

# BYUNG HYUN LEE

## CONTACT INFORMATION

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## RESEARCH INTERESTS

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My research focuses on forgetting in AI — an essential ML challenge for machine unlearning, continual learning, and trustworthy foundation models or agentic AI. Specifically, I have investigated forgetting in vision models and image generative models. More recently, I'm working on extending to trustworthy AI for large multi-modal models. My work explores two key areas:

- Machine unlearning for responsible generative AI
- Preventing catastrophic forgetting in foundation models and agentic AI.

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

## 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 Electrical 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 (Top AI Conference Papers)

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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
- [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
- [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

## PUBLICATIONS (Journal Papers)

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- [Continual Test-Time Adaptation for Robust Remote Photoplethysmography Estimation](#)  
H. Lee, H. Lee, **B. H. Lee**, S. Y. Chun  
IEEE Access, 2025
- [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

## PUBLICATIONS (Short, Workshop, or Domestic Papers)

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- [Selective Concept Erasing for Safe Diffusion Models](#)  
**B. H. Lee**, S. Lim, S. Y. Chun  
Korea Signal Processing Conference (Best Poster Presentation Award), 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
- [Efficient and accurate quantized image super-resolution on mobile npus, mobile ai & aim 2022 challenge: report](#)  
A. Ignatov et al. (including **B. H. Lee**)  
European Conference on Computer Vision Workshops (ECCVW), 2022
- [Efficient single-image depth estimation on mobile devices, mobile AI & AIM 2022 challenge: report](#)  
A. Ignatov et al. (including **B. H. Lee**)  
European Conference on Computer Vision Workshops (ECCVW), 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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- [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

RESEARCH EXPERIENCES

- **National AI Foundation Model Project in South Korea**, NAVER Cloud *Oct 2025 - present*  
Visiting Student Researcher
- **Biomedical Medical Image Processing Lab**, UNIST *May 2020 - Feb 2021*  
Researcher (Advisor: Prof. Se Young Chun)
- **Biomedical Medical Image Processing Lab**, UNIST *July 2017 - Aug 2018*  
Student Internship (Advisor: Prof. Se Young Chun)

PRESENTATIONS

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

AWARDS AND HONORS

- **Qualcomm Innovations Fellowship Korea** *2025*  
Best paper finalist
- **2nd Place in Report Generation in Pathology using Pan-Asia Gigapixel WSIs (€400)** *2025*  
Challenge by International Conference on MICCAI (Served as the team leader, 26 teams participated)
- **Yulchon AI Star Scholarships (₩8,000,000)** *2025*  
Youlchon Foundation & SNU AI Institute

EXTRACURRICULAR EXPERIENCES

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