

Changwoo Lee

Curriculum Vitae

CONTACT INFORMATION	1301 Beal Avenue, Ann Arbor, MI, 48109, USA Email: cwoolee@umich.edu Website: https://changwoolee.github.io/
OBJECTIVE	Seeking a Full-Time Internship Position for Summer 2024.
EDUCATION	University of Michigan , Ann Arbor, Michigan, USA <ul style="list-style-type: none">Ph.D. in Electrical and Computer Engineering Aug 2020 – Present<ul style="list-style-type: none">Adviser: Prof. Hun-Seok KimAnticipated Graduation Year: 2025 Hanyang University , Seoul, Republic of Korea <ul style="list-style-type: none">M.S. in Electronics and Computer Engineering Mar 2018 – Feb 2020B.S. in Electronic Engineering Mar 2012 – Feb 2018
RESEARCH INTERESTS	Energy Efficiency and Robustness in Deep Learning <ul style="list-style-type: none">Efficient Transformers with Low Computational Complexity and Memory FootprintEfficient and Robust Multi-modal Systems
PREPRINTS	Liu, B., Lee, C. , Cao, A., and Kim, H. <i>Unified Signal Compression Using a GAN with Iterative Latent Representation Optimization</i> , arXiv preprint arXiv:2109.11168, 2021.
PUBLICATIONS	Changwoo Lee and Hun-Seok Kim. <i>Differentiable Learning of Generalized Structured Matrices for Efficient Deep Neural Networks</i> , The Twelfth International Conference on Learning Representations (ICLR), 2024. Fan, Z., Zhang, Q., Abillama, P., Shoouri, S., Lee, C. , Blaauw, D., Kim, H., and Sylvester, D. <i>TaskFusion: An Efficient Transfer Learning Architecture with Dual Delta Sparsity for Multi-Task Natural Language Processing</i> , In Proceedings of the 50th Annual International Symposium on Computer Architecture (ISCA), 2023. Chenghong Bian, Chin-Wei Hsu, Changwoo Lee , and Hun-Seok Kim. <i>Learning-Based Near-Orthogonal Superposition Code for MIMO Short Message Transmission</i> , IEEE Transactions on Communications (TCOM), 2023 Changwoo Lee , Xiao Hu, and Hun-Seok Kim <i>Deep Joint Source-Channel Coding with Iterative Source Error Correction</i> , The 26th International Conference on Artificial Intelligence and Statistics (AISTATS), 2023 Fan, Z., An, H., Zhang, Q., Xu, B., Xu, L., Tseng, C., Peng, Y., Cao, A., Liu, B., Lee, C. , Wang, Z., Liu, F., Wang, G., Jiang, S., Kim, H., Blaauw, D., Sylvester, D. <i>Audio and Image Cross-Modal Intelligence via a 10TOPS/W 22nm SoC with Back-Propagation and Dynamic Power Gating</i> , IEEE Symposium on VLSI Circuits (VLSI-Symposium), 2022 Dong-Hee Kim, Changwoo Lee , and Ki-Seok Chung. <i>A Confidence-Calibrated MOBA Game Winner Predictor</i> , IEEE Conference on Games (CoG), 2020. Changwoo Lee , and Ki-Seok Chung. <i>GRAM: Gradient Rescaling Attention Model for Data Uncertainty Estimation in Single Image Super Resolution</i> , IEEE International Conference on Machine Learning and Applications (ICMLA), 2019.
SKILLS	Math. Matrix Decomposition, (Randomized) Linear Algebra, Kernel Methods, Density Estimation, Optimization Theory, Information Theory Deep Learning. DNN Compression, Weight/Activation Quantization, Large Language Models (LLMs), Vision Transformers, Deep Generative Models, Diffusion Models. Programming Languages and Frameworks. Python, PyTorch, Julia

Relevant Courses.

- Umich EECS 501 Probability and Random Processes
- Umich EECS 551 Matrix Methods for Signal Processing, Data Analysis and Machine Learning
- Umich EECS 559 Optimization Methods in Signal Processing and Machine Learning
- Umich EECS 600 Function Space Methods in System Theory
- Umich EECS 598 Special Topics: Randomized Numerical Linear Algebra for Machine Learning
- Umich EECS 598 Special Topics: Statistical Learning Theory

**ACADEMIC
EXPERIENCE**

University of Michigan, Ann Arbor, Michigan, USA
Graduate Student Research Assistant

Aug 2020 – Present

**TEACHING
EXPERIENCE****TEACHING ASSISTANT**

- Embedded System, Hanyang University Spring 2019
- VLSI Design, Hanyang University Fall 2018
- SoC Design, Hanyang University Spring 2018

**AWARDS &
SCHOLARSHIPS**

- Hanyang University TA Scholarship Spring 2019
- Hanyang Graduate School Scholarship (4 semesters) 2018-2019
- Hanyang Brain Scholarship (2 semesters) 2017
- Undergraduate Scholarship, Korean Government, Korea Student Aid Foundation Fall 2016
- Undergraduate Scholarship, Hanyang University (2 semesters) 2012-2013

[CV compiled on 2024-01-29]