



# Soohwan Kim

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"Let's be better than yesterday"

## Education

### Kwangwoon University

SENIOR STUDENT IN ELECTRONIC AND COMMUNICATION ENGINEERING DEPT, MINOR IN DATA SCIENCE

- Major GPA of 3.90 / 4.5, Total GPA of 3.70 / 4.5

Seoul, South Korea

Mar. 2014 - Aug. 2021 (Expected)

## Work Experience

### Kakao Brain

INTERN

- Development of speech recognition and speech synthesis modules
- Open Speech Recognition / Synthesis pre-train models for various languages in API form

Pangyo, Gyeonggi

Aug. 2020 - Nov. 2020 (Expected)

### Spoken Language Lab (of Sogang University)

UNDERGRADUATE RESEARCHER

- Open Source Project for Character-based Korean End-to-End Automatic Speech Recognition.
- Research on Speech Recognition Units, such as Character, Grapheme, Subword
- DNN-based Acoustic Model Research
- Kaldi Open Source Speech Recognition Toolkit

Mapo, Seoul

Apr. 2020 - Aug. 2020

## Project Experience

### Korean-English Speech Translation System

TEAM LEADER

- The goal is to establish a speech translation system combining speech recognition and machine translation technology.
- Implement Transformer model proposed in "Attention Is All You Need" [Related Link](#)

Jul. 2020 - Present

### KoSpeech

TEAM LEADER

- Open Source Project Korean End-to-End Automatic Speech Recognition
- Provide a learning environment through a variety of options
- Using a Korean Speech corpus opened in AI Hub.
- Recorded the performance of the model at **10.31** CER (Character Error Rate) with sampled test data.
- Got more than **90 stars** on the GitHub site. [Related Link](#)

Jan. 2020 - Present

### 2019 Naver A.I Hackathon - Speech

TEAM LEADER

- **Ranked 12/100** in Korean speech recognition competition hosted by Naver. (2nd ranked in undergraduate)
- Using 100 hours of limited data provided by Naver
- Recorded the performance of the model at **24.67** CER (Character Error Rate).
- Improved the performance of the model through changing feature extraction, introduction of convolution layer to encoder. [Related Link](#)

Sep. 2019 - Oct. 2019

### Side Projects

AUTHOR

- Smart Home IoT Platform - 2020 Spring. [Related Link](#)
- Attention Implementation - 2019 Winter. [Related Link](#)
- Pytorch-Seq2seq - 2019 Winter. [Related Link](#)
- Sequence-to-Sequence Neural Machine Translation - 2019 Winter. [Related Link](#)
- Review based Wine Recommendation - 2019 Fall. [Related Link](#)
- Correlation Analysis Program between Naver, Daum, Google Search Ranking - 2019 Fall. [Related Link](#)
- Correlation Analysis Program between Melon Chart and SNS References - 2019 Fall. [Related Link](#)
- Cloud service - 2019 Summer. [Related Link](#)
- TCP Multi Chatting Program - 2019 Spring. [Related Link](#)
- Fastfood order program - 2018 Summer. [Related Link](#)
- Gallaga game - 2018 Spring. [Related Link](#)

Mar. 2018 - Present

## Research Interests

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### Speech

SPEECH RECOGNITION, SPEECH SYNTHESIS, SIGNAL PROCESSING

- End-to-End Automatic speech recognition for various language
- Research on the output unit such as character, grapheme etc..
- Speed improvement of speech recognition
- Improved speech synthesis quality

### Natural Language Processing

NEURAL MACHINE TRANSLATION, LANGUAGE MODEL

- Machine translation from Korean to another language
- Language correction through language model
- Fusion of speech recognition and language models

### Software Development

DEEP LEARNING, MACHINE LEARNING

- Design a simple, readable and extensible software
- Design a low time complexity
- Library development

## Extracurricular Activity

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### Tech Blog

AUTHOR

Aug. 2018 - Present

- Blogging about what I've learned. (Deep Learning, Audio Signal Processing, Operating System, etc..) [Related Link](#)
- More than 200 posts and an average of 100 people per day have visited.

### Deep Learning Principle Study Group

GROUP MEMBER

Jan. 2020 - June. 2020

- Joined a study group studying basics of deep learning with mathematics.
- Implemented nodes from scratch using numpy and pandas, read papers
- Study audio signal processing.

### Speech Recognition Study Group

GROUP MEMBER

Jan. 2020 - Mar. 2020

- Study speech signal processing (Spectrogram, Mel-Scale, MFCC etc ..)
- Review of the paper on speech recognition (Listen, Attend and Spell, SpecAugment etc ..) [Related Link](#)

## Skills

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<b>Programming</b>	Android, Arduino, Assembly, C, C++, Java, Python, Shell Script, SQL, HTML, XML
<b>Deep Learning</b>	Pytorch, Fairseq, OpenNMT
<b>Audio Signal</b>	Torchaudio, Librosa, Audacity
<b>Data Analysis</b>	Numpy, Pandas, Matplotlib, Seaborn, Scikit-learn
<b>Develop Tool</b>	VI Editor, Pycharm, Jupyter Notebook, Vscode, Visual Studio, Eclipse, Oracle, Mysql, Git, mobaXterm

## Honors & Awards

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### AWARDS

- 2020 **School Representative**, 5G-based ICT Convergence Service Idea Contest
- 2019 **12 Ranked**, 2019 Naver A.I Hackathon - Speech
- 2019 **Finalist**, Idea Contest - Kwangwoon University software start-up idea contest - Fall
- 2019 **Popularity Award**, Kwangwoon University software start-up idea contest - Spring
- 2018 **Award for Best Practices**, Samsung Multi-Campus in Java-based Algorithm for SW Development Course

### HONORS

- 2020 **Excellent Scholarship**, Samsung Scholarship
- 2019 **Academic Excellent Scholarship**, Kwangwoon University
- 2019 **Excellent Scholarship**, Samsung Scholarship
- 2018 **Academic Excellent Scholarship**, Kwangwoon University
- 2018 **Academic Excellent Scholarship**, Kwangwoon University