

Changhun Kim

CONTACT INFORMATION	Position: M.S. Student @ KAIST AI , Machine Learning Researcher @ AITRICS Email: changhun.kim@kaist.ac.kr Links: Homepage , Google Scholar , GitHub , LinkedIn , X	
RESEARCH INTERESTS	My research interests lie in developing scalable and provable machine learning algorithms for various applications. Currently, I am particularly intrigued by the following topics: Generalizable Deep Learning: Test-Time Adaptation, Meta-Learning, Zero-Shot Learning Generative Models: Generative Adversarial Networks, Diffusion Models 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 - Present <ul style="list-style-type: none">Thesis: Test-Time Adaptation for Automatic Speech Recognition via Sequential-Level Generalized Entropy MinimizationAdvisor: Eunho YangGPA: 4.25/4.3, 4.0/4.0, 99.5% B.S. in Computer Science and Mathematics (Double Major) Mar 2017 - Feb 2022 <ul style="list-style-type: none">Magna Cum Laude with Honors in EngineeringGPA: 3.92/4.3, 3.81/4.0, 96.2%	
PUBLICATIONS	*: Equal contribution CloudFixer: Test-Time Adaptation for 3D Point Clouds via Diffusion-Guided Domain Translation Hajin Shim*, Changhun Kim* and Eunho Yang Under Review AdapTable: Test-Time Adaptation for Tabular Data via Shift-Aware Uncertainty Calibrator and Label Distribution Handler Changhun Kim* , Taewon Kim*, Seungyeon Woo, June Yong Yang 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=15.18%	
RESEARCH EXPERIENCE	Medical AI Division, AITRICS Seoul, South Korea Machine Learning Researcher Nov 2023 - Present <ul style="list-style-type: none">Research large language models and test-time adaptation for time series analysis, with specific focus on biomedical signal analysis in collaboration with Eunho Yang. Machine Learning and Intelligence Laboratory, KAIST Daejeon, South Korea Research Intern Jun 2021 - Feb 2022 <ul style="list-style-type: none">Research on style matching denoiser for automatic speech recognition under the supervision of Eunho Yang.	

WORK EXPERIENCE	Vehicular Intelligence Laboratory, KAIST	Daejeon, South Korea
	Research Intern	Oct 2019 - Aug 2020
	<ul style="list-style-type: none"> Research a deep reinforcement learning system for AI soccer, and develop rule-based and deep learning AI soccer code generators under the guidance of Dongsoo Har. 	
	MLOps Squad, DeepNatural AI	Seoul, South Korea
	Machine Learning Engineer Intern	Sep 2020 - Feb 2021
	<ul style="list-style-type: none"> Develop 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
	<ul style="list-style-type: none"> 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
PROJECTS	National Scholarship (Full B.S.), KAIST	2017 - 2021
	Confidence Interval Estimation and Performance Relationship Analysis in Tire Performance Prediction Model	
	Research Project, Funded by Hankook Tire & Technology	Nov 2023 - Present
	<ul style="list-style-type: none"> Conduct research project on confidence interval estimation, performance relationship analysis, and performance/rank prediction for tire performance prediction models, along with tire pattern image generation using diffusion models. 	
	Integrated Tire Performance Prediction Model Exploiting Tire Pattern Characteristics	
	Research Project, Funded by Hankook Tire & Technology	Mar 2022 - April 2023
	<ul style="list-style-type: none"> Conduct research project on feature extraction of tire pattern images using self-supervised learning and integrated prediction through multi-task learning for tire performance prediction models. 	
	Convergence Analysis of Deep Learning Optimizers Under Generalized Smoothness	
	Research Project, Conducted in AI616, KAIST	Sep 2023 - Dec 2023
	<ul style="list-style-type: none"> Conduct a convergence analysis of established optimizers and extend the study to emerging optimizers, under generalized smoothness assumption. 	
	How Many Times are We Going to Collaborate?	
	Research Project, Conducted in AI607, KAIST	Sep 2022 - Dec 2022
	<ul style="list-style-type: none"> Propose feature engineering and hypergraph neural networks strategies for collaboration 	

frequency estimation and collaboration support prediction tasks on social networks.

Theoretical and Empirical Analysis on Perceptual Adversarial Robustness

Research Project, Conducted in [AI602, KAIST](#)

Mar 2022 - Jun 2022

- Analyze the limitations of [Perceptual Adversarial Training](#), and propose strategies to overcome such challenges.

Few-Shot Font Generation for Korean

Research Project, Conducted in [AI604, KAIST](#)

Mar 2022 - Jun 2022

- Customize existing font generation methods outlined in [MX-Font](#) and [DG-Font](#) for Korean, and propose additional components to achieve performance improvements.

Issue Trend Analysis and Issue Tracking Analysis

Research Project, Conducted in [CS474, KAIST](#)

Mar 2021 - Jun 2021

- Construct a text mining framework to conduct issue trend analysis, on-issue event tracking, and related-issue event tracking using crawled news articles from Korea Herald.

Immersion Camp: Intensive Programming and Startup

Development Project, Conducted in [CS496, KAIST](#)

Dec 2019 - Jan 2020

- Execute four weekly development projects centered around the themes of restaurant recommendation and travel place recommendation applications, facial expression recognition rhythm game, and AI composition platform.

SKILLS

Programming Skills

Advanced: C/C++, Java, Python, SQL, PyTorch

Moderate: HTML/CSS/JavaScript, TensorFlow

Novice: Android Studio, Node.js

Languages

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