

Seongmin Hong

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I'm a Postdoctoral Researcher at Institute of New Media and Communications, Seoul National University, with interests in recent image/video generative models and their inversion, as well as optimization algorithms and computational imaging systems like MRI and automotive radar.

Education

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| Ph.D. in Electrical and Computer Engineering – Seoul National University <i>Dissertation:</i> Inversion of Deep Generative Models: Structural and Optimization-based Approaches <i>Award:</i> Distinguished Ph.D. Dissertation Award in Communications and Signal Processing Advisor: Se Young Chun, GPA: 4.08/4.3 | 03 2020 — 08 2025 |
| B.S. in Electrical and Computer Engineering – Seoul National University GPA: 3.70/4.3 | 03 2016 — 02 2020 |
| Mathematics and Physics – Gyeonggi Science High School for the Gifted | 03 2013 — 02 2016 |

Experience

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| Postdoctoral Researcher – Institute of New Media and Communications, SNU | 09 2025 — 08 2026 |
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Publications (selected, sole first author)

[Gradient-free Decoder Inversion in Latent Diffusion Models](#)

Seongmin Hong, Suh Yoon Jeon, Kyeonghyun Lee, Ernest K. Ryu, Se Young Chun
Neural Information Processing Systems (**NeurIPS**), 2024.

[Adaptive Selection of Sampling-Reconstruction in Fourier Compressed Sensing](#)

Seongmin Hong, Jaehyeok Bae, Jongho Lee, Se Young Chun
European Conference on Computer Vision (**ECCV**), 2024.

[On Exact Inversion of DPM-Solvers](#)

Seongmin Hong, Kyeonghyun Lee, Suh Yoon Jeon, Hyewon Bae, Se Young Chun
Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024.

[On the Robustness of Normalizing Flows for Inverse Problems in Imaging](#)

Seongmin Hong, Inbum Park, Se Young Chun
International Conference on Computer Vision (**ICCV**), 2023.

[Neural Diffeomorphic Non-uniform B-spline Flows](#)

Seongmin Hong, Se Young Chun
Thirty-Seventh AAAI Conference on Artificial Intelligence (**AAAI**, oral), 2023.

[Advanced direction of arrival estimation using step-learned iterative soft-thresholding for frequency-modulated continuous wave multiple-input multiple-output radar](#)

Seongmin Hong, Seong-Cheol Kim, Seongwook Lee
IET Radar, Sonar & Navigation, 2023.

[Radar Signal Decomposition in Steering Vector Space for Multi-Target Classification](#)

Seongmin Hong, Seongwook Lee, Byeong-Ho Lee, Jinwook Kim, Yong-Hwa Kim, Seong-Cheol Kim
IEEE Sensors Journal, 2021.

Presentations

[On the Robustness of Normalizing Flows for Inverse Problems in Imaging](#)

In 2024 SIAM Conference on Imaging Science (**SIAM IS24**), Atlanta, Georgia, U.S., May 28-31, 2024

Challenges

[AIM 2024 Depth Upsampling Challenge](#) - 3rd place

Woojae Han, Kyeonghyun Lee, **Seongmin Hong**, Se Young Chun

Teaching Experience

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|---|-------------------|
| Head TA, Signals and Systems (English Lecture) | 03 2022 – 06 2022 |
| Head TA, Seminar in Electrical and Computer Engineering 3 | 03 2020 – 06 2020 |
| TA, Advanced Electromagnetics 1 | 03 2020 – 06 2020 |

Fellowship

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| Apple Scholars in AI/ML PhD fellowship program (Institutional Nominee) | 2025 |
| Qualcomm Innovation Fellowship Korea 2024 (won 4,000,000 KRW) | 12 2024 |
| Brain Korea 21 Four Program | 03 2020 – Present |

Services

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| Technical Research Personnel in SNU (Alternative military service) | 03 2023 – 02 2025 |
| Paper reviewers: NeurIPS (2024, 2025), ICML (2025), ICLR (2025), CVPR (2025), ICCV (2025), AAAI (2026), AISTATS (2025), ACMMM (2025) | |
| IEEE Sensors Journal, ACM TOMM, IEEE TPAMI | since 2023 |

Patents

Audio Data Management Device and Method Using A Generative AI Model
Se Young Chun, **Seongmin Hong**, Kyungryeol Lee
Korea Patent Filed, 04 2025

Other Publications

[Robust Watermarks for Audio Diffusion Models by Quadrature Amplitude Modulation](#)

Kyoungryeol Lee*, **Seongmin Hong***, Se Young Chun
Pattern Recognition Letters, Vol. 198, pp. 22-28, 2025.

[Uncertainty-Adaptive Selection of Sampling-Reconstruction for Fourier Compressed Sensing](#)

Seongmin Hong, Jaehyeok Bae, Jongho Lee, Se Young Chun
3rd Workshop on Uncertainty Quantification for Computer Vision in ECCV (extended abstract), 2024.

[Target classification based on point cloud data using automotive imaging radar](#)

Sohee Lim, Jaehoon Jung, **Seongmin Hong**, Byeong-ho Lee, Seong-Cheol Kim
KICS Winter Conference (in Korean), 2021.

[Measurement Data Release on 2.4 GHz ISM Band Usage](#)

Doyoung Ham, **Seongmin Hong**, Byonghyo Shim, Seong-Cheol Kim
KICS Winter Conference (in Korean), 2021.

[Analysis of CNN Classifier Performance for Segway Data with 77GHz Automotive Radar](#)

Byeong-ho Lee, **Seongmin Hong**, Jinwook Kim, Seongwook Lee, Byonghyo Sim, Seong-Cheol Kim
KICS Winter Conference (in Korean), 2021.

[Optimization of 16-QAM Constellations with AWGN Channel](#)

Seongmin Hong, Jeong-Hoon Park, Doyoung Ham, Seong-Cheol Kim
KICS Summer Conference (in Korean), 2020.