

# Hyunho Yeo (Ph.D. Candidate)

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RESEARCH INTERESTS	Networked Systems, Machine Learning Systems	
EDUCATION	<b>Korea Advanced Institute of Science and Technology (KAIST)</b> Ph.D. in Electrical Engineering (Advisor: Dongsu Han)	FEB. 2017 ~ FEB. 2023 (Expected)
	<b>Korea Advanced Institute of Science and Technology (KAIST)</b> B.S. in Electrical Engineering (Magna Cum Laude)	FEB. 2012 ~ FEB. 2017
PUBLICATIONS	<ol style="list-style-type: none"><li>NeuroScaler: Neural Video Enhancement at Scale <u>Hyunho Yeo</u>, Hwijoon Lim, Jaehong Kim, Youngmok Jung, Juncheol Ye, and Dongsu Han <b>ACM SIGCOMM 2022</b> (Acceptance Rate 55/281: 19.5%)</li><li>NEMO: Enabling Neural-enhanced Video Streaming on Commodity Mobile Devices <u>Hyunho Yeo</u>, Chan Ju Chong, Youngmok Jung, Juncheol Ye, and Dongsu Han <b>ACM MobiCom 2020</b> (Acceptance Rate 62/384: 16.1%)</li><li>Neural-Enhanced Live Streaming: Improving Live Video Ingest via Online Learning Jaehong Kim*, Youngmok Jung*, <u>Hyunho Yeo</u>, Juncheol Ye, and Dongsu Han <b>ACM SIGCOMM 2020</b> (Acceptance Rate 53/250: 21.2%)</li><li>Neural Adaptive Content-aware Internet Video Delivery <u>Hyunho Yeo</u>, Youngmok Jung, Jaehong Kim, Jinwoo Shin, and Dongsu Han <b>USENIX OSDI 2018</b> (Acceptance Rate 47/257: 18.2%)</li><li>How will Deep Learning Change Internet Video Delivery? <u>Hyunho Yeo</u>, Sunghyun Do, Dongsu Han <b>ACM HotNets 2017</b> (Acceptance Rate 28/124: 22.5%)</li></ol>	
AWARDS	<b>Google Conference Scholarship</b> (2022), <b>KAIST Breakthrough of the Year</b> (2021), <b>KAIST Global Leader Scholarship</b> (2020), <b>Microsoft Fellowship Asia Nomination Award</b> (2019), <b>KAIST EE Best Research Achievement</b> (2018)	
RESEARCH PROJECTS	<b>Neural-enhanced Live Video Ingest at Scale (<math>\approx 10.1\text{K LoC}</math>)</b> • Designed an inference framework that delivers efficient and scalable live neural enhancement. • Implemented the framework on top of <b>TensorRT</b> (GPU inference engine), <b>libvpx</b> (VP9 codec), and <b>gRPC</b> . • Reduced computing cost by <b>3.0-22.3<math>\times</math></b> and improved processing throughput by <b>2.5-10<math>\times</math></b> . <b>Neural-enhanced Mobile Video Streaming (<math>\approx 9.4\text{K LoC}</math>)</b> • Designed a framework that accelerates video super-resolution using codec-level information. • Implemented the framework upon <b>Exoplayer</b> (Android media player) and <b>libvpx</b> (VP9 codec). • Improved processing throughput by <b>11.5<math>\times</math></b> and reduced energy consumption by <b>88.6%</b> . <b>Neural-enhanced Adaptive Video Streaming (<math>\approx 13.6\text{K LoC}</math>)</b> • Designed an adaptive streaming framework that applies neural networks to video to enhance its quality. • Implemented the framework on top of <b>MPEG DASH (dash.js)</b> and <b>TensorFlow</b> . • Improved user quality of experience by <b>43.08%</b> or saved <b>17.13%</b> of network bandwidth.	AUG. 2020 – AUG. 2022 Nov. 2018 – JUL. 200 MAR. 2017 – OCT. 2018
PROFICIENT SKILLS	<b>Programming Languages:</b> C/C++, Python, JAVA, UNIX shell scripting <b>Machine Learning Frameworks:</b> Tensorflow, Pytorch, Qualcomm SNPE, NVIDIA TensorRT <b>Languages:</b> Korean (native), English (fluent)	
ACADEMIC ACTIVITIES	<b>Journal Review:</b> IEEE ToN, IEEE TPAMI, IEEE Multimedia <b>Mentoring Experience (Undergraduate students):</b> Suro Kim, Seung Ho Baek, Seung Jun Lee, Tee Won Lee, Yonatan Gizachew, Chan Ju Chong, Su Min Shin, Ji Hoon Shin, Sung Whan Kim, Jae Hong Kim, Young Mok Jung, Sunghyun Do	