Donghyun Son

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EDUCATION

B.S. in Computer Science, *Seoul National University*   **March 2018 — Present**
Three-year leave of absence for mandatory military service, served as an industrial technical personnel
- **GPA**: 4.05/4.3 (4.15/4.3 in major)
- **Courseworks**: Scalable High-Performance Computing (Graduate Course); Natural Language Processing (Graduate Course); Computer Vision; Mathematical Statistics; Linear Algebra;

EXPERIENCE

Machine Learning Engineer, Moderation ML Team   **March 2022 — July 2023**
Hyperconnect (of Match Group)   *Seoul, South Korea*
- Developed 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)
- Developed 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 developed modern C++ based multi-threaded ML inference pipeline for gaze estimation SDK
- Accelerated a calibration process (personalizing gaze estimation) by 10x, by substituting naive optimization algorithms with L-BFGS and improving outlier removal process.
- Designed a robust mechanism to train an appearance-based gaze estimation model and improved accuracy by 30%
- Devised a transformer-based calibration algorithm that predicts user-specific latent vectors using users' samples

PUBLICATIONS

In-Context Learning with Noisy Labels
Junyong Kang, **Donghyun Son**, Hwanjun Song, Buru Chang
arXiv 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 @ ICCV2023 (**OOD-CV@ICCV23**)

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 (**WSDM23, Oral**)

PRESENTATIONS

- **Efficient Algorithms for LLM Inference**, Weekly Seminar @ Deepest S15 (July 2024)

HONORS & AWARDS

- **Samsung Software Membership**, from Samsung Research (November 2021 — Present)
- **Bronze Medal**, at 42nd Undergraduate Mathematics Contest div.1 (for mathematical majors, by Korean Mathematical Society)
- **Full Tuition Academic Scholarship** (merit-based, $2300), from Seoul National University (2020-1, 2023-2, 2024-1)
- **5th award**, at Samsung Collegiate Programming Contest (SCPC) 2021
- **Microsoft Azure Champ Prize : Hack For Social Good**, at TartanHacks 2021 in CMU
- **Best Paper Award**, at HCLT 2020
- **5th place**, at ICPC NERC Huawei Challenge 2020: Cloud Scheduling Challenge
- **1st place**, at Seoul National University Programming Contest (SNUPC) 2019, div. 2

ADDITIONAL INFORMATION

Interests: Basketball, Swimming, Math Puzzles, Mind Sports (4 Dan in Go)
English Proficiency: scored 108 in TOEFL iBT (R: 29, L:29, S: 22, W: 28)
Technical Skills: C++, Python, Pytorch, Tensorflow, Jax, CUDA, OpenCL, MPI, OpenMP
Problem Solving: diordhd in codeforces (2200+) / **dhdroid** in BOJ