# Juheon Yi

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## Research Interests

Mobile Computing, Networked Systems, Media AI Agents

## Experiences

**Microsoft Research Asia**, Beijing, 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

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|---|---|
| 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)**

1. 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*.
2. **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*.
3. 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. Kyoungjun Park, Yifan Yang, **Juheon Yi**, Shicheng Zheng, Muhammad Muaz, Yifei Shen, Dongqi Han, Caihua Shan, Lili Qiu, "VidGuard-R1: AI-Generated Video Detection and Explanation via Reasoning MLLMs and RL," in *ICLR 2026*.
6. **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*.
7. 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*.
8. **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*.
9. Jaewon Hur, **Juheon Yi**, Cheolwoo Myung, Sangyun Kim, Youngki Lee, Byoungyoung Lee, "DLBox: New Model Training Framework for Protecting Training Data," in *NDSS 2025*.
10. **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*.
11. Kichang Yang, Minkyung Jeong, **Juheon Yi**, Jingyu Lee, Kyungsoo Park, Youngki Lee, "Logan: Loss-Tolerant Live Video Analytics System," in *ACM MobiCom 2024*.
12. 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*.
13. Kyungjin Lee, **Juheon Yi**, Youngki Lee, "FarfetchFusion: Towards Fully Mobile Live 3D Telepresence Platform," in *ACM MobiCom 2023*.
14. Hyunseok Oh, **Juheon Yi**, Youngki Lee, "Papez: Resource-efficient Speech Separation with Auditory Working Memory," in *IEEE ICASSP 2023*.
15. **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*.
16. 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*.
17. **Juheon Yi**, Youngki Lee, "Heimdall: Mobile GPU Coordination Platform for Augmented Reality Applications," in *ACM MobiCom 2020*.
18. 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*.
19. **Juheon Yi**, Sunghyun Choi, Youngki Lee, "EagleEye: Wearable Camera-based Person Identification in Crowded Urban Spaces," in *ACM MobiCom 2020*.
20. 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*.
21. **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*.
22. 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 $S^3$ 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