

# Ui-Hyeop Shin

Speech & Voice AI Researcher

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🎓 Scholar

🌐 LinkedIn

🐙 Github



## PROFILE

Speech-AI researcher specializing in signal processing and deep learning for separation, enhancement, and restoration. Among the few researchers in Korea publishing first-author work at NeurIPS, ICML and IEEE flagship venues from outside the conventional top-school pipeline.

*Array Signal Processing* beamforming · ICA / IVA · sound source localization  
*Speech Processing* speech separation · enhancement · restoration  
*Speech Representation* speaker verification · diarization · recognition

## SELECTED PUBLICATIONS (First Author)

- ICML · 2026 Query-based asymmetric modeling with decoupled input-output rates for speech restoration  
[U.-H. Shin](#), J. Ko, W. Jeong, H.-M. Park
- NeurIPS · 2024 Separate and Reconstruct: Asymmetric encoder-decoder for speech separation  
[U.-H. Shin](#), S. Lee, T. Kim, H.-M. Park
- ICASSP · 2024 NeXt-TDNN: Modernizing multi-scale temporal convolution backbone for speaker verification  
[U.-H. Shin\\*](#), H.-J. Heo\*, R. Lee, Y. Cheon, H.-M. Park  
*\*equal contribution*
- Interspeech · 2025 Stack Less, Repeat More: A block reusing approach for progressive speech enhancement  
[U.-H. Shin\\*](#), J. Kim\*, J. Ko, H.-M. Park  
*\*equal contribution*
- IEEE SPL · 2025 TF-CorrNet: Leveraging spatial correlation for continuous speech separation  
[U.-H. Shin](#), B. H. Ku, H.-M. Park-vol. 32, pp. 1875-1879
- IEEE T-ASLP · 2024 Statistical beamformer exploiting non-stationarity and sparsity with spatially constrained ICA for robust speech recognition  
[U.-H. Shin](#), H.-M. Park-vol. 32, pp. 4091-4104
- ICA · 2022 Statistical beamforming based on AuxIVA with distortionless and null constraints for robust speech recognition  
[U.-H. Shin](#), H.-M. Park

## UNDER REVIEW

- IEEE T-ASLP Asymmetric time-frequency encoder-decoder using correlation for speech separation  
[U.-H. Shin](#), H.-M. Park
- Interspeech Inter-frame correlation for deep filter estimation in speech dereverberation  
[U.-H. Shin](#), J. Kim, J. Kim, W. Kim, H.-M. Park

## FUNDED PROJECTS

- 2025 Integrated training of pre-processing & wake-word models with VAD · LG Electronics 2024 - 2025
- 2021 - 2025 (Sub 3) Development of AI-Based Dialogue Modeling Technology for Simultaneous Multi-Speaker Processing · IITP 2023 - 2024
- 2022 - 2023 Speaker recognition for voice-based driver profiling · Hyundai Motor Group (NGV) 2019 - 2021

## SELECTED HIGHLIGHTS

2 **Flagship ML venues**  
ICML 2026 · NeurIPS 2024  
— (first-author) **rare** as speech processing researcher

4 **flagship speech venues**  
T-ASLP · SPL · ICASSP · Interspeech  
— first-author across the field's top venues

🏆 **Samsung HumanTech Paper Awards**  
Bronze Prize in Signal Processing section

## EDUCATION

- 2021.9 - 2026.2  
**Ph.D., Electronic Engineering**  
Sogang University  
*Asymmetric encoder-decoder leveraging correlation for universal speech enhancement and separation*
- 2019.3 - 2021.2  
**M.S., Electronic Engineering**  
Sogang University  
*Target speech extraction based on AuxIVA with weighted source variance and noise dependence for robust speech recognition*
- 2015.3 - 2019.2  
**B.S., Electronic Engineering**  
Sogang University

## HONORS & AWARDS

- 2025  
**Bronze Prize — 31st Samsung HumanTech Paper Awards**  
*Signal Processing section*  
For "Separate and Reconstruct: Asymmetric Encoder-Decoder for Speech Separation" (NeurIPS 2024).
- 2024  
**Most Outstanding Graduate Student — Sogang Ricci Engineering Research Award**  
Awarded to the single most outstanding graduate researcher in the College of Engineering for exceptional research achievements over the past two years.
- 2024  
**Outstanding Award — Qualcomm Best Paper Award**  
*Dept. of Electronic Engineering, Sogang University*  
For "Statistical beamformer exploiting non-stationarity and sparsity with spatially constrained ICA" (T-ASLP 2024).

## SKILLS & TOOLING

- Lang. Python, C / C++, MATLAB, Shell
- ML PyTorch, Lightning, Hugging Face, ONNX, TensorRT
- Audio torchaudio, librosa, Kaldi, ESPnet, Asteroid
- Methods ICA / IVA, Beamforming, DSP, Bayesian inference
- Infra Distributed training (DDP), Linux / Slurm, Git, Docker

- Speech restoration in extreme acoustic environments · Government Agency
- Audio signal processing for identifying smartphone-recorded speech · Supreme Prosecutors' Office, Republic of Korea
- Research and Development of Intelligent Interaction Technology for Understanding User Intent and Context · NRF