

# Dayun Choi

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🌐 <https://choishio.github.io/>

🌐 LinkedIn

📷 Instagram



## Education

Mar, 2022 – Present

📖 **Master's and PhD Integrated Course Student** in School of Electrical Engineering at Korea Advanced Institute of Science and Technology (KAIST)

*Advisor: Prof. Jung-Woo Choi*

Research Assistant at Smart Sound Systems Lab

Focus: Deep Learning-based Target Sound Extraction on Multichannel Mixture using Spatial Queries

GPA: 3.88/4.3 (95.8/100) – via 81 credits.

Mar, 2018 – Feb, 2022

📖 **B.S. in Electronic Engineering** at Sogang University

*Advisor: Prof. Yangmo Yoo*

Undergraduate Intern at Medical Imaging Computing Systems Lab

Focus: Deep Learning-based Video Classification on Lung Ultrasound Imaging

GPA: 4.12/4.3 (98.6/100) – via 134 credits. (*Summa Cum Laude*)

## Publications






### Journal Articles

- 1 **D. Choi** and J.-W. Choi, "SoundCompass: Navigating target sound extraction with effective directional clue integration in complex acoustic scenes," *arXiv preprint arXiv:2509.18561*, 2025. 🔗 URL: <https://arxiv.org/abs/2509.18561>, 🔗 Demo: <https://choishio.github.io/demo-SoundCompass/>.
- 2 **D. Choi** and J.-W. Choi, "Target sound extraction on reverberant mixture," *The Journal of the Acoustical Society of America (JASA)*, vol. 154, no. 4-supplement, A270–A271, 2023. 🔗 DOI: <https://doi.org/10.1121/10.0023494>.

### Conference Proceedings





- 1 **D. Choi** and J.-W. Choi, "Multichannel-to-multichannel target sound extraction using direction and timestamp clues," in *Proc. International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, IEEE, Hyderabad, India, 2025, pp. 1–5. 🔗 DOI: <https://doi.org/10.1109/ICASSP49660.2025.10890145>, 🔗 Demo: [https://choishio.github.io/demo\\_M2M-TSE/](https://choishio.github.io/demo_M2M-TSE/).
- 2 **D. Choi** and J.-W. Choi, "Target sound extraction on multichannel reverberant mixture," in *2024 Autumn Conference of the Acoustical Society of Korea (ASK)*, ASK, Busan, Korea, 2024, pp. 170–171.
- 3 **D. Choi** and J.-W. Choi, "Target sound extraction on reverberant mixture using sound-class label and timestamp information," in *2024 Spring Conference of the Acoustical Society of Korea (ASK)*, ASK, Jeju, Korea, 2024, pp. 335–336.
- 4 **D. Choi**, D. Lee, and J.-W. Choi, "Low complexity dnn model for multichannel speech enhancement," in *2023 Spring Conference of the Korean Society of Noise and Vibration Engineering (KSNVE)*, KSNVE, Samcheok, Korea, 2023, pp. 132–132.
- 5 D. Lee, **D. Choi**, and J.-W. Choi, "DeFT-AN RT: Real-time multichannel speech enhancement using dense frequency-time attentive network and non-overlapping synthesis window," in *Proc. Interspeech*, ISCA, Dublin, Ireland, 2023, pp. 864–868. 🔗 DOI: <https://doi.org/10.21437/Interspeech.2023-2437>.

## Research Projects

- Jul, 2024 – Present     **IoT-based Eavesdropping Attack Detection and Defense Technology** funded by National Research Foundation of Korea (NRF) with National University of Singapore (NUS)
- Developed DNN models for speech dialogue restoration and enhancement from adjacent indoor spaces
  - Generated simulated and real-world datasets using Pyroomacoustics library, speakers, and multiple IoT sensors to evaluate system viability in real-world environments
  - Developed software program user interface and hardware products
  - Tools: Python (PyTorch), Matlab, NI SignalExpress, LabVIEW | KRK ROKIT 5 (RP5 G3), RME Audio FIREFACE UC, NI 9234, Sensors (352C66, 355Bo4, HY929)
- May, 2024 – Present     **General-Purpose AI for Integrated Analysis and Generation of Spatial Audio** funded by National Research Foundation of Korea (NRF)
- Developed Universal Spatial Audio Analysis Network to infer source directions, positions, classes, and room acoustics, and separate signals into object-oriented formats
  - Developed Universal Spatial Audio Generation Network to synthesize realistic 3D audio from single-channel or separated sources, supporting multimodal input and 6-DoF spatial rendering
  - Tools: Python (PyTorch)
- Jan, 2023 – Present     **Noise Cancellation and Speech Recognition Technology Robust to Battlefield Environments** funded by Center for Applied Research in Artificial Intelligence (CARAI)
- Developed DNN models for robust noise cancellation in battlefield scenarios
  - Tools: Python (PyTorch)
- Sep, 2021 – Dec, 2021     **Real-time COVID-19 Detection System from Lung Ultrasound Videos** in Medical Imaging Computing Systems Lab
- Developed DNN models for video classification of lung ultrasound data
  - Explored model compression techniques for real-time deployment
  - Developed system user interface
  - Tools: Python (TensorFlow, PyQt)
- Jul, 2021     **AI-based Automobile Recognition System** in The 2nd Software Pre-Education Program for Hyundai Mobis - Sogang University (FoSS)
- Pre-trained DNN models for object detection using Open-Images dataset
  - Deployed model on Jetson Nano and validated automobile detection performance
  - Tools: Python (PyTorch), Jetson Nano

## Assistantships

### Korea Advanced Institute of Science and Technology (KAIST)

- Summer, 2025     [EE495] Individual Study (*Lecturer: Prof. Jung-Woo Choi*)
- Spring, 2025 – Present     **Lab Head** of Smart Sound Systems Lab
- Winter, 2024     [EE495] Individual Study (*Lecturer: Prof. Jung-Woo Choi*)
- Autumn, 2024     [EE202] Signals and Systems (*Lecturer: Prof. Jung-Woo Choi*) (**Head TA**)

## Assistantships (continued)

Spring, 2024	■ [EE488] Introduction to Audio Signal Processing ( <i>Lecturer: Prof. Jung-Woo Choi</i> ) ( <b>Head TA</b> ) & [EE495] Individual Study ( <i>Lecturer: Prof. Jung-Woo Choi</i> )
Winter, 2023	■ [EE202] Signals and Systems ( <i>Lecturer: Prof. Jung-Woo Choi</i> ) ( <b>Head TA</b> )
Autumn, 2023	■ [EE202] Signals and Systems ( <i>Lecturer: Prof. Jung-Woo Choi</i> )
Spring, 2023	■ [EE305] Introduction to Electronics Design Lab ( <i>Lecturer: Prof. Jun-Bo Yoon</i> )
Fall, 2022	■ [EE202] Signals and Systems ( <i>Lecturer: Prof. Jung-Woo Choi</i> )

## Miscellaneous Experiences

### Honors & Awards

Mar 2 <sup>nd</sup> , 2024	■ The 1st place at the Technical Committee on Architectural Acoustics student paper award for the December Sydney meeting
Feb 21 <sup>st</sup> , 2022	■ Honors (Sogang University)
Mar 30 <sup>th</sup> , 2020	■ Dean's List for Electronic Engineering (Sogang University)
Mar, 2020 – Feb, 2022	■ The National Scholarship for Science and Engineering (Sogang University)
Mar 29 <sup>th</sup> , 2019	■ Dean's List for Electronic Engineering (Sogang University)
Nov 29 <sup>th</sup> , 2018	■ Dean's List for Electronic Engineering (Sogang University)
Nov 16 <sup>th</sup> , 2018	■ The 3rd Prize at the 7th Proposal Contest of General Elective Subjects (Sogang University)

### Experiences

Jun 18 <sup>th</sup> , 2024	■ Representative Presenter (Oral) of Smart Sound Systems Lab for KAIST-NUS Joint Seminar at KAIST
Apr 5 <sup>th</sup> , 2024	■ Representative Presenter (Oral) of Smart Sound Systems Lab for The 5th SORI Workshop at KAIST
Jul 13 <sup>rd</sup> , 2023	■ Representative Presenter (Poster) of Smart Sound Systems Lab for The 4th SORI Workshop at KAIST
Jul 19 <sup>th</sup> – 30 <sup>th</sup> , 2021	■ The 2nd Software Pre-Education Program for Hyundai Mobis - Sogang University (FoSS)
Jun 29 <sup>th</sup> – Jul 9 <sup>th</sup> , 2019	■ The 24th Overseas Culture Tour to Greece & Türkiye from Sogang University
Jan, 2019 – Feb, 2020	■ Head of education and culture department of Hyunwoohoe (Classical Guitar Club in Sogang University)

## Skills

Programming Languages	■ Python/Matlab (Advanced), C/Linux/VHDL (Intermediate)
ML Frameworks	■ PyTorch/TensorFlow (Advanced)
Software	■ OrCAD/Pspice (Advanced), NI SignalExpress/Audacity (Intermediate), nanoHUB/Unity/LabVIEW (Elementary)
Hardware	■ KRK ROKIT 5 (RP5 G3)/RME Audio FIREFACE UC/NI 9234 (Intermediate), Arduino/EasyFPGA-Comboz/Jetson Nano (Elementary)
Languages	■ Korean (Native), English (TOEIC: 735 – expired)