

## Jaehong Yoon

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### CONTACT INFORMATION

KAIST, South Korea  
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LINKS: [HOMEPAGE](#), [GOOGLE SCHOLAR](#), [TWITTER](#)

### RESEARCH INTERESTS

My research interest mainly focuses on developing novel models and algorithms for tackling practical challenges in deploying **on-device artificial general intelligence system to various real-world application domains**. I currently focus on the following topics:

- Continual learning, Lifelong learning
- Network pruning & Quantization
- Federated learning
- Unsupervised, Self-supervised representation learning
- Learning with biased and noisy inputs

### EDUCATION

[KAIST](#), Daejeon, South Korea

Ph.D. student, School of Computing,

Aug 2018 - Current

- Adviser: Professor Sung Ju Hwang
- Area of Study: Machine Learning
- Anticipated Graduation Date: **Feb 2023**

[UNIST](#), Ulsan, South Korea

M.S., Computer Science,

Aug 2016 - Feb 2018

- Thesis: *Combined Group and Exclusive Sparsity for Deep Neural Networks*
- Adviser: Professor Sung Ju Hwang
- Area of Study: Machine Learning

B.S., Computer Science Engineering,

Mar 2012 - Aug 2016

- Biological Science Minor

### RESEARCH EXPERIENCE

**Microsoft Research**, Beijing, China

RESEARCH INTERNSHIP

Nov 2021 - Apr 2022

- Visual Computing Group
- Research topic: Vision transformers for continual learning
- Mentor: [Yue Cao](#)

**MLAI Lab.**, **KAIST**, Daejeon, South Korea

CONTRACT RESEARCH SCIENTIST

Feb 2018 - Aug 2018

- Research topic: Efficient data sampling to accelerate the convergence

**AITRICS**, Seoul, South Korea

RESEARCH INTERNSHIP

Mar 2018 - May 2018

- Research topic: Structured weight transformation for continual learning

ONGOING PROJECTS	<b>Vision Transformers for Continual Learning</b> <a href="#">Jaehong Yoon</a> , Minseon Kim, Sung Ju Hwang, and Yue Cao working on, 2022.
	<b>Bitwidth Heterogeneous Federated Learning via Hierarchical Multi-View Dequantization</b> <a href="#">Jaehong Yoon</a> *, Geon Park*, Wonyong Jeong, and Sung Ju Hwang (*: equal contribution) working on, 2022.
	<b>Balanced Model Pruning and Quantization via Input-dependent Vector Importance</b> Geon Park*, <a href="#">Jaehong Yoon</a> *, Haiyang Zhang, Xing Zhang, Sung Ju Hwang, and Yonina C. Eldar (*: equal contribution) working on, 2022.
IN SUBMISSION	[S2] <b>Rethinking the Representational Continuity: Towards Unsupervised Continual Learning</b> Divyam Madaan, <a href="#">Jaehong Yoon</a> , Yuanchun Li, Yunxin Liu, and Sung Ju Hwang Submitted to <b>ICLR 2022</b> , <b>current score: [8, 8, 8, 8]</b> , Dec 2021
	[S1] <b>Online Coreset Selection for Rehearsal-based Continual Learning</b> <a href="#">Jaehong Yoon</a> , Divyam Madaan, Eunho Yang, and Sung Ju Hwang Submitted to <b>ICLR 2022</b> , <b>current score: [8, 6, 6, 5]</b> , Dec 2021
CONFERENCE PUBLICATIONS	[C5] <b>Federated Continual Learning with Weighted Inter-client Transfer</b> <a href="#">Jaehong Yoon</a> *, Wonyong Jeong*, Giwoong Lee, Eunho Yang, and Sung Ju Hwang (*: equal contribution) International Conference on Machine Learning ( <b>ICML</b> ) <b>2021</b> , Virtual
	[C4] <b>Federated Semi-supervised Learning with Inter-Client Consistency &amp; Disjoint Learning</b> Wonyong Jeong, <a href="#">Jaehong Yoon</a> , Eunho Yang, and Sung Ju Hwang International Conference on Learning Representations ( <b>ICLR</b> ) <b>2021</b> , Virtual
	[C3] <b>Scalable and Order-robust Continual Learning with Additive Parameter Decomposition</b> <a href="#">Jaehong Yoon</a> , Saehoon Kim, Eunho Yang, and Sung Ju Hwang International Conference on Learning Representations ( <b>ICLR</b> ) <b>2020</b> , Addis ababa, Ethiopia, Virtual
	[C2] <b>Lifelong Learning with Dynamically Expandable Networks</b> <a href="#">Jaehong Yoon</a> , Eunho Yang, Jeongtae Lee, and Sung Ju Hwang International Conference on Learning Representations ( <b>ICLR</b> ) <b>2018</b> , Vancouver, Canada
	[C1] <b>Combined Group and Exclusive Sparsity for Deep Neural Networks</b> <a href="#">Jaehong Yoon</a> and Sung Ju Hwang International Conference on Machine Learning ( <b>ICML</b> ) <b>2017</b> , Sydney, Australia
PREPRINTS	[P2] <b>Rapid Structural Pruning of Neural Networks with Set-based Task-Adaptive Meta-Pruning</b> Minyoung Song, <a href="#">Jaehong Yoon</a> , Eunho Yang, and Sung Ju Hwang arXiv:2006.12139, 2020.
	[P1] <b>Adaptive Network Sparsification with Dependent Beta-Bernoulli Dropout</b> Juho Lee, Saehoon Kim, <a href="#">Jaehong Yoon</a> , Haebeom Lee, Eunho Yang, and Sung Ju Hwang arXiv:1805.10896, 2018.

WORKSHOP PRESENTATIONS	[W2] <b>Federated Semi-supervised Learning with Inter-client Consistency</b> Wonyong Jeong, <b>Jaehong Yoon</b> , Eunho Yang, and Sung Ju Hwang <b>ICML Workshop</b> on Federated Learning for User Privacy and Data Confidentiality, ICML 2020, <b>Long Presentation</b> , <b>Best Student Paper Award</b>
	[W1] <b>Federated Continual Learning with Weighted Inter-client Transfer</b> <b>Jaehong Yoon*</b> , Wonyong Jeong*, Giwoong Lee, Eunho Yang, and Sung Ju Hwang (*: equal contribution) <b>ICML Workshop</b> on Lifelong Machine Learning, ICML 2020
PATENTS (US ONLY)	Method and Apparatus with Neural Network and Training <b>Jaehong Yoon</b> , Saehoon Kim, Eunho Yang, and Sung Ju Hwang US 20210256374 A1, Aug 2021
	Electronic Apparatus and Method for Re-learning Trained Model <b>Jaehong Yoon</b> , Eunho Yang, Jeongtae Lee, and Sung Ju Hwang US 20180357539 A1, Dec 2018
REVIEWER SERVICES	INTERNATIONAL CONFERENCES <ul style="list-style-type: none"> <li>• 2019 – 2022 <i>International Conference on Learning Representations</i> (ICLR)</li> <li>• 2018 – 2021 <i>Neural Information Processing System</i> (NEURIPS)</li> <li>• 2019 – 2021 <i>International Conference on Machine Learning</i> (ICML)</li> <li>• 2020 <i>International Joint Conferences on Artificial Intelligence</i> (IJCAI)</li> <li>• 2020 <i>Association for the Advancement of Artificial Intelligence</i> (AAAI)</li> </ul>
	INTERNATIONAL JOURNALS <ul style="list-style-type: none"> <li>• 2021 <i>IEEE Transactions on Pattern Analysis and Machine Intelligence</i> (TPAMI)</li> <li>• 2021 <i>IEEE/ACM Transactions on Networking</i> (TON)</li> <li>• 2020 <i>IEEE Transactions on Neural Networks and Learning Systems</i> (TNNLS)</li> <li>• 2020 <i>Neural Networks</i></li> </ul>
AWARDS	NAVER Ph.D. Fellowship Award, 2017
INVITED TALKS	LIFELONG LEARNING WITH DYNAMICALLY EXPANDABLE NETWORKS <ul style="list-style-type: none"> <li>• Samsung SDS, 2019</li> <li>• Tech. Talk from NAVER Corp., 2018</li> <li>• Tech. Open Connect (T-T.O.C) from SK-Telecom, 2018</li> </ul>
	COMBINED GROUP AND EXCLUSIVE SPARSITY FOR DEEP NEURAL NETWORKS <ul style="list-style-type: none"> <li>• Korea Software Congress (KSC), 2017</li> </ul>
REFERENCES	<ul style="list-style-type: none"> <li>• <b>Prof. Sung Ju Hwang</b>, Professor, KAIST Email: <a href="mailto:sjhwang82@kaist.ac.kr">sjhwang82@kaist.ac.kr</a></li> <li>• <b>Prof. Eunho Yang</b>, Associate Professor, KAIST Email: <a href="mailto:eunhoy@kaist.ac.kr">eunhoy@kaist.ac.kr</a></li> <li>• <b>Yue Cao</b>, Senior Researcher, Microsoft Research Asia Email: <a href="mailto:yue.cao@microsoft.com">yue.cao@microsoft.com</a></li> </ul>