

Hyunho Yeo

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RESEARCH INTEREST

AI/ML systems, Video systems, Networked systems

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) Ph.D. in Electrical Engineering (Advisor: Dongsu Han) Dissertation title: Enabling Neural-enhanced Video Streaming	Feb 2017 - May 2023
Korea Advanced Institute of Science and Technology (KAIST) B.S. in Electrical Engineering (Magna Cum Laude)	Feb 2012 - Feb 2017

PUBLICATIONS

- (C1) **NeuroScaler: Neural Video Enhancement at Scale**
Hyunho Yeo, Hwijoon Lim, Jaehong Kim, Youngmok Jung, Juncheol Ye, and Dongsu Han
ACM SIGCOMM 2022 (Acceptance Rate 55/281: 19.5%)
- (C2) **NEMO: Enabling Neural-enhanced Video Streaming on Commodity Mobile Devices**
Hyunho Yeo, Chan Ju Chong, Youngmok Jung, Juncheol Ye, and Dongsu Han
ACM MobiCom 2020 (Acceptance Rate 62/384: 16.1%)
- (C3) **Neural-Enhanced Live Streaming: Improving Live Video Ingest via Online Learning**
Jaehong Kim*, Youngmok Jung*, Hyunho Yeo, Juncheol Ye, and Dongsu Han
ACM SIGCOMM 2020 (Acceptance Rate 53/250: 21.2%)
- (C4) **Neural Adaptive Content-aware Internet Video Delivery**
Hyunho Yeo, Youngmok Jung, Jaehong Kim, Jinwoo Shin, and Dongsu Han
USENIX OSDI 2018 (Acceptance Rate 47/257: 18.2%)
- (W1) **How will Deep Learning Change Internet Video Delivery?**
Hyunho Yeo, Sunghyun Do, and Dongsu Han
ACM HotNets 2017 (Acceptance Rate 28/124: 22.5%)

AWARDS

Google Conference Scholarship	2022
KAIST Breakthrough of the Year	2021
KAIST Global Leader Scholarship	2020
Microsoft Fellowship Asia Nomination Award	2019
KAIST EE Best Research Achievement	2018

PROJECTS

Neural-enhanced Live Video Ingest at Scale Ph.D. student, KAIST	Aug 2020 - Aug 2022
<ul style="list-style-type: none">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 (~ 10.1K LoC).Reduced computing cost by 3.0-22.3× and improved processing throughput by 2.5-10×.	
Neural-enhanced Mobile Video Streaming Ph.D. student, KAIST	Nov 2018 - Jul 2020
<ul style="list-style-type: none">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 (~ 9.4K LoC).Improved processing throughput by 11.5× and reduced energy consumption by 88.6%.	
Neural-enhanced Adaptive Video Streaming Ph.D. student, KAIST	Mar 2017 - Oct 2018
<ul style="list-style-type: none">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 (~ 13.6K LoC).Improved user quality experience by 43.08% or saved 17.13% of network bandwidth.	

SKILLS

Programming languages: C/C++, Python, JAVA	AI frameworks: Tensorflow, Pytorch, TensorRT, SNPE
Languages: Korean (native), English (fluent)	

SERVICE & TEACHING

Journal Review: IEEE ToN, IEEE TPAMI, IEEE Multimedia	Mentoring: 13 undergraduate students, 6 graduate students
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