

Juheon Yi

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Research Interests

Video Analytics, Networked AI 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
- Research Scientist	
Nokia Bell Labs , Cambridge, United Kingdom	Sep 2021 – Nov 2021
- Research Intern	

Education

PhD, Computer Science and Engineering , Seoul National University	Feb 2024
- Advisor: Youngki Lee	
- Thesis: Edge-Cloud Cooperative Platform for Live Video Analytics Applications	
- Best PhD Dissertation Award, nominated for ACM SIGMOBILE Dissertation Award	
MS, Electrical and Computer Engineering , Seoul National University	Aug 2018
- Advisor: Sunghyun Choi	
BS, Electrical and Computer Engineering , Seoul National University	Aug 2016

Honors and Awards

Microsoft Research PhD Fellowship	2020
Best PhD Dissertation Award, SNU CSE	2024
Sang Lyul Min Systems Research Fellowship	2024
Best Paper Award Runner-up, ACM ImmerCom	2023
Best Graduate Student Award, BK21 SNU	2022
AI Stars Fellowship, SNU AI Institute	2021
Star Researcher Award, SNU CSE	2021
Best Paper Award, ACM Students in MobiSys	2021
Global PhD Fellowship, NRF Korea	2021
Presidential Science Scholarship, Korea Student Aid Foundation	2012–2016

Publications

Full Papers (* co-primary, †: corresponding)

- Wootack Kim, Minkyung Jeong, Seokgyeong Shin, **Juheon Yi**[†], Youngki Lee[†], “MERCI: Adaptive Multi-Expert Inference for Dynamic and Large-Vocabulary Vision Perception,” in *IEEE PerCom 2026*.
- 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,” in *IEEE INFOCOM 2026*.
- 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,” in *IEEE INFOCOM 2026*.

4. 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,” in *USENIX NSDI 2026*.
5. **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,” in *ACM MobiSys 2025*.
6. Jinmyeong Kim*, **Juheon Yi***, Wootack Kim, Seokgyeong Shin, Youngki Lee, “Combinational Point Sampling for Fast and Accurate On-Device LiDAR 3D Object Detection,” in *IEEE INFOCOM 2025*.
7. **Juheon Yi**, Kyungjin Lee, Hyunseok Oh, Youngki Lee, “VoiceSeeker: Energy-Efficient and Accurate Audio-Visual Speaker Separation on Mobile Devices,” in *IEEE Pervasive Computing 2025*.
8. Jaewon Hur, **Juheon Yi**, Cheolwoo Myung, Sangyun Kim, Youngki Lee, Byoungyoung Lee, “DLBox: New Model Training Framework for Protecting Training Data,” in *NDSS 2025*.
9. **Juheon Yi**, Utku Acer, Fahim Kawsar, Chulhong Min, “Argus: Enabling Cross-Camera Collaboration for Video Analytics on Distributed Smart Cameras,” in *IEEE Transactions on Mobile Computing 2024*.
10. Kichang Yang, Minkyung Jeong, **Juheon Yi**, Jingyu Lee, Kyungsoo Park, Youngki Lee, “Logan: Loss-Tolerant Live Video Analytics System,” in *ACM MobiCom 2024*.
11. HyunA Seo, **Juheon Yi**, Rajesh Balan, Youngki Lee, “GradualReality: Enhancing Physical Object Interaction in Virtual Reality via Interaction State-Aware Blending,” in *ACM UIST 2024*.
12. Kyungjin Lee, **Juheon Yi**, Youngki Lee, “FarfetchFusion: Towards Fully Mobile Live 3D Telepresence Platform,” in *ACM MobiCom 2023*.
13. Hyunseok Oh, **Juheon Yi**, Youngki Lee, “Papez: Resource-efficient Speech Separation with Auditory Working Memory,” in *IEEE ICASSP 2023*.
14. **Juheon Yi**, Seongwon Kim, Joongheon Kim, Sunghyun Choi, “Supremo: Cloud-Assisted Low-Latency Super-Resolution in Mobile Devices,” in *IEEE Transactions on Mobile Computing 2022*.
15. Kichang Yang, **Juheon Yi**, Kyungjin Lee, Youngki Lee, “FlexPatch: Fast and Accurate Object Detection for On-Device High-Resolution Live Video Analytics,” in *IEEE INFOCOM 2022*.
16. **Juheon Yi**, Youngki Lee, “Heimdall: Mobile GPU Coordination Platform for Augmented Reality Applications,” in *ACM MobiCom 2020*.
17. Kyungjin Lee, **Juheon Yi**, Youngki Lee, Sunghyun Choi, Young Min Kim, “GROOT: A Real-time Streaming System for High-Fidelity Volumetric Videos,” in *ACM MobiCom 2020*.
18. **Juheon Yi**, Sunghyun Choi, Youngki Lee, “EagleEye: Wearable Camera-based Person Identification in Crowded Urban Spaces,” in *ACM MobiCom 2020*.
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,” in *IEEE Transactions on Mobile Computing 2019*.
20. **Juheon Yi**, Weiping Sun, Jonghoe Koo, Seongho Byeon, Jaehyuk Choi, Sunghyun Choi, “BlueScan: Boosting Wi-Fi Scanning Efficiency Using Bluetooth Radio,” in *IEEE SECON 2018*.
21. 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,” in *ACM Multimedia 2017*.

Workshop papers

1. Changmin Jeon, Taesik Gong, **Juheon Yi**, Fahim Kawsar, Chulhong Min, “Boosting Multi-DNN Inference on Tiny AI Accelerators with Weight Memory Virtualization,” in *ACM HotMobile 2025*.

2. Seokgyeong Shin, **Juheon Yi**, Minkyung Jeong, Youngki Lee, “FAST: Fast and Accurate Adaptation in Live Video Analytics Using Intermediate Features,” in *ACM ImmerCom 2023*. **Best Paper Award Runner Up**
3. **Juheon Yi**, Chulhong Min, Fahim Kawsar, “Vision Paper: Towards Software-Defined Video Analytics with Cross-Camera Collaboration,” in *ACM AIChallengeIoT 2021*.
4. **Juheon Yi**, “Mobile-Cloud Cooperative Deep Learning Platform for Mixed Reality Applications,” in *ACM Students in MobiSys 2021*. **Best Paper Award**

Professional Services

Technical Program Committee

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

Organizing Committee

2026: Co-chair for ACM NetAISys Workshop @ ACM MobiSys

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	Aug 2022

Mobile AI Platform for Mixed Reality

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