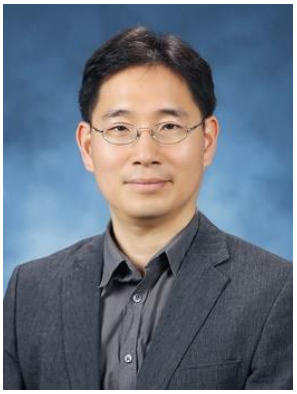
Foreword about Byung-Seo Kim, Professor of Hongik University-Sejong campus, Republic of Korea



Byung-Seo Kim

Byung-Seo Kim received his B.S. degree in Electrical Engineering from In-Ha University, Korea in 1998 and his M.S. and Ph.D. degrees in Electrical and Computer Engineering from University of Florida in 2001 and 2004, respectively. His Ph.D. study was supervised by Dr. Yuguang Fang. Between 1997 and 1999, he worked for Motorola Korea Ltd., Korea as a Computer Integrated Manufacturing Engineer in Advanced Technology Research and Development. From January 2005 to August 2007, he worked for HQ of Motorola Inc., Schaumburg Illinois, as a Senior Software Engineer in Networks and Enterprises. He involved a design of network and protocol for Nationwide Public Safety & Mission Critical Networks. He has served as a Chairman of the Dept. of Software and Communications Engineering, Vice President of Graduate School, and Director of Planning & Management Office at Hongik University, Korea, where he is currently a professor since 2007. He has also been serving as an adjunct professor of TDTU, Vietnam from 2023. He is IEEE Senior Member and is serving as Associate Editors of IEEE Access, Telecommunication Networks, IEIE SPC, and Journal of the Institute of Electrics and Information Engineers. He also served as Guest Editors of special issues of IEEE IoT, IEEE OJCS, IEEE Access, International Journal of Distributed Sensor Networks, Sensors, Applied Science, and Electronics. He served as an organizing chair for ICGHIT 2024 & 2025. His works have appeared in around 350 publications and 36 patents. His research interests include the design and development of efficient future wireless/wired networks and distributed microservice computing.

The rapid technological development and advancement in computing, processing, sensing, and wireless communication technologies has brought a slew of compute-intensive and delay-sensitive applications such as XR/AR, AI, 3d-navigation. etc. To cope with the ever-increasing computation demands of consumer services, cloud-edge-fog continuum-based In-Network Computing solutions are utilized, which enable consumer applications to offload their computations to the available and close devices. For the migration and offload of computation works, microservice-based in-network computing concept has been appeared. To overcome the challenges of the conventional monolithic architecture, microservices (MS) architecture has emerged as a potential candidate due to its potentialities such as less communication and computation overhead, optimal resource utilization, low bandwidth utilization, and low maintenance cost. Compared with the monolithic architecture, the MS architecture decomposes the application into several atomic MS able to execute independently. MS architecture enables independent deployment of MS over computing terminals without affecting other MS in the same application. Each MS performs a specific task, requires fewer resources, and allows efficient migration with minimal bandwidth consumption. Therefore, MS is an essential element for In-Network Computing architecture. One more essential element for realizing In-network computing will be Information-Centric or microservice-centric network mechanism to find proper MSs among distributed devices, migrate and offload MSs between devices, deliver the required computation results to the user which the current end-to-end and client-service-based TCP/IP communication cannot do. Therefore, in the current network environment, where devices with significant computational capabilities are scattered around, the use of Information-Centric Networking for microservice-based In-Network Computing will become increasingly essential to perform more complex and advanced computations within a limited time and deliver the results to users.

Dear readers,
I am delight to recommend The Advances in Electronic and Electric Engineering (AEEE) journal to you for sharing your academic research outcomes. AEEE is a prestigious journal that publishes innovative research in the fields of electrical and electronic engineering including communications and networking. AEEE is included in prominent databases such as WoS, SCOPUS, SJR, and others through its rigorous editorial staff, review process, and commitment to maintaining high standards. Therefore, researchers and stakeholders are invited to submit their research papers for publication in the AEEE Journal. They are also encouraged to cite and make use of the published research.