

# Ikhee Shin

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## EDUCATION

### University of Michigan

*M.S. Electrical and Computer Engineering*

Ann Arbor, MI

*Aug. 2021 – Present*

### Yonsei University

*B.S. Electrical and Electronic Engineering*

Seoul, Korea

*Mar. 2013 – Aug. 2019*

## WORK EXPERIENCE

### Samsung Research

*Engineer, Natural Language Processing Lab*

Seoul, Korea

*Aug. 2019 – July 2021*

- **On-device Natural Language Understanding Service** | *C++, Java, Python, TensorFlow*
  - \* Built the C++ based app for Samsung Research's on-device natural language understanding service for Bixby, a virtual assistant with more than 10 million active users
  - \* Developed the automatic on-device model preparation pipeline for quantized model and model resources
  - \* Cooperated with the overseas branch of Samsung Research (America) to train and compress models for Korean and English languages
  - \* Decreased the latency of the natural language understanding model by 40% by applying sequence slicing to the BERT model
- **Dialogue State Tracking Research and Development** | *Python, Keras, Flask*
  - \* Designed the baseline pre-processing and training code for experiments with span-based dialogue state tracking models, reaching joint accuracy 70% in internal test data
  - \* Applied data augmentation and multi-task learning techniques to overcome data sparsity problems, improving the joint accuracy by 5%

### NAVER Co.

*Clova Machine Learning Intern, NAVER Clova AI Research*

Seongnam, Korea

*July 2018 – Aug. 2018*

- **Animation Character Recommendation System** | *Python, PyTorch, Flask*
  - \* Modeled application that extracts face attributes from images and recommends an animated character with similar attributes
  - \* Improved the classification accuracy by 3% by sharing a fully connected layer among attributes with correlation

### NAVER Co.

*Clova Multimedia Intern, NAVER Clova AI Research*

Seongnam, Korea

*Jan. 2018 – June 2018*

- **Text-to-Video Development** | *Python, PyTorch*
  - \* Devised the baseline pre-processing and training code for the text-to-video model
  - \* Implemented the state-of-the-art models such as Obamanet

### Republic of Korea Air Force

*Sergeant, Ground Operation Center*

Seosan, Korea

*Feb. 2014 – Feb. 2016*

- Cooperated with Air Defense Artillery to protect the force and selected geopolitical assets from an aerial attack

## RESEARCH EXPERIENCE

### Situated Language and Embodied Dialogue Lab, University of Michigan

*Graduate Research Assistant (Advisor: Professor Joyce Y. Chai)*

Ann Arbor, MI

*Jan. 2022 – Current*

- Developed a dialogue system for the guide robot in the building of the University of Michigan.

### Digital Signal Processing and Artificial Intelligence Lab, Yonsei University

*Undergraduate Research Assistant (Advisor: Professor Hong-Goo Kang)*

Seoul, Korea

*Sept. 2018 – Dec. 2018*

- Engineered music source separation based on U-Net style architecture, followed by improving the accuracy of the model by 2% by utilizing self/cross attention

### Multimedia Security Lab, Yonsei University

*Undergraduate Research Assistant (Advisor: Professor Andrew Beng Jin Teoh)*

Seoul, Korea

*Aug. 2017 – Jan. 2018*

- Applied GAN to semi-supervised training to train the classification model with 10 times fewer data