Sichen Jin (Eunhyang Kim)

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EXPERIENCE

• **Samsung Research**   *01/2018 - Current*
Speech AI Researcher, Speech Intelligence Team   Seoul, Korea

• **IBM Korea**   *12/2017 - 01/2018*
Intern, Watson Delievery Engineer   Seoul, Korean

• **Infosys**   *03/2017 - 06/2017*
Research Intern, Question Answering   Bangalore, India

EDUCATION

• **Seoul National University**   *09/2013 - 02/2018*
B.Sc., Computer Science & Engineering   Seoul, Korea

PROJECTS

• **Custom Wake-up Word: Spoken Keyword Spotting with Tiny Models**   *2023 - Present*
Speech Intelligence Team, Samsung Research, Korea
  ◦ Created a more efficient audio-text joint embedding space by aligning inputs of the two modalities on-the-fly
  ◦ Refined the training objective to learn both embeddings and alignments simultaneously
  ◦ Implemented the inference code for the model in plain C for further developement on DSP board

• **Cross-modal Contextual Biasing: Internal Language Model Estimation for Speech Models**   *2022*
Speech Intelligence Team, Samsung Research, Korea
  ◦ Estimated the internal language model by leveraging different subnetworks in ASR models
  ◦ Experimented with methods to bias the speech model using text-only data, and discovered that the subnetwork designed to convey linguistic information do not work as expected

• **Full-stack Automatic Speech Recognition Engineering for Samsung Bixby**   *2018 - 2022*
Speech Intelligence Team, Samsung Research, Korea
  ◦ Implemented and trained large-scale automatic speech recognition models (Python, C++, Java)
  ◦ Tackled problems for commercialization such as model compression, quantization, inference-time language model integration, named entity correction, long-form speech recognition, etc.
  ◦ Implemented, trained the auxiliary language model for ASR and refined the integration method

• **IBM Watson Model Delievery Engineer for Custom Chatbots**   *12/2017 - 01/2018*
Internship, IBM, Korea
  ◦ Adapted IBM Watson dialog models and created chatbots for client companies

• **Question Answering Based on Similar QA Pairs in the Database**   *03/2017 - 06/2017*
Internship, Infosys, India
  ◦ Worked on similarity search between the input query and the QA pairs in the database

TEACHING AND MENTORING

• **Mentor, Samsung Winter Internship**   *11/2020*
Samsung Research, Korea
  ◦ Awarded the Best Project Prize
  ◦ Mentored an internship project about basic speech recognition and language models

• **TA, Programming Practice**   *09/2016 - 12/2016*
Seoul National University
  ◦ Mentoring and project management for the Programming Practice course

PUBLICATIONS

[C7] **Sichen Jin**, Youngmoon Jung, Seungjin Lee, Jaeyoung Roh, Changwoo Han, and Hoonyoung Cho. CTC-aligned audio-text embedding for streaming open-vocabulary keyword spotting. In *INTERSPEECH 2024*, pages 332–336, 2024.

[C6] Kyungmin Lee*, Haeri Kim*, **Sichen Jin**, Jinhwan Park, and Youngho Han. A more accurate internal language model score estimation for the hybrid autoregressive transducer. In *INTERSPEECH 2023*, pages 869–873, 2023.

[C5] Jinhwan Park*, **Sichen Jin***, Junmo Park*, Sungsoo Kim*, Dhairya Sandhyana, Changheon Lee, Myoungji Han, Jungin Lee, Seokyeong Jung, Changwoo Han, and Chanwoo Kim. Conformer-based on-device streaming speech recognition with kd compression and two-pass architecture. In *2022 IEEE Spoken Language Technology Workshop (SLT)*, pages 92–99, 2022.

[C4] Abhinav Garg, Gowtham Vadisetti, Dhananjaya Gowda, **Sichen Jin**, Aditya Jayasimha, Youngho Han, Jiyeon Kim, Junmo Park, Kwangyoun Kim, Sooyeon Kim, Youngyoon Lee, Kyungbo Min, Chanwoo Kim. Streaming on-device end-to-end ASR system for privacy-sensitive voice-typing. In *INTERSPEECH 2020*, pages 3371–3375, 2020.

[C3] Dhananjaya Gowda, Ankur Kumar, Kwangyoun Kim, Hejung Yang, Abhinav Garg, Sachin Singh, Jiyeon Kim, Mehul Kumar, **Sichen Jin**, Shatrughan Singh, Chanwoo Kim. Utterance Invariant Training for Hybrid Two-Pass End-to-End Speech Recognition. In *INTERSPEECH 2020*, pages 2827–2831, 2020.

[C2] Kwangyoun Kim*, Kyungmin Lee*, Dhananjaya Gowda, Junmo Park, Sungsoo Kim, **Sichen Jin**, Young-Yoon Lee, Jinsu Yeo, Daehyun Kim, Seokyeong Jung, Jungin Lee, Myoungji Han, and Chanwoo Kim. Attention based on-device streaming speech recognition with large speech corpus. In *2019 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)*, pages 956–963, 2019.

[C1] Chanwoo Kim, Sungsoo Kim, Kwangyoun Kim, Mehul Kumar, Jiyeon Kim, Kyungmin Lee, Changwoo Han, Abhinav Garg, **Eunhyang Kim**, Minkyoo Shin, Shatrughan Singh, Larry Heck, Dhananjaya Gowda. End-to-end training of a large vocabulary end-to-end speech recognition system. In *2019 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)*, pages 92–99, 2019.

INVITED TALK

• **Qatar Women in Data Science** *11/2021*
QCRI, Qatar
  ◦ Topic: Real-World Deployment of End-to-End Speech Recognition

HONORS AND AWARDS

• **Employee of the Year** *2022*
Samsung Electronics, Korea
  ◦ Awarded to the top 0.2% out of over 50,000 employees in recognition of their dedication and accomplishments.

• **Full Scholarship for all semesters at Seoul National University** *2013 - 2018*
Seoul National University

SERVICES

• **Social Coordinator, Speech Intelligence Team** *01/2022 - 12/2022*
Samsung Research
  ◦ Organized various gathering events for bring people together and get feedbacks for better work culture
  ◦ Hosted a social event after Interspeech 2022 at Incheon, Korea for researchers from within and outside the company

SKILLS

• **Programming Languages:** Python (Machine Learning Frameworks), C++, Java
• **Languages:** Fluent in Korean, Chinese and English
• **Soft Skills:** Leadership, Creativity, Independence, Problem-solving, Communication Skills
• **Multi-cultural:** Have both Korean and Chinese backgrounds