

Myeonghun Jeong

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About

I earned my Ph.D. from Seoul National University under the supervision of Prof. Nam Soo Kim. My primary research area was speech synthesis, with a particular interest in deep generative models. Since March 2025, I have been working at Samsung Electronics, where I research on AI for material discovery. My work focuses on post-training large language models (LLMs) that function as the core reasoning engines within these systems. In this context, I leverage techniques such as supervised fine-tuning (SFT), and in-context learning (ICL) to align LLM behavior with complex scientific discovery tasks.

Research Interests

- Large Language Models (LLMs)
- Speech Synthesis
- Audio and Speech Signal Processing
- Deep Generative Models

Education

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| Seoul National University <i>Ph.D. in Electrical and Computer Engineering</i> | <i>Mar 2020 – Feb 2025</i> |
| <ul style="list-style-type: none"> ○ GPA: 4.08/4.30 ○ Advised by Prof. Nam Soo Kim | |
| Soongsil University <i>BS in Electronic Engineering</i> | <i>Mar 2014 – Feb 2020</i> |
| <ul style="list-style-type: none"> ○ GPA: 4.28/4.50 (Ranked 2nd out of 171) | |

Work Experiences

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| Samsung Electronics, AI Center <i>Staff Engineer</i> | <i>Suwon, South Korea</i> <i>Mar 2025 -</i> |
| <ul style="list-style-type: none"> ○ Development of LLM and agent workflow for scientific material discovery | |
| Kakao Enterprise Corp. <i>Intern</i> | <i>Seongnam, South Korea</i> <i>Aug 2022 – Dec 2022</i> |
| <ul style="list-style-type: none"> ○ Participated in the development of in-car speech synthesis services ○ Research on data-efficient speech synthesis, handling multi-lingual and zero-shot multi-speaker TTS | |

Journal Publications

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|---|-----------------|
| ASVspoof 5: Design, Collection and Validation of Resources for Spoofing, Deepfake, and Adversarial Attack Detection Using Crowdsourced Speech | <i>Jan 2026</i> |
| Xin Wang, Héctor Delgado, Hemlata Tak, Jee-weon Jung, Hye-jin Shim, Massimiliano Todisco, Ivan Kukanov, Xuechen Liu, Md Sahidullah, Tomi Kinnunen, Nicholas Evans, Kong Aik Lee, Junichi Yamagishi, Myeonghun Jeong , Ge Zhu, Yongyi Zang, You Zhang, Maiti Soumi, Florian Lux, Nicolas Müller, Wangyou Zhang, Chengzhe Sun, Shuwei Hou, Siwei Lyu, Le Maguer Sébastien, Cheng Gong, Hanjie Guo, Liping Chen, Vishwanath Singh | |
| Computer Speech & Language ↗ | |
| Utilizing Neural Transducers for Two- Stage Text-to-Speech via Semantic Token Prediction | <i>May 2025</i> |
| M. Kim, M. Jeong , B. J. Choi, S. Kim, J. Y. Lee, N. S. Kim | |
| IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP) ↗ | |

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| Sampling-based Pruned Knowledge Distillation for Training Lightweight RNN-T | Jan 2025 |
| S. Kim, D. J. Lee, J. Y. Kang, <i>M. Jeong</i> , N. S. Kim IEEE Signal Processing Letters (SPL) ↗ | |
| SegINR: Segment-wise Implicit Neural Representation for Sequence Alignment in Neural Text-to-Speech | Jan 2025 |
| M. Kim, <i>M. Jeong</i> , J. Y. Lee, N. S. Kim IEEE Signal Processing Letters (SPL) ↗ | |
| Efficient Parallel Audio Generation Using Group Masked Language Modeling | Mar 2024 |
| <i>M. Jeong</i> , M. Kim, J. Y. Lee, N. S. Kim IEEE Signal Processing Letters (SPL) ↗ | |
| Variable-Length Speaker Conditioning in Flow-Based Text-to-Speech | Mar 2024 |
| B. J. Choi, <i>M. Jeong</i> , M. Kim, N. S. Kim IEEE Signal Processing Letters (SPL) ↗ | |
| Transfer Learning for Low-Resource, Multi-Lingual, and Zero-Shot Multi-Speaker Text-to-Speech | Feb 2024 |
| <i>M. Jeong</i> , M. Kim, B. J. Choi, J. Yoon, W. Jang, N. S. Kim IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP) ↗ | |
| SNAC: Speaker-Normalized Affine Coupling Layer in Flow-Based Architecture for Zero-Shot Multi-Speaker Text-to-Speech | Dec 2022 |
| B. J. Choi, <i>M. Jeong</i> , J. Y. Lee, N. S. Kim IEEE Signal Processing Letters (SPL) ↗ | |

Conference Publications

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| Aligning Reasoning LLMs for Materials Discovery with Physics-aware Rejection Sampling | Dec 2025 |
| H. Lee, S. Yoon, J. Park, S.I. Chae, S. Park, J. Ahn, Y. Jung, Y. Chung, H. Chang, M. Kang, J. Kim, H.G. Kim, <i>M. Jeong</i> NeurIPS 2025 AI for Science Workshop ↗ | |
| SNR-Aligned Consistent Diffusion for Adaptive Speech Enhancement | Aug 2025 |
| Y. Jun, B.J. Woo, <i>M. Jeong</i> , N. S. Kim Interspeech 2025 ↗ | |
| Evidential-TTS: High Fidelity Zero-Shot Text-to-Speech Using Evidential Deep Learning | Apr 2025 |
| <i>M. Jeong</i> , M. Kim, S. Kim, N. S. Kim IEEE ICASSP 2025 ↗ | |
| High Fidelity Text-to-Speech Via Discrete Tokens Using Token Transducer and Group Masked Language Model | Sep 2024 |
| <i>M. Jeong</i> [*] , J. Y. Lee [*] , M. Kim [*] , J. Lee, H. Y. Cho, N. S. Kim Interspeech 2024 ↗ | |
| MakeSinger: A Semi-Supervised Training Method for Multi-Speaker Singing Voice Synthesis by Classifier-free Diffusion Guidance | Sep 2024 |
| S. M. Kim, <i>M. Jeong</i> , H. S. Lee, B. J. Choi, M. Kim, N. S. Kim Interspeech 2024 ↗ | |
| Transduce and Speak: Neural Transducer for Text-to-Speech with Semantic Token Prediction | Dec 2023 |
| M. Kim, <i>M. Jeong</i> , B. J. Choi, D. Lee, N. S. Kim IEEE ASRU 2023 ↗ | |
| Towards single integrated spoofing-aware speaker verification embeddings | Aug 2023 |

S. H. Mun*, H. Shim*, H. Tak, X. Wang, X. Liu, M. Sahidullah, **M. Jeong**, M. H. Han, M. Todisco, K. A. Lee, J. Yamagishi, N. Evans, T. Kinnunen, N. S. Kim, J. Jung
[Interspeech 2023](#) [🔗](#)
Improving Learning objectives for speaker verification from the perspective of score comparison Jun 2023
M. H. Han, S. H. Mun, M. Kim, **M. Jeong**, S. H. Ahn, N. S. Kim
[IEEE ICASSP 2023](#) [🔗](#)
Transfer Learning Framework for Low-Resource Text-to-Speech using a Large-Scale Unlabeled Speech Corpus Sep 2022
(Interspeech Best Student Paper)
M. Jeong*, M. Kim*, B. J. Choi, S. H. Ahn, J. Y. Lee, N. S. Kim
[Interspeech 2022](#) [🔗](#)
Adversarial speaker-consistency learning using untranscribed speech data for zero-shot multi-speaker text-to-speech Nov 2022
B. J. Choi, **M. Jeong**, M. Kim, S. H. Mun, N. S. Kim
[APSIPA ASC 2022](#) [🔗](#)
Diff-TTS: A Denoising Diffusion Model for Text-to-Speech Sep 2021
M. Jeong, H. Kim, S. J. Cheon, B. J. Choi, N. S. Kim
[Interspeech 2021](#) [🔗](#)

Projects

LLM-driven supply-demand optimization for semiconductor manufacturing. *Mar 2026 -*
Samsung Electronics

- LLM-based algorithmic search for supply-demand scheduling
- Formulated industrial problems as combinatorial optimization models
- Built agentic AI workflows with LLM tool-calling and retrieval-augmented approaches

Development of new materials for semiconductor manufacturing using LLMs and agentic AI workflows. *May 2025 -*
Samsung Electronics

- Developed material property prediction models using ICL, SFT, DPO.
- Designed agentic AI workflows leveraging RAG for semiconductor material discovery.

Research on Low Latency Streaming TTS *May 2024 - Dec 2024*
Samsung Research

- Conducted research for streaming zero-shot text-to-speech (TTS) technology
- Aimed at improving low latency performance in TTS systems

Development of zero-shot TTS technology using in-context learning *Jun 2023 - Dec 2023*
Samsung Research

- Researched in-context learning-based zero-shot text-to-speech technology
- Focused on developing TTS systems that require minimal training data for new speakers

Acoustic Modeling for Personalized Voice Synthesis *Jul 2021 - Jul 2022*
Samsung Research

- Worked on acoustic modeling techniques to personalize voice synthesis
- imed at creating more natural and customized synthetic voices for users

Development of end-to-end multi-speaker prosody and emotion cloning using only limited data *Apr 2020 - Dec 2021*
Institute for Information & communication Technology Planning & evaluation (IITP)

- Conducted research on multi-speaker neural vocoder
- Focused on end-to-end models for prosody and emotion cloning with limited data

AI-based real-time voice recognition and synthesis *Apr 2020 - Jul 2021*
SHINSEGAE I&C Inc.

- Worked on speech enhancement for robust automatic speech recognition (ASR)
- Developed voice activity detection systems for real-time ASR applications

Development of AI-based real-time speech synthesis

Nov 2020 - Nov 2021

Samsung Securities Co., Ltd

- Conducted research on speech synthesis technology tailored for financial services

Achivements & Hornors

Data contributor in ASVSpooof 5 challenge ([Related database](#) [↗](#)) ([Related article](#) [↗](#)) *2024*

Ph.D. Scholarship from Samsung Advanced Institute of Technology (SAIT) *2023*

Interspeech 2022 Best Student Paper ([Related article](#) [↗](#)) *2022*

Third Prize in IEEE ICASSP Signal Processing CUP *2019*

National Science and Engineering Scholarship 2019 awarded by the Korean Minister of Science and ICT *2019*

Academic Reviewer: IEEE ICASSP 2024, 2025, Interspeech 2025, 2026, IEEE Signal Processing Letters, IEEE/ACM TASLP

Skills

Programming Languages: Python, C

Deep Learning Frameworks: PyTorch, Lhotse, ESPNet

Languages: Korean (Native), English (Advanced)