



Soohwan Kim

AI RESEARCH ENGINEER · SOFTWARE DEVELOPER

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“Toward Human-like A.I.”

About Me

I would like to introduce myself as an artificial intelligence research engineer rather than a research scientist. My dream is to create conversational digital humans who people emotionally engage with - so I am very interested in deep learning techniques such as speech recognition, speech synthesis, and open-domain dialogue. Recently I began a startup with 5 co-founding members - all of them were my teammates at Kakao Brain. We named our startup **TUNiB**. We are looking for talented colleagues to work with. If you are interested, please don't hesitate to contact me.

Professional Experience

TUNiB

CO-FOUNDER, AI RESEARCH ENGINEER

Gangnam, Seoul

Mar. 2021 - Present

- The start-up that founded in March 2021 with my former Kakao Brain team members.
- Research and development of A.I. that enables human-like conversation.
- Topics on Natural Language Processing
 - ☑️ Korean Language Model Development (GPT-style)
 - ☑️ Conversation Sentiment Classification - 2021 AI Online Contest (1st Ranked)
 - ☑️ Big Model Tuning Experiment (fine-tuning, p-tuning, prefix-tuning)
 - ☑️ TV Character Chatbot
- Homepage: <http://www.tunib.ai>

Kakao Brain

AI RESEARCH ENGINEER

Pangyo, Gyeonggi

Nov. 2020 - Mar. 2021

- Speech and natural language processing team.
- Research and development the latest NLP & Speech technology.
- Topics on Natural Language Processing
 - ☑️ PORORO: Platform Of neuRAl mOdelS for natuRAl language prOcessing
 - ☑️ NLP paper reading
 - ☑️ Retrieval base image captioning
- Topics on Speech Processing
 - ☑️ Multilingual Text-To-Speech
 - ☑️ Cross-lingual Text-To-Speech
 - ☑️ Chinese Speech Recognition using Wav2vec 2.0
 - ☑️ Korean Speech Recognition using Wav2vec 2.0
 - ☑️ Experiment on English Speech Recognition
- Homepage: <https://www.kakaobrain.com>

Internships

Kakao Brain

INTERNSHIP

Pangyo, Gyeonggi

Aug. 2020 - Oct. 2020

- Speech and natural language processing team.
- Internship Project: development of English, Chinese, Korean speech recognizer
- Homepage: <https://www.kakaobrain.com>

Auditory Intelligence Lab

INTERNSHIP

Mapo, Seoul

Apr. 2020 - Aug. 2020

- Department of Computer Science & Engineering Sogang University
- Conduct KoSpeech projects with GPU support
- Homepage: <https://speech.sogang.ac.kr>

Samsung Multi-Campus

CREDIT-LINKED SHORT-TERM INTERNSHIP

Gangnam, Seoul

Jul. 2018 - Aug. 2018

- Credit-linked short-term internship.
- Taking software development training using Java and Database
- Got the Outstanding Award among the trainees.
- Homepage: <https://www.multicampus.com>

Education

Kwangwoon University

BACHELOR OF ENGINEERING

- **Major:** Electronics & Communication Engineering, **Minor:** Data Science
- **Major GPA :** 3.90 / 4.5, **Total GPA :** 3.67 / 4.5
- **Scholarship :**
 - ☑️☑️ Samsung Scholarship (2020)
 - ☑️☑️ Samsung Scholarship (2019)
 - ☑️☑️ Bima Scholarship - Academic Excellence Scholarship (2019-Spring)
 - ☑️☑️ Bima Scholarship - Academic Excellence Scholarship (2018-Fall)
 - ☑️☑️ Bima Scholarship - Academic Excellence Scholarship (2018-Spring)
- **Honors :**
 - ☑️☑️ President's Award - 1st place (Kwangwoon Engineering Festival)
 - ☑️☑️ People's Choice Award (Kwangwoon Engineering Festival)
 - ☑️☑️ Outstanding Award (Multi-Campus)
 - ☑️☑️ People's Choice Award (Startup Idea Contest)
 - ☑️☑️ School Representative (SKT 5G-based Convergence Idea Contest)

Seoul, South Korea

Mar. 2014 - Feb. 2021

Project Experience

Conversation Sentiment Classification

LEAD DEVELOPMENT

- Artificial intelligence competition organized by the Ministry of Science and ICT (2021 AI Online Competition)
- 1st Ranked in Public / Private / Final Leaderboard
- Task of classifying human emotions from human-AI conversation data.

TUNiB

Jun. 2021 - Jul. 2021

OpenSpeech

TEAM LEADER

- Framework that enables easy creation of speech recognition models of various models and various languages.
- Dozens of models including Transformers, ContextNets, Transformers, and Listen Attend Spell.
- Page: <https://github.com/sooftware/openspeech>

Personal

Mar. 2021 - Present

Big Model Tuning Experiment

THE PERSON IN CHARGE

- Fine-tuning, prefix-tuning, p-tuning experiments on GPT style models.
- Apply to chat format data. (persona-chat)

TUNiB

May. 2021 - Jun. 2021

TV Character chatbot

THE PERSON IN CHARGE

- Developing a chatbot that talks like a TV character like Sheldon in the Big Bang Theory.
- Used open data and retrieval base method.

TUNiB

Apr. 2021 - May. 2021

PORORO: Platform Of neuRal mOdelS for natuRal language prOcessing

TEAM MEMBER

- Library that can solve more than 30 natural language processing tasks in just 3-4 lines with pre-trained models.
- Development Automatic Speech Recognition, Multilingual Text-To-Speech task.
- Page: <https://github.com/kakaobrain/pororo>

Kakao Brain

Sep. 2020 - Feb. 2021

KoSpeech: Open-Source Toolkit for End-to-End Korean Speech Recognition

TEAM LEADER

- Framework for making speech recognizers specialized in Korean easily.
- Support models: Conformer, Transformer, Jasper, Listen Attend Spell, DeepSpeech2 etc.
- Paper: <https://www.sciencedirect.com/science/article/pii/S2665963821000026>
- Page: <https://github.com/sooftware/KoSpeech>

Kwangwoon Univ.

Jan. 2020 - Feb. 2021

Multilingual Text-To-Speech

THE PERSON IN CHARGE

- Development of Kakao Brain's TTS technology. [link]
- Support 11 languages, cross-lingual voice style transfer, code-switching.
- Page: <https://pororo-tts.github.io>

Kakao Brain

Oct. 2020 - Feb. 2021

Speech Recognition using Wav2vec 2.0

THE PERSON IN CHARGE

- Development of Kakao Brain's ASR technology.
- Development of English, Korean, and Chinese speech recognizers.
- Page: <https://kakaobrain.github.io/pororo/miscs/asr.html>

Kakao Brain

Aug. 2020 - Oct. 2020

Deep Learning Model Implementation

Personal

PERSONAL

Jan. 2020 - Present

- "Conformer: Convolution-augmented Transformer for Speech Recognition" (INTERSPEECH 2020)
- "QuartzNet: Deep Automatic Speech Recognition with 1D Time-Channel Separable Convolutions" (ICASSP 2020)
- "Jasper: An End-to-End Convolutional Neural Acoustic Model" (INTERSPEECH 2019)
- "Speech-Transformer: A No-Recurrence Sequence-to-Sequence Model for Speech Recognition" (ICASSP 2018)
- "Natural TTS Synthesis by Conditioning WaveNet on Mel Spectrogram Predictions" (ICASSP 2018)
- "State-of-the-art Speech Recognition With Sequence-to-Sequence Models" (ICASSP 2018)
- "Attention Is All You Need" (NIPS 2017)
- "Advances in Joint CTC-Attention based End-to-End Speech Recognition with a Deep CNN Encoder and RNN-LM" (INTERSPEECH 2017)
- "Listen, Attend and Spell" (ICASSP 2016)
- "Deep Speech 2: End-to-End Speech Recognition in English and Mandarin" (ICML 2016)
- "Attention-Based Models for Speech Recognition" (NIPS 2015)
- "Neural machine translation by jointly learning to align and translate" (ICLR 2015)
- "Sequence Transduction with Recurrent Neural Networks" (ICML 2012)

PyTorch LR Scheduler

Personal

PERSONAL

May. 2021 - May. 2021

- Collection of learning rate schedulers that I often use.

Naver AI Hackathon - Speech

Kwangwoon University

TEAM LEADER

Sep. 2019 - Oct. 2019

- Automatic speech recognition competition held by Naver.
- 12th out of 100 teams (When I was a junior in University)

Extracurricular Activity

Speech Paper Reading

Study

GROUP MEMBER

Dec. 2020 - Present

- Weekly speech processing paper reading study [link]

NLP Paper Reading

Study

GROUP MEMBER

Sep. 2020 - Feb. 2021

- Kakao Brain Natural Language Processing Team's weekly paper reading study [link]

Technical Blog

Blog

WRITER

Aug. 2018 - Present

- Technical posting of deep learning, programming, signal processing, paper review etc. [link]

Teaching Experience

Samsung AI Expert Course - Speech Recognition

Spoken Language Lab

TEACHING ASSISTANT

Jul. 2020 - Aug. 2020

- Conducted Teaching Assistant role in the speech recognition session.

Object-Oriented Programming Practice

Kwangwoon University

TEACHING ASSISTANT

Mar. 2020 - Jun. 2020

- Covered basic JAVA programming, ran laboratories and had office hours every week.

Military Service

ROKMC Served and discharged from Republic of Korea Marine Corps as Signaller, Sergeant, 2015.09 - 2017.06

Competitions

- | | | |
|------|---|-------|
| 2021 | 1st Ranked , AI Online Contest - Conversation Sentiment Classification Track | MSIT |
| 2020 | 3rd Ranked , AI Grand Challenge - Speech Recognition Track (Advisor) | MSIT |
| 2019 | Finalist (12th Ranked) , Naver AI Hackathon - Speech (Team Leader) | Naver |

Publication

- | | |
|------|--|
| 2021 | Open-Source Toolkit for End-to-End Korean Speech Recognition , ELSEVIER, SIMPAC, Volume 7, 100054 |
| 2020 | KoSpeech: Open-Source Toolkit for End-to-End Korean Speech Recognition , arXiv, 2009.03092 |