

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

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

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 AIChallengeloT 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 Jun 2025
- Ulsan National Institute of Science and Technology (UNIST) Mar 2025
- Microsoft Research Asia Jan 2025
- Rising Star Spotlight, SNU Summer AI School 2022 Aug 2022

"Mobile AI Platform for Mixed Reality"

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