Sang (Keun) Choe

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Education

Carnegie Mellon University, United States — May 2024 (Expected)
Ph.D. in Computer Science (Language Technologies)
Advisor: Eric Xing

Carnegie Mellon University, United States — Aug 2020
M.S. in Computer Science (Language Technologies) — CGPA: 4.08/4.33
Advisor: Jaime Carbonell

Seoul National University, South Korea — Feb 2018
B.S. in Electrical Engineering & Mathematics, *Summa Cum Laude* — CGPA: 4.07/4.30

Experience

Microsoft Research, Research Intern — Summer 2021
- Improved training speed and final accuracy of (very) large mixture-of-experts (MoE) Transformers by scaling learning rates based on pre-conditioned gradient noise scale

HodooAI, Research Engineer Intern — Summer 2018
- Developed neural networks identifying fake images using GANs and Bayesian learning
- Implemented image style transfer algorithms and applied it to the make-up transfer application

Softwares

AnaLog, Interpretability Library — 2024
- Various training logs of neural networks, such as activation and gradient, provide rich information for interpreting and auditing data, models, and algorithms. AnaLog enables **Log**ging and **Ana**lysis of such training logs, while scaling to recent large models with extensive systems optimization.

Betty, Generalized Meta Learning Library — 2022
- By re-interpreting meta learning from the automatic differentiation perspective, Betty enables scalable and simple implementations of various meta learning applications, such as data optimization, hyperparameter optimization, neural architecture search, etc.

Publications

Making Scalable Meta Learning Practical
Sang Keun Choe, Sanket Vaibhav Mehta, Hwijeen Ahn, Willie Neiswanger, Pengtao Xie, Emma Strubell, and Eric Xing
NeurIPS, 2023

Betty: An Automatic Differentiation Library for Multilevel Optimization
Sang Keun Choe, Willie Neiswanger, Pengtao Xie, and Eric Xing
ICLR, 2023 **(Notable-Top-5%)**

Pollux: Co-adaptive Cluster Scheduling for Goodput-Optimized Deep Learning
Aurick Qiao, Sang Keun Choe, Suhas Jayaram Subramanya, Willie Neiswanger, Qirong Ho, Hao Zhang, Greg Ganger, Eric Xing
In OSDI, 2021 **(Jay Lepreau Best Paper Award!)**

On Orthogonal Jacobian Regularization in Deep Neural Networks
Sang Keun Choe*, Hosan Jeong*, and Jaime Carbonell
In Workshop on Science meets Engineering of Deep Learning at NeurIPS, 2019

On Leveraging Visual Modality for Neural Machine Translation
Vikas Raunak*, Sang Keun Choe*, Yi Xu*, Quanyang Lu*, and Florian Metze
In INLG, 2019 (Short ver.: *Workshop on New Tasks for Vision and Language at ICML*, 2019)

On Leveraging Visual Modality for ASR Error Correction
Sang Keun Choe*, Vikas Raunak*, Quanyang Lu*, Yi Xu*, and Florian Metze
In Workshop on New Tasks for Vision and Language at ICML, 2019

Audio Cover Song Identification using Convolutional Neural Network
Juheon Lee, Sungkyun Chang, Sang Keun Choe, and Kyogu Lee
In ICASSP, 2018 (Short ver.: *Workshop on ML4Audio at NIPS*, 2017)

Awards

Sansom Presidential Scholarship, Carnegie Mellon University — 2021 - 2022
Kwanjeong Scholarship for Abroad Study, Kwanjeong Educational Foundation — 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
Teaching	Artificial Intelligence: Representation and Problem Solving	Spring 2020
Reviewing	AISTATS 2020, NeurIPS 2022, ICML 2023, NeurIPS 2023	
Skills	Python, MATLAB, Java, C/C++ | Git, Docker, Kubernetes	