

BYUNG HYUN LEE

CONTACT INFORMATION

Affiliation: Intelligent Computational imaging Lab (ICL), Seoul National University (SNU)

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RESEARCH INTERESTS

My research focuses on artificial intelligence (AI), particularly in continual learning, machine unlearning, and their applications to foundation models. I'm motivated to research on forgetting in neural networks — an essential challenge to address for lifelong adaptation and machine unlearning for foundation models. My work explores two key areas:

- Continual Learning for Foundation Models
- Machine Unlearning and Concept Erasing for Generative AI

Additionally, I'm interested in model acceleration and image restoration.

EDUCATION

- **Seoul National University (SNU)** *Mar 2021 - present*
Combined M.S./Ph.D Program in Electrical and Computer Engineering (ECE)
- **Ulsan National Institute of Science and Technology (UNIST)** *Mar 2015 - Aug 2018*
B.S. in Electrical Engineering, GPA: 4.04/4.30

RESEARCH ADVISOR

- **Se Young Chun:** Professor, Department of Electrical and Computer Engineering (ECE), SNU

PUBLICATIONS

- [Localized Concept Erasure for Text-to-Image Diffusion Models Using Training-Free Gated Low-Rank Adaptation](#)
B. H. Lee*, S. Lim*, S. Y. Chun (*co-first authors)
Conference on Computer Vision and Pattern Recognition (CVPR, accepted), 2025
- [Concept pinpoint eraser for text-to-image diffusion models via residual attention gate](#)
B. H. Lee*, S. Lim*, S. Lee, D. U. Kang, S. Y. Chun (*co-first authors)
International Conference on Learning Representations (ICLR, accepted), 2025
- [Continual Test-Time Adaptation for Robust Remote Photoplethysmography Estimation](#)
H. Lee, H. Lee, **B. H. Lee**, S. Y. Chun
IEEE Access, 2025
- [Selective Concept Erasing for Safe Diffusion Models](#)
B. H. Lee, S. Lim, S. Y. Chun
Korea Signal Processing Conference (Best Poster Presentation Award), 2024
- [Doubly perturbed task free continual learning](#)
B. H. Lee, M. Oh, S. Y. Chun
Proceedings of the AAAI Conference on Artificial Intelligence (AAAI, oral), 2024

- [Expert classifier ensemble based post-processing correction for unbiased scene graph generation](#)
S. Lee, **B. H. Lee**, S. Y. Chun
Workshop on Image Processing and Image Understanding (IPIU), 2024
- [Towards accelerating model parallelism in distributed deep learning systems](#)
H. Choi*, **B. H. Lee***, S. Y. Chun, J. Lee (*co-first authors)
PLOS One, 2023
- [Online Continual Learning on Hierarchical Label Expansion](#)
B. H. Lee*, O. Jung*, J. Choi, S. Y. Chun (*co-first authors)
International Conference on Computer Vision (ICCV), 2023
- [All-in-one image restoration for unknown degradations using adaptive discriminative filters for specific degradations](#)
D. Park, **B. H. Lee**, S. Y. Chun
Conference on Computer Vision and Pattern Recognition (CVPR), 2023
- [Efficient and accurate quantized image super-resolution on mobile npus, mobile ai & aim 2022 challenge: report](#)
A. Ignatov et al. (including **B. H. Lee**)
Workshops on European Conference on Computer Vision (ECCV), 2022
- [Efficient single-image depth estimation on mobile devices, mobile AI & AIM 2022 challenge: report](#)
A. Ignatov et al. (including **B. H. Lee**)
Workshops on European Conference on Computer Vision (ECCV), 2022
- [Uncertainty-based dual domain low-dose X-ray CT reconstruction](#)
S. Lee, D. U. Kang, **B. H. Lee**, S. Y. Chun
Korean Signal Processing Conference, 2022
- [Empirically Accelerating Scaled Gradient Projection Using Deep Neural Network for Inverse Problems in Image Processing](#)
B. H. Lee, S. Y. Chun
International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021

PATENTS

- **All-in-one image quality improvement model providing method performing image quality restoration for multiple image quality degradation factors**
S. Y. Chun, D. Park, **B. H. Lee**
U.S. Patent, Filed, 2023
- **Method for providing all-in-one image quality improvement model that performs image quality restoration for multiple image quality inhibitors**
S. Y. Chun, D. Park, **B. H. Lee**
Korea Patent, Filed, 2023

PRESENTATIONS

- **Continual Learning and Its Applications in Magnetic Resonance Imaging**
Advanced neuroimaging and AI workshop, SNU, 2024

FELLOWSHIP

Brain Korea 21 Four Program

Mar 2021 - present

RESEARCH EXPERIENCES

Biomedical Medical Image Processing Lab, UNIST
Researcher (Advisor: Prof. Se Young Chun)

May 2020 - Feb 2021

Biomedical Medical Image Processing Lab, UNIST
Student Internship (Advisor: Prof. Se Young Chun)

July 2017 - Aug 2018

EXTRACURRICULAR EXPERIENCES

Military Service, Republic of Korea Army
Discharged as Sergeant

Sep 2018 - Apr 2020

Pinocchio (Robot Club), UNIST
Education Director

Sep 2015 - Apr 2018