

# BYUNG HYUN LEE

## CONTACT INFORMATION

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## RESEARCH INTERESTS

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My research focuses on forgetting in neural networks — an essential challenge for continual learning, model merging, and machine unlearning in foundation models. Specifically, In particular, I have investigated the forgetting in multi-modal generative models. More recently, I've been working on machine unlearning and model merging for responsible generative AI. My work explores two key areas:

- Continual Learning and Model Merging for Foundation Models
- Machine unlearning and Model Merging for Responsible Generative AI

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

## EDUCATION

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- **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 Electical Engineering, GPA: 4.04/4.30

## RESEARCH ADVISOR

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

## PUBLICATIONS

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- [Continual Multiple Instance Learning with Enhanced Localization for Histopathological Whole Slide Image Analysis](#)  
**B. H. Lee**, W. Jeong, W. Han, K. Lee, S. Y. Chun  
International Conference on Computer Vision (ICCV), 2025
- [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), 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), 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

## PREPRINTS / MANUSCRIPTS UNDER REVIEW

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- [Unlearning the Unpromptable: Prompt-free Instance Unlearning in Diffusion Models](#)  
K. R. Lee\*, K. H. Lee\*, S. Hong, B. H. Lee, S. Y. Chun  
Under review, 2025
- [Geometrical Properties of Text Token Embeddings for Strong Semantic Binding in Text-to-Image Generation](#)  
H. Seo\*, J. Bang\*, H. Lee\*, J. Lee, B. H. Lee, S. Y. Chun  
Under review, 2025

## PATENTS

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- **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

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

RESEARCH EXPERIENCES

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<b>Biomedical Medical Image Processing Lab</b> , UNIST Researcher (Advisor: Prof. Se Young Chun)	<i>May 2020 - Feb 2021</i>
<b>Biomedical Medical Image Processing Lab</b> , UNIST Student Internship (Advisor: Prof. Se Young Chun)	<i>July 2017 - Aug 2018</i>

EXTRACURRICULAR EXPERIENCES

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<b>Military Service, Republic of Korea Army</b> Discharged as Sergeant	<i>Sep 2018 - Apr 2020</i>
<b>Pinocchio (Robot Club)</b> , UNIST Education Director	<i>Mar 2015 - Aug 2018</i>