Juheon Yi

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Research Interests

Video Analytics, Edge AI Systems, Networked Systems

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 ****

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)

- **[ACM MobiSys 25] Juheon Yi**, Goodsol Lee, Seokgyeong Shin, Minkyung Jeong, 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 AIChallengeIoT 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

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 S^3 Workshop (collocated with ACM MobiCom)

External Reviewer

2025: IEEE VR, ACM CHI, IEEE ToN, IEEE TMC, ACM IMWUT
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

"Mobile-Cloud Cooperative Platform for Interactive Video Analytics"
- Ulsan National Institute of Science and Technology *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*