

Juheon Yi

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Research Interests

Video Analytics, Edge AI Systems, Networked Systems, Media AI Agents

Experiences

Microsoft Research Asia, Shanghai, China *Jan 2025 – Present*
Senior Researcher

Nokia Bell Labs, Cambridge, United Kingdom *Dec 2023 – Nov 2024*
Researcher Scientist

Nokia Bell Labs, Cambridge, United Kingdom *Sep 2021 – Nov 2021*
Researcher Intern

Education

PhD, CS, Seoul National University, Korea (advisor: Youngki Lee) *Feb 2024*
Thesis: Edge-Cloud Cooperative Platform for Live Video Analytics Applications
**** Best PhD Dissertation Award **** (nominated for ACM SIGMOBILE Dissertation Award from SNU)

MS, EE, Seoul National University, Korea (advisor: Sunghyun Choi) *Aug 2018*

BS, EE, Seoul National University, Korea *Aug 2016*

Honors and Awards

- Microsoft Research PhD Fellowship *2020*
- Awarded to top 12 PhD students in the Asia-Pacific region
- Best PhD Dissertation Award, Dept. of CSE, SNU *2024*
- Sang Lyul Min Systems Research Fellowship, Dept. of CSE, SNU *2024*
- Best Paper Award Runner-up, ACM ImmerCom 2023 *2023*
- Best Graduate Student Award, BK21 SNU *2022*
- AI Stars Fellowship, AI Institute of SNU *2021*
- Star Researcher Award, Dept. of CSE, SNU *2021*
- Best Paper Award, ACM Students in MobiSys 2021 *2021*
- Global PhD Fellowship, National Research Foundation of Korea *2021*
- Presidential Science Scholarship, Korea Student Aid Foundation *2012-2016*
- Awarded to top 100 freshmen in Korea

Publications

Full Papers (* co-primary authors)

- [**IEEE INFOCOM 26**] **Juheon Yi***, Minkyung Jeong*, Seokgyeong Shin, Goodsol Lee, Daehyeok Kim, Youngki Lee, "Pendulum: Network-Compute Joint Scheduling for Efficient and Accurate MEC Live Video Analytics."

- **[IEEE INFOCOM 26]** Goodsol Lee, Seyeon Kim, **Juheon Yi**, Junhong Min, Tuan Tran, Sangtae Ha, Kyunghan Lee, Saewoong Bahk, "PAVE: Mitigating Non-Congestive Delay for Seamless Video Calls over NextG Mobile Networks."
- **[USENIX NSDI 26]** Goodsol Lee, Junhong Min, Seyeon Kim, **Juheon Yi**, Kwang Taik Kim, Mung Chiang, Sangtae Ha, Kyunghan Lee, Saewoong Bahk, "QCON: Seamless QoE-Aware 5G Streaming via Multi-Connectivity."
- **[ACM MobiSys 25]** **Juheon Yi**, Goodsol Lee, Minkyung Jeong, Seokgyeong Shin, Daehyeok Kim, Youngki Lee, "Towards End-to-End Latency Guarantee in MEC Live Video Analytics with App-RAN Mutual Awareness."
- **[IEEE INFOCOM 25]** Jinmyeong Kim*, **Juheon Yi***, Wootack Kim, Seokgyeong Shin, Youngki Lee, "Combinational Point Sampling for Fast and Accurate On-Device LiDAR 3D Object Detection."
- **[IEEE Pervasive Computing 25]** **Juheon Yi**, Kyungjin Lee, Hyunseok Oh, Youngki Lee, "VoiceSeeker: Energy-Efficient and Accurate Audio-Visual Speaker Separation on Mobile Devices."
- **[NDSS 25]** Jaewon Hur, **Juheon Yi**, Cheolwoo Myung, Sangyun Kim, Youngki Lee, Byoungyoung Lee, "DLBox: New Model Training Framework for Protecting Training Data."
- **[IEEE TMC 24]** **Juheon Yi**, Utku Acer, Fahim Kawsar, Chulhong Min, "Argus: Enabling Cross-Camera Collaboration for Video Analytics on Distributed Smart Cameras."
- **[ACM MobiCom 24]** Kichang Yang, Minkyung Jeong, **Juheon Yi**, Jingyu Lee, Kyungsoo Park, Youngki Lee, "Logan: Loss-Tolerant Live Video Analytics System."
- **[ACM UIST 24]** HyunA Seo, **Juheon Yi**, Rajesh Balan, Youngki Lee, "GradualReality: Enhancing Physical Object Interaction in Virtual Reality via Interaction State-Aware Blending."
- **[ACM MobiCom 23]** Kyungjin Lee, **Juheon Yi**, Youngki Lee, "FarfetchFusion: Towards Fully Mobile Live 3D Telepresence Platform."
- **[IEEE ICASSP 23]** Hyunseok Oh, **Juheon Yi**, Youngki Lee, "Papez: Resource-efficient Speech Separation with Auditory Working Memory."
- **[IEEE TMC 22]** **Juheon Yi**, Seongwon Kim, Joongheon Kim, Sunghyun Choi, "Supremo: Cloud-Assisted Low-Latency Super-Resolution in Mobile Devices."
- **[IEEE INFOCOM 22]** Kichang Yang, **Juheon Yi**, Kyungjin Lee, Youngki Lee, "FlexPatch: Fast and Accurate Object Detection for On-Device High-Resolution Live Video Analytics."
- **[ACM MobiCom 20]** **Juheon Yi**, Youngki Lee, "Heimdall: Mobile GPU Coordination Platform for Augmented Reality Applications."
- **[ACM MobiCom 20]** Kyungjin Lee, **Juheon Yi**, Youngki Lee, Sunghyun Choi, Young Min Kim, "GROOT: A Real-time Streaming System for High-Fidelity Volumetric Videos."
- **[ACM MobiCom 20]** **Juheon Yi**, Sunghyun Choi, Youngki Lee, "EagleEye: Wearable Camera-based Person Identification in Crowded Urban Spaces."
- **[IEEE TMC 19]** Jonghoe Koo, **Juheon Yi**, Joongheon Kim, Mohammad A. Hoque, Sunghyun Choi, "Seamless Dynamic Adaptive Streaming in LTE/Wi-Fi Integrated Network under Smartphone Resource Constraints."
- **[IEEE SECON 18]** **Juheon Yi**, Weiping Sun, Jonghoe Koo, Seongho Byeon, Jaehyuk Choi, Sunghyun Choi, "BlueScan: Boosting Wi-Fi Scanning Efficiency Using Bluetooth Radio."
- **[ACM Multimedia 17]** Jonghoe Koo, **Juheon Yi**, Joongheon Kim, Mohammad A. Hoque, Sunghyun Choi, "REQUEST: Seamless Dynamic Adaptive Streaming over HTTP for Multi-Homed Smartphone under Resource Constraints."

Workshops

- **[ACM HotMobile 25]** Changmin Jeon, Taesik Gong, **Juheon Yi**, Fahim Kawsar, Chulhong Min, "Boosting Multi-DNN Inference on Tiny AI Accelerators with Weight Memory Virtualization."
- **[ACM ImmerCom 23]** Seokgyeong Shin, **Juheon Yi**, Minkyung Jeong, Youngki Lee, "FAST: Fast and Accurate Adaptation in Live Video Analytics Using Intermediate Features."
** Best Paper Award Runner Up**
- **[ACM AIChallengelIoT 21]** **Juheon Yi**, Chulhong Min, Fahim Kawsar, "Vision Paper: Towards Software-Defined Video Analytics with Cross-Camera Collaboration."
- **[ACM Students in MobiSys 21]** **Juheon Yi**, "Mobile-Cloud Cooperative Deep Learning Platform for Mixed Reality Applications." ** Best Paper Award **

Professional Services

Technical Program Committee

2026: ACM MobiSys
 2025: ACM Open-AI RAN (collocated with ACM MobiCom)
 2024: ACM ImmerCom (collocated with ACM MobiCom)
 2023: ACM MobiSys Artifact Evaluation Committee
 2022: EuroSys (Shadow PC), ACM SenSys (Shadow PC)
 2021: ACM Wireless of the S³ Workshop (collocated with ACM MobiCom)

External Reviewer

2026: IEEE VR, ACM CHI
 2025: IEEE VR, ACM CHI, ACM Multimedia, IEEE/ACM ToN, IEEE TMC, ACM IMWUT, ISMAR, BMVC
 2024: IEEE VR, ACM UIST, ACM CSCW, ACM IMWUT, ACM VRST, BMVC, CogSci
 2023: IEEE VR, ACM CSCW, ACM IMWUT, ISMAR, IEEE Systems Journal, HAI
 2022 and before: IEEE TMC, ACM IMWUT

Invited Talks

"Edge-Cloud Cooperative Platform for Interactive Video Analytics"

- NetAISys Workshop @ ACM MobiSys 2025	<i>Jun 2025</i>
- Ulsan National Institute of Science and Technology (UNIST)	<i>Mar 2025</i>
- Microsoft Research Asia	<i>Jan 2025</i>
- Rising Star Spotlight, SNU Summer AI School 2022	<i>Aug 2022</i>

"Mobile AI Platform for Mixed Reality"

- IEEE Information Theory Society, Santa Clara Valley	<i>Feb 2022</i>
- Electronic & Information Research Information Center (EIRIC), Korea	<i>Mar 2021</i>
- A3 Foresight Workshop on Intelligent IoT for Empowering the People's Lifestyle and Well-being	<i>Jan 2021</i>