter'23)	
4. Nakyung Lee (Winter'23)	
5. Junhee Kim (Winter'23)	
6. Yuje Tak (Summer'23 - Fall'23)	

7. Suhyen Im (Summer'23)
8. Jeongeun Kim (Summer'23)
9. Dagyung Han (Winter'22)
10. Subin Park (Winter'22)
11. Gaeun Seo (Winter'22)
12. Yoojin Song (Spring'22 - Winter'22)
13. Jisoo Hwang (Spring'22 - Winter'22)

REMARKS

During my undergraduate, I developed KLUE (Korea University Lecture Evaluation, <http://klue.kr>), a lecture rating service for Korea University. In 2025, KLUE has 500K+ evaluation data and 60K+ members. Most students at Korea University use this service.

- Brief history: In Feb. 2010, upon the request of the 43rd Student Council, three KWEB student club members (including me) began a development project. Our team was in charge of the whole planning and development. The service was run by the student council as planned. However, in November 2010, the service was terminated provisionally due to an incident in which the student council violated the personal information handling policy. In January 2011, I revived the service and became the president. The 44-46th Student Councils supported server costs until we achieved financial self-sufficiency. I ran the service until February 2015. Since March 2015, KLUE has been run by KWEB members. (<https://kwebofficial.com/>). My experience developing and operating KLUE led me to explore networked systems during my Ph.D. journey.

REFERENCES

Available upon request.