Jeongmin Liu

M.S. Candidate

M.S. Candidate, Smart Sound Systems Laboratory,
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Skills

Signal Processing

- Speech Signal Processing
- Acoustic Array Signal Processing

Deep Learning

- Speech Enhancement
- Music Information Retrieval

Programming Languages

- Intermediate: Python, MATLAB
- Basic: C/C++, Unity (C# script)
- Experienced: Java, .Net Framework

Education

M.S. Candidate / Electrical Engineering
Mar 2018 - Feb 2020

- Korea Advanced Institute of Science and Technology (KAIST)
- GPA (The 1st - 3rd Semester): 3.65 / 4.3

B.S. / Electrical Engineering
Mar 2013 - Feb 2018

- Pohang University of Science and Technology (POSTECH)
- GPA: 3.60 / 4.3

Papers

Conference Papers

Jeongmin Liu, Byeongho Jo, Jung-Woo Choi, **Dereverberation Based on Deep Neural Networks with Directional Feature from Spherical Microphone Array Recordings**, in Proc. of the 23rd International Congress on Acoustics (ICA 2019), Aachen, Germany, September 9-13, 2019. *(accepted)*

- In the paper, the authors propose a method that uses spatially-averaged acoustic intensity vector as an input feature of the DNN in order to make the DNN perform speech dereverberation by considering spatial information.
- **Papers** sytronik.github.io/assets/ICA2019.pdf
  GitHub github.com/Sytronik/dereverberation-directional-feature

Projects

End-to-end Multi-channel Speech Dereverberation *(In Progress)*

July 2019 - now

- To research end-to-end speech dereverberation, I firstly implemented speech denoising wavenet with PyTorch. I am researching better end-to-end speech dereverberation algorithm.
- **GitHub** github.com/Sytronik/denoising-wavenet-pytorch

Music Boundary Detection using Fully Convolutional Neural Networks

May - July 2019

- For the team projects in the lecture "Musical Applications of Machine Learning (GCT634)" of KAIST, My team made the DNN model that detects boundaries between musical sections, which have different musical themes. I contributed to the DNN model structure and training techniques, and I implemented them.
- **Report** sytronik.github.io/assets/music-boundary-detection-report.pdf
  GitHub github.com/Sytronik/music-boundary-detection

VR Drum

2017

- For the graduation project, my team created an application that lets people can play the drums in virtual reality. I was the main programmer in the project.
- **Demo Video** youtu.be/QXyJwmr9mhQ

Extracting Musical Rhythms from Repetitive Videos

Mar - May 2017

- For the project in the lecture "Digital Image Processing (EECE551)" of POSTECH, I created a simple algorithm as the first step to choose music that rhythmically matched to the repetitive videos. The algorithm extracts a rough temporal regularity from repetitive videos, approximates the regularity to a typical 4/4 rhythm, and inserts a simple rhythm instrument pattern.
- **Report** sytronik.github.io/assets/extracting-musical-report.pdf
  Results (.zip) sytronik.github.io/assets/extracting-musical-results.zip

Languages

Korean / native

English / OPIc Intermediate High (IH)

July 2019

Teaching Assistant

Lectures in School of Electrical Engineering, KAIST

- **Signals and Systems /** EE202
  2019 Spring

  The basic lecture of signal processing area
- **Electronics Design Lab <Robocam> /** EE405
  2018 Fall

  The practice of embedded system programming