

# Hyunho Yeo (Ph.D. Candidate)

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<b>Research Interests</b>	Networked Systems, Machine Learning Systems	
<b>Education</b>	<b>Korea Advanced Institute of Science and Technology (KAIST)</b> Ph.D. in Electrical Engineering (Advisor: Dongsu Han) Dissertation title: “ <i>Enabling Neural-enhanced Video Streaming</i> ”	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
<b>Publications</b>	<ol style="list-style-type: none"><li><b>NeuroScaler: Neural Video Enhancement at Scale</b> <a href="#">Hyunho Yeo</a>, Hwijoon Lim, Jaehong Kim, Youngmok Jung, Juncheol Ye, and Dongsu Han <b>ACM SIGCOMM 2022</b> (Acceptance Rate 55/281: 19.5%)</li><li><b>NEMO: Enabling Neural-enhanced Video Streaming on Commodity Mobile Devices</b> <a href="#">Hyunho Yeo</a>, Chan Ju Chong, Youngmok Jung, Juncheol Ye, and Dongsu Han <b>ACM MobiCom 2020</b> (Acceptance Rate 62/384: 16.1%)</li><li><b>Neural-Enhanced Live Streaming: Improving Live Video Ingest via Online Learning</b> Jaehong Kim*, Youngmok Jung*, <a href="#">Hyunho Yeo</a>, Juncheol Ye, and Dongsu Han <b>ACM SIGCOMM 2020</b> (Acceptance Rate 53/250: 21.2%)</li><li><b>Neural Adaptive Content-aware Internet Video Delivery</b> <a href="#">Hyunho Yeo</a>, Youngmok Jung, Jaehong Kim, Jinwoo Shin, and Dongsu Han <b>USENIX OSDI 2018</b> (Acceptance Rate 47/257: 18.2%)</li><li><b>How will Deep Learning Change Internet Video Delivery?</b> <a href="#">Hyunho Yeo</a>, Sunghyun Do, and Dongsu Han <b>ACM HotNets 2017</b> (Acceptance Rate 28/124: 22.5%)</li></ol>	
<b>Awards</b>	<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)	
<b>Research Projects</b>	<b>Neural-enhanced Live Video Ingest at Scale</b> • Designed an inference engine that delivers efficient and scalable live neural enhancement. • Implemented the end-to-end system on top of NVIDIA TensorRT, libvpx, and gRPC (~ <b>10.1K LoC</b> ). • Reduced computing cost by <b>3.0-22.3×</b> and improved processing throughput by <b>2.5-10×</b> .	AUG. 2020 – AUG. 2022
	<b>Neural-enhanced Mobile Video Streaming</b> • Designed an algorithm that accelerates neural enhancement using temporal redundancy across video frames. • Implemented an end-to-end system upon Exoplayer, libvpx, and Qualcomm SNPE (~ <b>9.4K LoC</b> ). • Improved processing throughput by <b>11.5×</b> and reduced energy consumption by <b>88.6%</b> .	Nov. 2018 – JUL. 2020
	<b>Neural-enhanced Adaptive Video Streaming</b> • Designed adaptive streaming that applies neural enhancement to video utilizing client computation. • Implemented an end-to-end system on top of MPEG DASH (dash.js) and TensorFlow (~ <b>13.6K LoC</b> ). • Improved user quality experience by <b>43.08%</b> or saved <b>17.13%</b> of network bandwidth.	MAR. 2017 – OCT. 2018
<b>Proficient Skills</b>	<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)	
<b>Academic Activities</b>	<b>Journal Review:</b> IEEE ToN, IEEE TPAMI, IEEE Multimedia <b>Mentoring:</b> 13 undergraduate students, 6 graduate students	