

# Jae-Won Chung

COMPUTER SCIENCE · COMPUTER ENGINEERING

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## Summary

I am a second year PhD student in CSE at the University of Michigan, advised by Professor Mosharaf Chowdhury. My research interest is in the intersection of software systems and deep learning, with a recent focus in energy consumption. I lead the ML Energy initiative (<https://ml.energy>).

## Education

### University of Michigan

PH.D. STUDENT IN COMPUTER SCIENCE AND ENGINEERING

Ann Arbor, MI, USA

Sep 2021 - present

### Seoul National University

B.S. IN ELECTRICAL AND COMPUTER ENGINEERING

Seoul, South Korea

Mar 2015 - Aug 2021

- GPA: 4.04/4.3 (overall) 4.15/4.3 (major)
- Summa Cum Laude
- Period includes two years of military service, required to all Korean men.

## Publications

- **Zeus: Understanding and Optimizing GPU Energy Consumption of DNN Training**, Jie You\*, Jae-Won Chung\*, Mosharaf Chowdhury, 20th USENIX Symposium on Networked Systems Design and Implementation (NSDI), 2023 (Acceptance rate = 18.38%)
- **ShadowTutor: Distributed Partial Distillation for Mobile Video DNN Inference**, Jae-Won Chung, Jae-Yun Kim, Soo-Mook Moon, 49th International Conference on Parallel Processing (ICPP), 2020 (Acceptance rate = 28.99%)

\* equal contribution

## Experience

### SymbioticLab

GRADUATE STUDENT RESEARCH ASSISTANT

UMich, United States

Sep 2022 - Present

- Advised by Professor Mosharaf Chowdhury.
- *Zeus*: Understanding and optimizing GPU energy consumption of DNN training

### Software Platform Lab

RESEARCH INTERN

SNU, South Korea

Apr 2020 - Jun 2022

- Advised by Professor Byung-Gon Chun.
- *Crane*: A GPU cluster manager for AutoML workloads. Extensive systems programming and research on cluster scheduling policies.

### Virtual Machine and Optimization Lab

SENIOR PROJECT

SNU, South Korea

Dec 2019 - Jun 2020

- Advised by Professor Soo-Mook Moon.
- *ShadowTutor*: Server-client collaborative video DNN inference. Use of knowledge distillation reduced network data transfer by 95%.

### Computer Vision Lab

UNDERGRADUATE INTERN

SNU, South Korea

Jun 2019 - Dec 2019

- Advised by Professor Kyoung Mu Lee.
- Better meta-initialization methods for Model-Agnostic Meta-Learning (MAML) with neural memory modules and convex programs.

### Lab of Imaging Science and Technology

UNDERGRADUATE INTERN

SNU, South Korea

Jun 2019 - Aug 2019

- Advised by Professor Jongho Lee.
- Designed and implemented a full deep learning pipeline for Quantitative Susceptibility Mapping. Accumulated experience on 3D MRI field data.

## Honors & Awards

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Jul 2021 **Kwanjeong Overseas Scholarship**, Kwanjeong Educational Foundation, \$100,000 over four years

*Seoul, South Korea*

Mar 2019 **Kwanjeong Undergraduate Scholarship**, Kwanjeong Educational Foundation, \$20,000 over two years

*Seoul, South Korea*

## Teaching

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- **Spring 2021 Operating Systems**, Main TA, Managed course projects and led group design reviews.
- **Fall 2020 Computer Organization (Undergraduate architecture)**, Peer tutor, Provided 30 hours of online lecture, **Best Tutor Award!**

## Skills

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**Language** Python, Rust, CUDA, C++, Verilog, C, Bash

**Framework** PyTorch, Pandas, Matplotlib

**Methodology** Machine Learning, Deep Learning, Multi-Armed Bandit

**Tool** Docker, Kubernetes, LaTeX

**English** TOEFL 120 (Perfect score, Feb 2020), GRE 167/170/4.5 (Mar 2018), TOEIC 990 (Perfect score, Oct 2018)