

Jee-weon Jung (updated 05/06/2023)

Google Scholar

Github: github.com/Jungjee

Email: jeewon.leo.jung@gmail.com

Mobile: +1-412-540-9540

EDUCATION

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- **PhD, Computer Science and Engineering** March 2017 - February 2021
University of Seoul *Seoul, Republic of Korea*
Thesis: Raw waveform speaker verification using an end-to-end deep neural network architecture and feature map scaling
Supervisor: Ha-Jin Yu
 - **BBA** March 2013 - February 2017
University of Seoul *Seoul, Republic of Korea*
 - **BS, Computer Science and Engineering (Double major)** March 2013 - February 2017
University of Seoul *Seoul, Republic of Korea*

PROFESSIONAL EXPERIENCE

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- **Carnegie Mellon University** May 2023 -
Postdoctoral Research Associate
 - **Naver Clova, Republic of Korea** December 2020 - April 2023
Research Scientist (full time)
 - **Speaker recognition:** developed speaker embedding extractors for ClovaNote service
 - **Sound(audio) event detection:** developed volleyball whistle detection models for Naver volleyball streaming service.
 - **Audio anti-spoofing:** Developed state-of-the-art anti-spoofing systems.
 - **Papers and patents:** published 27 papers and filed 3 patents

HONORS AND AWARDS

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- Ranked 3rd place at the Third DIHARD Speech Diarisation Challenge (track 1 core) - 2021
 - Ranked 4th place at the DCASE 2021 Challenge task 1 - 2021
 - Ranked 6th place at the DCASE 2019 Challenge task 1 - 2019
 - Ranked 7th place at the DCASE 2018 Challenge task 1 - 2018
 - Ranked 8th place at the DCASE 2017 Challenge task 1 - 2017
 - Samsung Convergence Software Course Scholarship - 2015

SKILLS

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- **Language skills:** English, Korean (native), Chinese
 - **Programming:** Python, Bash, C
 - **Toolkits:** PyTorch, Theano, Keras, Scipy, Kaldi

COMMUNITY ENGAGEMENTS

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- **Organiser** 2022
SASV special session at Interspeech (founding organiser), VoxSRC workshop, ASVSpooF
 - **Session Chair** 2022
ICASSP
 - **Reviewer** 2019 -
IEEE TASLP, ICASSP, Interspeech, CSL, DCASE, IEEE SPL, IEEE Access, Nature scientific reports

TEACHING

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- **Python programming** September 2019
Korea Meteorological Administration *Jeju, Republic of Korea*
 - **Python for deep learning** May 2019
Korea Meteorological Administration *Jeju, Republic of Korea*
 - **Raw waveform speaker verification** January 2019
Naver tech talk *Kyung-gi, Republic of Korea*

[2023]: 5 publications, including 2 first and 2 corresponding author publications

- [Paper] **Jee-weon Jung**, Hee-Soo Heo, Bong-Jin Lee, Jaesung Huh, Andrew Brown, Youngki Kwon, Shinji Watanabe, Joon Son Chung, “In search of strong embedding extractors for speaker diarisation,” in Proc. ICASSP.
- [Paper] You Jin Kim*, Hee-Soo Heo*, **Jee-weon Jung***, Youngki Kwon, Bong-Jin Lee, Joon Son Chung, “Advancing the dimensionality reduction of speaker embeddings for speaker diarisation: disentangling noise and informing speech activity,” in Proc. ICASSP.
- [Paper] Hee-Soo Heo, Youngki Kwon, Bong-Jin Lee, You Jin Kim, **Jee-weon Jung**, “High-resolution embedding extractor for speaker diarisation,” in Proc. ICASSP.
- [Paper] Youngki Kwon, Hee-Soo Heo, Bong-Jin Lee, You Jin Kim, **Jee-weon Jung**, “Absolute decision corrupts absolutely: conservative online speaker diarisation,” in Proc. ICASSP.
- [Preprint] Jaesung Huh, Andrew Brown, **Jee-weon Jung**, Joon Son Chung, Arsha Nagrani, Daniel Garcia-Romero, Andrew Zisserman, “VoxSRC 2022: The Fourth VoxCeleb Speaker Recognition Challenge,” in arXiv.

[2022]: 12 publications, including 6 first author publications

- [Paper] **Jee-weon Jung**, Hee-Soo Heo, Hemlata Tak, Hye-jin Shim, Joon Son Chung, Bong-Jin Lee, Ha-Jin Yu, Nicholas Evans, “Aasist: Audio anti-spoofing using integrated spectro-temporal graph attention networks,” in Proc. ICASSP.
- [Paper] Hye-jin Shim, **Jee-weon Jung**, Ju-ho Kim, Ha-Jin Yu, “Attentive Max Feature Map and Joint Training for Acoustic Scene Classification,” in Proc. ICASSP.
- [Paper] Youngki Kwon, Hee-Soo Heo, **Jee-weon Jung**, You Jin Kim, Bong-Jin Lee, Joon Son Chung, “Multi-scale speaker embedding-based graph attention networks for speaker diarisation,” in Proc. ICASSP.
- [Paper] **Jee-weon Jung***, You Jin Kim*, Hee-Soo Heo, Bong-Jin Lee, Youngki Kwon, Joon Son Chung, “Pushing the limits of raw waveform speaker verification,” in Proc. Interspeech.
- [Paper] **Jee-weon Jung***, Hemlata Tak*, Hye-jin Shim, Hee-Soo Heo, Bong-Jin Lee, Soo-Whan Chung, Ha-Jin Yu, Nicholas Evans, Tomi Kinnunen, “SASV 2022: The First Spoofing-Aware Speaker Verification Challenge,” in Proc. Interspeech.
- [Paper] Hye-jin Shim, Hemlata Tak, Xuechen Liu, Hee-Soo Heo, **Jee-weon Jung**, Joon Son Chung, Soo-Whan Chung, Ha-Jin Yu, Bong-Jin Lee, Massimiliano Todisco, Héctor Delgado, Kong Aik Lee, Md Sahidullah, Tomi Kinnunen, Nicholas Evans, “Baseline systems for the first spoofing-aware speaker verification challenge: score and embedding fusion,” in Proc. Speaker Odyssey.
- [Paper] Hemlata Tak, Massimiliano Todisco, Xin Wang, **Jee-weon Jung**, Junichi Yamagishi, Nicholas Evans, “Automatic speaker verification spoofing and deepfake detection using wav2vec 2.0 and data augmentation,” in Proc. Speaker Odyssey.
- [Paper] Sung Hwan Mun*, **Jee-weon Jung***, Min Hyun Han, Nam Soo Kim, “Frequency and Multi-Scale Selective Kernel Attention for Speaker Verification,” in Proc. SLT.
- [Preprint] **Jee-weon Jung**, Hee-Soo Heo, Bong-Jin Lee, Jaesong Lee, Hye-jin Hsim, Youngki Kwon, Joon Son Chung, Shinji Watanabe, “Large-scale learning of generalised representations for speaker recognition,” in arXiv.
- [Preprint] Kihyun Nam, Youkyum Kim, Hee Soo Heo, **Jee-weon Jung**, Joon Son Chung, “Disentangled representation learning for multilingual speaker recognition,” in arXiv.
- [Preprint] Hee-Soo Heo, **Jee-weon Jung**, Jingu Kang, Youngki Kwon, You Jin Kim, Bong-Jin Lee, Joon Son Chung, “Self-supervised curriculum learning for speaker verification,” in arXiv.
- [Preprint] **Jee-weon Jung**, Hemlata Tak, Hye-jin Shim, Hee-Soo Heo, Bong-Jin Lee, Soo-Whan Chung, Hong-Goo Kang, Ha-Jin Yu, Nicholas Evans, Tomi Kinnunen, “SASV Challenge 2022: A Spoofing Aware Speaker Verification Challenge Evaluation Plan,” in arXiv.

[2021]: 10 publications, including 5 first author publications

- [Paper] **Jee-weon Jung***, Hee-Soo Heo*, Ha-Jin Yu, Joon Son Chung, “Graph Attention Networks for Speaker Verification,” in Proc. ICASSP.
- [Paper] **Jee-weon Jung**, Hye-jin Shim, Ju-ho Kim, Ha-Jin Yu, “DCASENET: An integrated pre-trained deep neural network for detecting and classifying acoustic scenes and events,” in Proc. ICASSP.
- [Paper] **Jee-weon Jung**, Hee-Soo Heo, Youngki Kwon, Joon Son Chung, Bong-Jin Lee, “Three-class Overlapped Speech Detection using a Convolutional Recurrent Neural Network,” in Proc. Interspeech.
- [Paper] Hye-jin Shim*, **Jee-weon Jung***, Ju-ho Kim, Ha-jin Yu, “Capturing Discriminative Information Using a Deep Architecture in Acoustic Scene Classification,” in Applied Sciences.
- [Paper] Youngki Kwon, **Jee-weon Jung**, Hee-Soo Heo, You Jin Kim, Bong-Jin Lee, Joon Son Chung, “Adapting Speaker Embeddings for Speaker Diarisation,” in Proc. Interspeech.
- [Paper] Hemlata Tak, **Jee-weon Jung**, Jose Patino, Massimiliano Todisco, Nicholas Evans, “Graph Attention Networks for Anti-Spoofing,” in Proc. Interspeech.

- **[Paper]** Hemlata Tak, **Jee-weon Jung**, Jose Patino, Madhu Kamble, Massimiliano Todisco, Nicholas Evans, “End-to-End Spectro-Temporal Graph Attention Networks for Speaker Verification Anti-Spoofing and Speech Deepfake Detection,” in ASVspoof Workshop (Interspeech satellite).
- **[Paper]** Ju-ho Kim, Hye-jin Shim, **Jee-weon Jung**, Ha-Jin Yu, “A Supervised Learning Method for Improving the Generalization of Speaker Verification Systems by Learning Metrics from a Mean Teacher,” in Applied Sciences.
- **[Tech. Rep]** Hee-Soo Heo*, **Jee-weon Jung***, Hye-jin Shim, Bong-Jin Lee, “Clova Submission For The DCASE 2021 Challenge: Acoustic Scene Classification Using Light Architectures and Device Augmentation,” in http://dcase.community/documents/challenge2021/technical_reports/DCASE2021_Heo_30.t1.pdf.
- **[Tech. Rep]** Hee-Soo Heo, **Jee-weon Jung**, Youngki Kwon, J Kim, Jaesung Huh, Joon Son Chung, Bong-Jin Lee, “NAVER Clova Submission To The Third DIHARD Challenge,” in https://dihardchallenge.github.io/dihard3/system_descriptions/dihard3_system_description_team73.pdf.

[2020]: 11 publications, including 9 first author publications

- **[Paper]** **Jee-weon Jung**, Hee-Soo Heo, Hye-jin Shim, Ha-Jin Yu, “Knowledge Distillation in Acoustic Scene Classification,” in IEEE Access.
- **[Paper]** **Jee-weon Jung**, Hye-jin Shim, Ju-ho Kim, Seung-bin Kim, Ha-Jin Yu, “Acoustic Scene Classification using Audio Tagging,” in Proc. **Interspeech**.
- **[Paper]** Hye-jin Shim*, **Jee-weon Jung***, Ju-ho Kim, Ha-Jin Yu, “Integrated Replay Spoofing-Aware Text-Independent Speaker Verification,” in Applied Sciences.
- **[Paper]** Seung-bin Kim*, **Jee-weon Jung***, Hye-jin Shim, Ju-ho Kim, Ha-Jin Yu, “Segment Aggregation for short utterances speaker verification using raw waveforms,” in Proc. **Interspeech**.
- **[Paper]** **Jee-weon Jung***, Seung-bin Kim*, Hye-jin Shim, Ju-ho Kim, Ha-Jin Yu, “Improved rawnet with filter-wise rescaling for text-independent speaker verification using raw waveforms,” in Proc. **Interspeech**.
- **[Paper]** **Jee-weon Jung***, Ju-ho Kim*, Hye-jin Shim, Seung-bin Kim, Ha-Jin Yu, “Selective Deep Speaker Embedding Enhancement for Speaker Verification,” in Proc. Speaker Odyssey.
- **[Paper]** Ju-ho Kim*, **Jee-weon Jung***, Hye-jin Shim, Ha-Jin Yu, “Audio Tag Representation Guided Dual Attention Network for Acoustic Scene Classification,” in Proc. DCASE Workshop.
- **[Paper]** **Jee-weon Jung**, Hye-jin Shim, Ju-ho Kim, Ha-Jin Yu, “ α -feature map scaling for raw waveform speaker verification,” in the Journal of the Acoustical Society of Korea.
- **[Paper]** Hye-jin Shim, Hee-Soo Heo, **Jee-weon Jung**, Ha-Jin Yu, “Self-supervised pre-training with acoustic configurations for replay spoofing detection,” in Proc. **Interspeech**.
- **[Preprint]** **Jee-weon Jung**, Hye-jin Shim, Hee-Soo Heo, Ha-Jin Yu, “A study on the role of subsidiary information in replay attack spoofing detection,” in arXiv.
- **[Tech. Rep]** Hye-jin Shim, Ju-ho Kim, **Jee-weon Jung**, Ha-jin Yu, “Audio tagging and deep architectures for acoustic scene classification: Uos submission for the DCASE 2020 challenge,” in https://dcase.community/documents/challenge2020/technical_reports/DCASE2020_Shim_120.pdf.

[2019]: 7 publications, including 4 first author publications

- **[Paper]** **Jee-weon Jung**, Hee-Soo Heo, Ju-ho Kim, Hye-jin Shim, Ha-Jin Yu, “RawNet: Advanced end-to-end deep neural network using raw waveforms for text-independent speaker verification,” in Proc. **Interspeech**.
- **[Paper]** **Jee-weon Jung***, Hye-jin Shim*, Hee-Soo Heo, Ha-Jin Yu, “Replay attack detection with complementary high-resolution information using end-to-end DNN for the ASVspoof 2019 Challenge,” in Proc. **Interspeech**.
- **[Paper]** Hee-Soo Heo*, **Jee-weon Jung***, Hye-jin Shim, Ha-Jin Yu, “Acoustic scene classification using teacher-student learning with soft-labels,” in Proc. **Interspeech**.
- **[Paper]** Hee-Soo Heo, **Jee-weon Jung**, IL-Ho Yang, Sung-Hyun Yoon, Hye-jin Shim, Ha-Jin Yu, “End-to-end losses based on speaker basis vectors and all-speaker hard negative mining for speaker verification,” in Proc. **Interspeech**.
- **[Paper]** **Jee-weon Jung***, Hee-Soo Heo*, Hye-jin Shim, Ha-Jin Yu, “Distilling the Knowledge of Specialist Deep Neural Networks in Acoustic Scene Classification,” in Proc. DCASE Workshop.
- **[Paper]** Ju-ho Kim, Hee-Soo Heo, **Jee-weon Jung**, Hye-jin Shim, Seung-Bin Kim, Ha-Jin Yu, “Utilization of age information for speaker verification using multi-task learning deep neural networks,” in the Journal of the Acoustical Society of Korea.
- **[Preprint]** Hee-Soo Heo, **Jee-weon Jung**, Hye-jin Shim, IL-Ho Yang, Ha-Jin Yu, “Cosine similarity-based adversarial process,” in arXiv.

[2018]: 6 publications, including 5 first author publications

- **[Paper]** **Jee-weon Jung**, Hee-Soo Heo, IL-ho Yang, Hye-jin Shim, Ha-Jin Yu, “A COMPLETE END-TO-END SPEAKER VERIFICATION SYSTEM USING DEEP NEURAL NETWORKS: FROM RAW SIGNALS TO VERIFICATION RESULT,” in Proc. **ICASSP**.
- **[Paper]** **Jee-weon Jung**, Hee-Soo Heo, IL-Ho Yang, Hye-Jin Shim, Ha-Jin Yu, “Avoiding Speaker Overfitting in End-to-End DNNs using Raw Waveform for Text-Independent Speaker Verification,” in Proc. **Interspeech**.

- [Paper] **Jee-weon Jung***, Hee-soo Heo*, Hye-jin Shim, Ha-Jin Yu, “Short utterance compensation in speaker verification via cosine-based teacher-student learning of speaker embeddings,” in Proc. ASRU.
- [Paper] **Jee-weon Jung***, Hee-Soo Heo*, Hye-jin Shim, Ha-Jin Yu, “DNN based multi-level features ensemble for acoustic scene classification,” in Proc. DCASE Workshop.
- [Paper] **Jee-weon Jung**, Hee-Soo Heo, Hye-jin Shim, Ha-Jin Yu, “Multi channel far field speaker verification using teacher student deep neural networks,” in the Journal of the Acoustical Society of Korea.
- [Paper] Hye-jin Shim, **Jee-weon Jung**, Hee-Soo Heo, Sung-Hyun Yoon, Ha-Jin Yu, “Replay spoofing detection system for automatic speaker verification using multi-task learning of noise classes,” in Proc. TAAI.

[2017]: **3** publications, including **2** first author publications

- [Paper] **Jeeweon Jung**, Heesoo Heo, Ilho Yang, Sunghyun Yoon, Hyejin Shim, Hajin Yu, “D-vector based speaker verification system using Raw Waveform CNN,” in Proc. ANIT.
- [Paper] **Jee-weon Jung**, Hee-Soo Heo, IL-Ho Yang, Sung-Hyun Yoon, Hye-Jin Shim, Ha-Jin Yu, “DNN-based audio scene classification for DCASE 2017: dual input features, balancing cost, and stochastic data duplication,” in Proc. DCASE Workshop.
- [Paper] Hee-soo Heo, **Jee-weon Jung**, IL-ho Yang, Sung-hyun Yoon, Ha-jin Yu, “Joint training of expanded end-to-end DNN for text-dependent speaker verification,” in Proc. **Interspeech**.