Soohwan **Kim**

AI RESEARCH ENGINEER · SOFTWARE DEVELOPER

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"Human-Machine Interaction Technology Researcher"

About Me

Current AI Research Engineer at Kakao Brain. I majored in Electronic & Communication Engineering and minored in Data Science at university. My research interests include technologies for human-machine interaction, such as automatic speech recognition, speech synthesis, and natural language processing. I enjoy software development and sometimes like to write my knowledge or thoughts. I want to be helpful to others through open source. You can check my github page (http://github.com/sooftware) to see what I am currently up to.

Education

Kwangwoon University   *Seoul, South Korea*

MAJOR B.E. IN ELECTRONIC & COMMUNICATION ENGINEERING / MINOR B.E. IN DATA SCIENCE   *Mar. 2014 - Feb. 2021 (Expected)*

- **Major GPA** : 3.90 / 4.5 / **Total GPA** : 3.70 / 4.5
- **Courses**: Capstone Design I-II, AI & Speech Signal Processing, Software Design, Machine Learning, Computer Architecture, Operating System, Data Structure & Algorithm, Data Mining, Network Programming, IoT System Design, Big Data Language, Big Data Processing & Application, Database, Digital Signal Processing, Statistical application, Object-Oriented Programming, Object-Oriented Programming Practice, Open-Source Software, System Programming, C programming, Mobile Programming, Data Communication, Computer Network, Basic Electronic Circuit Experiment I-II, Electronic Circuit Experiment I-II, Electronic Circuit Theory I-II, Digital Logic, Physics Electronic Technology, Engineering Math I-II, Probability and Irregular Signaling Theory, Probability and Statistics

Professional Experience

Kakao Brain   *Pangyo, Gyunggi*

AI RESEARCH ENGINEER   *Nov. 2020 - Present*

- Research & Develop Speech and Natural Language Processing fields
- Develop Natural Language Processing toolkit used to conduct various NLP tasks (e.g. ASR, NMT, TTS, ..., etc.)

Kakao Brain   *Pangyo, Gyunggi*

INTERNSHIP   *Aug. 2020 - Nov. 2020*

- Research & Develop English, Korean and Chinese Automatic Speech Recognition models
- Development of Multilingual Speech Synthesis Model with Support for 10 Languages

Spoken Language Lab (of Sogang Univ.)   *Mapo, Seoul*

UNDERGRADUATE RESEARCHER   *Apr. 2020 - Aug. 2020*

- Research End-to-End Automatic Speech Recognition Models
- Research Real-time Automatic Speech Recognition Based on Kaldi Toolkit

Research Interests

Speech	Speech Recognition, Speech Synthesis, Voice Activity Detection, Speech Enhancement
NLP	Machine Translation, Language Model, Cross-lingual
Software	Software Architecture, Object-Oriented Programming, Data Structure, Algorithm

Skills

Programming	Python, Java, C/C++, Shell Script, SQL, Android, Arduino, Assembly, HTML
Deep Learning	PyTorch, Fairseq, PyTorch Lightning, Tensorflow, Keras
Data Analysis	Numpy, Pandas, Matplotlib, Seaborn, Scikit-learn, BeautifulSoup, Selenium, NLTK

Publication

2021	**KoSpeech: Open-Source Toolkit for End-to-End Korean Speech Recognition**, ELSEVIER SIMPAC
2020	**End-to-End Speech Recognition Models in English, Korean and Chinese**, Bachelor's Graduation Thesis

Project Experience

Multilingual Speech Synthesis
REPRESENTATIVE

Kakao Brain

Oct. 2020 - Nov. 2020

- Development of a speech synthesis model that supports 10 languages
- Supports for Voice-Cloning and Code-Switching

English, Korean and Chinese ASR Models Development
REPRESENTATIVE

Kakao Brain

Aug. 2020 - Oct. 2020

- Development of English, Korean and Chinese Wav2vec 2.0 Models
- Experiment for improving the speed of inference
- Comparative experiment on accuracy / inference speed by output-unit such as Character, Grapheme and Subword

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

Kwangwoon University

Jan. 2020 - Aug. 2020

- Currently, over **100** people are stargazer this project [link]
- Write Technical Reports in arXiv [link]

Extracurricular Activity

NLP Paper Reading
GROUP MEMBER

Kakao Brain

Sep. 2020 - Present

- Kakao Brain Natural Language Processing Team's weekly paper reading study
- Reading a paper and summarizing its contents [link]

Technical Blog
WRITER

Naver Blog

Aug. 2018 - Present

- Technical posting of deep learning, programming, signal processing, paper review etc.
- Having more than 100 subscribers and an average of 200 visitors a day [link]

Speech Recognition Study Group
GROUP MEMBER

Kwangwoon University

Jan. 2020 - Mar. 2020

- Study speech signal processing (Spectrogram, Mel-Scale, MFCC etc ..)
- Reading a paper of speech recognition and recording its contents [link]

Teaching Experience

Samsung AI Expert Course - Speech Recognition
TEACHING ASSISTANT

Spoken Language Lab

Jul. 2020 - Aug. 2020

- Conducted Teaching Assistant role in the Speech Recognition session

Object-Oriented Programming Practice
TEACHING ASSISTANT

Kwangwoon University

Mar. 2020 - Jun. 2020

- Covered basic JAVA programming, Ran laboratories and had office hours every week.
- Answered students' questions in person and marked assignments

Awards & Honors

AWARDS

2020.11 **1st Place, People's Choice Award,** Kwangwoon Engineering Festival (President's Award)

2019.10 **Finalist (12th Place),** Naver A.I Hackathon - Speech

2019.09 **Finalist,** Kwangwoon University software start-up idea contest - Fall

2019.04 **People's Choice Award,** Kwangwoon University software start-up idea contest - Spring

2018.08 **Best Award,** Samsung Multi-Campus in Java-based Algorithm for SW Development

HONORS

2020.03 **School Representative,** 5G-based ICT Convergence Service Idea Contest

2020.03 **Excellent Scholarship,** Samsong Scholarship

2019.03 **Excellent Scholarship,** Samsong Scholarship

2019.03 **Academic Excellent Scholarship,** Kwangwoon University

2018.09 **Academic Excellent Scholarship,** Kwangwoon University

2018.03 **Academic Excellent Scholarship,** Kwangwoon University