

Sang Keun Choe

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🌐 <https://sangkeun00.github.io>

Education

Carnegie Mellon University

M.S. in Computer Science (Language Technologies)

Advisor: Jaime Carbonell

Aug 2020

CGPA: 4.07/4.33

Seoul National University

B.S. in Electrical Engineering & Mathematics, *Summa Cum Laude*

Feb 2018

CGPA: 4.07/4.30

Publications

On Leveraging Visual Modality for Neural Machine Translation

Sang Keun Choe*, Quanyang Lu*, Vikas Raunak*, Yi Xu*, and Florian Metze

In *INLG*, 2019 (Short version: *Workshop on New Tasks for Vision and Language at ICML*, 2019)

On Leveraging Visual Modality for ASR Error Correction

Sang Keun Choe*, Quanyang Lu*, Vikas Raunak*, Yi Xu*, and Florian Metze

In *Workshop on New Tasks for Vision and Language at ICML*, 2019

Coversong Identification using Song-to-song Cross-similarity Matrix with CNNs

Juheon Lee, Sungkyun Chang, Sang Keun Choe, and Kyogu Lee

In *ICASSP*, 2018 (Short version: *Workshop on ML4Audio at NIPS*, 2017)

Research & Work Experience

Carnegie Mellon University, Research Assistant

Sep 2018 - Present

- Studying regularization for neural networks based on information theory and operator theory

- Studying the connection between catastrophic forgetting and generalization in neural networks

HoodooAI, Research Engineer

Apr 2018 - Jul 2018

- Developed an algorithm identifying fake images using GANs and Bayesian learning

- Implemented image style transfer algorithms and applied it to make-up transfer

Seoul National University, Research Assistant

Jun 2017 - Dec 2017

Music and Audio Research Group

Advisor: Kyogu Lee

- Developed cover-song identification algorithm using convolutional neural networks

- Developed content-based image retrieval algorithm by learning multi-level representation of images

Seoul National University, Research Assistant

Jan 2013 - Dec 2013

Cryptography and Coding Laboratory

Advisor: Jong-Seon No

- Completed undergraduate thesis on distributed space-time code in cooperative communication

- Analyzed the performance of wireless relaying protocol in cooperative communication

Projects

Music Instrument Conversion via Disentangled Hierarchical VAE

Fall 2018

- Developed a VAE-based model successfully converting instruments of single-instrument music pieces

- Significantly improved evidence lower bound (ELBO) of VAE with a novel hierarchical CNN-RNN VAE architecture and regularization techniques (scheduled annealing, controllable capacity)

Applying Capsule Networks to Dialogue Systems

Fall 2018

- Developed stacked capsule sequence-to-sequence networks achieving state-of-the-art BLEU score (as of Dec 2018) on MultiWoz multi-domain dialogue dataset

On Orthogonal Jacobian Regularization in Deep Neural Networks

Summer 2019

- Developed a regularization scheme enabling training of very deep CNNs without residual connections

- Improved image classification performance of deep CNNs in low-resource settings

Honors & Awards

Kwanjeong Scholarship for Graduate Study (\$30,000/yr)

2018 - 2020

Best Undergraduate Engineering Student Award, Seoul National University

2018

Presidential Scholarship for Science and Engineering Study, Korea

2011 - 2017

Gold Award (Top 7), Korea Collegiate Mathematical Competition

2011

Silver Award, Korea Mathematical Olympiad

2010

Coursework

Introduction to Deep Learning, Deep Reinforcement Learning, Graduate AI, Large-scale Multimedia Analysis, Machine Translation and Sequence-to-sequence Models, Algorithms for NLP, Information Theory (SNU), Convex Optimization (SNU)

Activities

2019 NeurIPS External Reviewer

Skills

Python, Java, MATLAB, C/C++, HTML, PyTorch, Tensorflow, Linux