

Donghyun Son

happydh1@snu.ac.kr / [Google Scholar](#) / [Personal Website](#)

EDUCATION

| | |
|--|----------------------------------|
| University of Texas at Austin , Exchange Student, Computer Science | Sep 2025 — Present |
| Seoul National University , B.S. in Computer Science | March 2018 — Feb 2026 (expected) |
| <i>Three-year leave of absence for mandatory military service, served as an industrial technical personnel</i> | |
| • GPA: 4.04/4.3 (4.11/4.3 in major), expected to graduate <i>Summa Cum Laude</i> | |

PUBLICATIONS

NSNQuant: A Double Normalization Approach for Calibration-Free Low-Bit Vector Quantization of KV Cache

Donghyun Son, Euntae Choi, Sungjoo Yoo

Advances in Neural Information Processing Systems (NeurIPS 2025, to appear)

In-Context Learning with Noisy Labels

Junyong Kang, Donghyun Son, Hwanjun Song, Buru Chang

Preprint

Gradient Estimation for Unseen Domain Risk Minimization with Pre-Trained Models

Byounggyu Lew[†], Donghyun Son[†], Buru Chang

Workshop and Challenges for Out-of-Distribution Generalization in Computer Vision @ ICCV 2023 (OOD-CV@ICCV 2023)

Looking to Personalize Gaze Estimation Using Transformers

Seung Hoon Choi, Donghyun Son, Yunjong Ha, Seonghun Hong, Taejung Park

Journal of Computing Science and Engineering (JCSE), Vol. 17, No. 2, pp.41-50

Reliable Decision from Multiple Subtasks through Threshold Optimization: Content Moderation in the Wild

Donghyun Son[†], Byounggyu Lew[†], Kwanghee Choi[†], Yongsu Baek, Seungwoo Choi, Beomjun Shin, Sungjoo Ha, Buru Chang

ACM International Conference on Web Search and Data Mining (WSDM 2023, Oral)

EXPERIENCE

| | |
|---|------------------------------|
| Undergraduate Researcher | August 2025 — Present |
| UTNS Research Group @ UT Austin | Austin, Texas |
| <i>Supervised by Prof. Aditya Akella</i> | |
| • Designing an agentic system where the central controller manages dynamic resource allocation, load balancing, and scheduling (to be submitted to OSDI26) | |
| Undergraduate Research Intern | September 2024 — August 2025 |
| CMALab @ SNU | Seoul, South Korea |
| <i>Supervised by Prof. Sungjoo Yoo</i> | |
| • Investigated a calibration-free vector quantization method for KV cache, incorporating a novel normalization algorithm and efficient CUDA kernels for 1-2 bit inference (NeurIPS25) | |
| Machine Learning Engineer, Moderation ML Team | March 2022 — July 2023 |
| Hyperconnect (Acquired by Match Group) | Seoul, South Korea |
| • Built an ML-based system for moderating images and audio across Match Group brands (e.g., Tinder, Hinge) | |
| • Designed an efficient human-in-the-loop system for content moderation, managing AI flywheel | |
| • Devised a threshold optimization algorithm based on GD to optimize the tradeoff between reliability and cost (WSDM23, Oral) | |
| • Proposed a training algorithm for ML models to generalize effectively across different services and domains (OOD-CV@ICCV23) | |
| Research Engineer, R&D Team | August 2020 — March 2022 |
| VisualCamp | Seoul, South Korea |
| • Designed and implemented modern C++ based multi-threaded ML inference pipeline for gaze estimation SDK | |
| • Built a robust training procedure to train an appearance-based gaze estimation model and improved accuracy by 30% | |
| • Proposed a transformer-based calibration algorithm that predicts user-specific latent vectors using users' samples | |

PATENTS

Apparatus and Method for Setting Criteria on Data Classification

Yong Su Baek, Dong Hyun SON, Beom Jun Shin, Byoung Gyu Lew, Bu Ru CHANG, Kwang Hee CHOI, Seung Woo Choi, Sung Joo Ha
US Patent Application No. 18/542,409 (2024)

Apparatus for Domain Generalization of Machine Learning Models, Methods and Computer Readable Recording Mediums Therefor

Bu Ru CHANG, Byoung Gyu Lew, Dong Hyun SON
US Patent Application No. 18/466,617 (2024)

HONORS & AWARDS

Programming Contests

- 2nd prize, at Union of Clubs Programming Contest (UCPC) 2025
- 5th prize, at Samsung Collegiate Programming Contest (SCPC) 2021
- 5th place, at ICPC NERC Huawei Challenge 2020: Cloud Scheduling Challenge
- 1st place, at Seoul National University Programming Contest (SNUPC) 2019, div. 2

Scholarships

- Samsung Software Membership, from Samsung Research (November 2021 — Present)
- Korea-U.S. STEM Student Exchange Scholarship (\$9000), from Ministry of Trade, Industry and Energy (2025.09)
- Full Tuition Academic Scholarship (merit-based, \$2300), from Seoul National University (2020-1, 2023-2, 2024-1, 2024-2)

Others

- 4th place, at CXR-LT Challenge Task 1 (MICCAI 2024)
- Bronze Prize, at 42nd Undergraduate Mathematics Contest div.1 (for mathematical majors)
- 1st place, at deep learning model acceleration challenge in HPC class (number of participants: 130+)
- Microsoft Azure Champ Prize : Hack For Good, at TartanHacks 2021 in CMU
- Best Paper Award, at Human & Cognitive Language Technology (HCLT) 2020

PRESENTATIONS

- KV Cache Compression for Long Context Inference, Weekly Seminar @ Deepest S16 (January 2025)
- Efficient Algorithms for LLM Inference, Weekly Seminar @ Deepest S15 (July 2024)

PROJECTS

RAG-based Research Assistant

Aug 2023 — Dec 2023

In collaboration with SoftlyAI

- Developed a RAG-based research assistant that helps users understand papers in an interactive way
- Fine-tuned LLMs to align with human preferences and built a Milvus-based retrieval server

Leveraging in-context learning ability of LLMs for shallow fusion [github]

Oct 2023 — Dec 2023

- Improved automatic speech recognition (ASR) by applying shallow fusion with an LLM conditioned on few-shot (ASR output, ground truth) correction examples.

ADDITIONAL INFORMATION

Interests: Table Tennis, Math Puzzles, Mind Sports (4 Dan in Go)

Technical Skills: C++, Python, Pytorch, Tensorflow, Jax, CUDA, OpenCL, MPI, OpenMP

Problem Solving: Codeforces (handle: **diordhd**, rating: 2200+) / BOJ (handle: **dhdroid**)

TOEFL iBT: 108 (R29/L29/S22/W28)