Changhun Kim

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Research Interests

Generalizable Deep Learning: Test-Time Adaptation, Meta-Learning, Zero-Shot Learning
Generative Models: Diffusion Models, Text-to-{Image, 3D, Speech} Generation
Bayesian Machine Learning: Bayesian Deep Learning, Bayesian Nonparametrics

Education

Korea Advanced Institute of Science and Technology (KAIST) Daejeon, South Korea

M.S. in Artificial Intelligence Mar. 2022 – Feb. 2024

- Thesis: Test-Time Adaptation for Automatic Speech Recognition via Sequential-Level Generalized Entropy Minimization
- Advisor: Eunho Yang
- GPA: 4.25/4.3, 4.0/4.0, 99.5% (Department Salutatorian, Top 0.7% of all Departments)

B.S. in Computer Science and Mathematics (Double Major) Mar. 2017 – Feb. 2022

- Magna Cum Laude with Honors in Engineering
- GPA: 3.92/4.3, 3.81/4.0, 96.2% (Top 9% in the Department)

Publications

*: Equal Contribution

Stable-TTS: Stable Speaker-Adaptive Text-to-Speech Synthesis via Prosody Prompting under Limited Target Samples

Wooseok Han*, Minki Kang*, **Changhun Kim** and Eunho Yang
Under Review

CloudFixer: Test-Time Adaptation for 3D Point Clouds via Diffusion-Guided Geometric Transformation

Hajin Shim*, **Changhun Kim*** and Eunho Yang
Under Review

SGEM: Test-Time Adaptation for Automatic Speech Recognition via Sequential-Level Generalized Entropy Minimization [paper][code]

Changhun Kim, Joonhyung Park, Hajin Shim and Eunho Yang
Conference of the International Speech Communication Association (INTERSPEECH), 2023
Oral Presentation, 348/2293=15.2%

Research Experience

Medical AI Division, AITRICS Seoul, South Korea

Machine Learning Researcher Nov. 2023 – Present

- Conduct research on large language model and test-time adaptation for biomedical signal analysis, with a particular emphasis on electronic health records, in collaboration with Prof. Eunho Yang.

Machine Learning and Intelligence Laboratory, KAIST Daejeon, South Korea

Master's Student Mar. 2022 – Feb. 2024

- Explore modality-specific test-time adaptation strategies on diverse tasks, such as 3D point cloud classification, zero-shot transfer of vision-language models, automatic speech recognition, and tabular classification under Prof. Eunho Yang.

Research Intern Jun. 2021 – Feb. 2022

- Investigate a style matching denoiser for automatic speech recognition under the supervision of Prof. Eunho Yang.

Vehicular Intelligence Laboratory, KAIST Daejeon, South Korea

Research Intern Oct. 2019 – Aug. 2020

- Research a deep reinforcement learning system for AI soccer, and develop rule-based and deep learning AI soccer code generators under the guidance of Prof. Dongsoo Har.

Work Experience

MLOps Squad, DeepNatural AI Seoul, South Korea

Machine Learning Engineer Intern Sep. 2020 – Feb. 2021

- Construct diverse machine learning systems, including speaker verification and diarization framework, Duchenne smile classifier, and medical product recommender system.

Big Data Center, Netmarble — Seoul, South Korea

Data Engineer Intern — Jun. 2019 – Aug. 2019

- Develop log-based real-time OLAP service for Seven Knights mobile game.

Honors and Awards

Best MLILAB Member for 2022 – 2023, KAIST — Jul. 2023
Dongwon Scholarship (Full M.S.), KAIST — 2022 – 2023
Magna Cum Laude, College of Engineering, KAIST — Feb. 2022
Silver Prize, Korean Undergraduate Mathematics Competition — Jan. 2022
Overseas Exchange Scholarship, Mirae Asset — Dec. 2019
Representative of Student Exchange Ambassador, KAIST — Nov. 2019
Honor Student, College of Engineering, KAIST — Sep. 2019
Convergence AMP Scholarship, KAIST — Mar. 2019
Winner, Science Quiz, KAIST-POSTECH Science War — Sep. 2018
Participation Prize, Urban Design Competition, CEE, KAIST — Dec. 2017
National Scholarship (Full B.S.), KAIST — 2017 – 2021

Skills

Programming Skills

Programming Languages: C/C++, Java, Python, SQL
Libraries/Frameworks: PyTorch, TensorFlow

Languages

Advanced in **English** and Native in **Korean**