Biniyam Aschalew Tolera

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EDUCATION

KAIST, Daejeon, Republic of Korea *Sep. 2025 – Present*
M.S in Electrical Engineering
Advisor: Jaemin Yoo
Major GPA of 3.9/4.3

KAIST, Daejeon, Republic of Korea *Mar. 2021 – Aug. 2025*
B.S. in Computer Science
Graduation with Magna Cum Laude
Major GPA of 3.96/4.3, Total GPA of 3.87/4.3

RESEARCH EXPERIENCE

Data AI Lab *Jun. 2024 – Present*
KAIST, Daejeon, Republic of Korea
Research intern, Advised by Prof. Jaemin Yoo

- Leading a transfer learning on graph project, including the design of research frameworks, methodologies, state-of-the-art baselines, and experimental evaluations

Networking and Mobile Systems Laboratory (NMSL) *Jul. 2023 – Jun. 2024*
KAIST, Daejeon, Republic of Korea
Research intern, Advised by Prof. Sung-Ju Lee

- **Grounding Multimodal Large Language Models with Sensor Data via Visual Prompting** [C.1]:
  Enhanced the use of LLMs for diverse sensory tasks by introducing visual prompting. Key contributions included designing research methodologies, developing sensory data processing pipelines, and investigating prompting methodologies for mitigating the effect of sequence length. This project led to a publication at EMNLP '24
- **Adapting Pre-Trained Sensing Models to End-Users via Self-Supervision Replay** [C.2]:
  Contributed to research on a self-supervised meta-learning approach for cross-domain and user adaptability. Implemented state-of-the-art self-supervised baselines, conducted experiments, and performed a literature review.

Complexity and Real Computation Laboratory *Mar. 2024 – Aug. 2024*
KAIST, Daejeon, Republic of Korea
Individua study, Advised by Prof. Martin Ziegler

- Designed and implemented experimental methodologies to apply the Hofstadter test, evaluating an LLM agent's performance in a virtual world.

Institute for Basic Science (IBS) *Dec. 2022 – Feb. 2023*
KAIST, Daejeon, Republic of Korea
Individual Study, Advised by Prof. Meeyoung Cha

- Analyzed satellite imagery to predict Venusian climate patterns and evaluated deep-learning models for weather classification.

INTERNSHIP EXPERIENCE

BFactory Inc. *Dec. 2022 – Feb. 2023*
Seoul, Republic of Korea,
Machine Learning Intern

- Developed a makeup transfer feature using GAN models like EleGANt. Key contributions included designing custom metrics to assess makeup transfer quality, implementing data processing pipelines, and fine-tuning models.

Bastion Robotics, Inc. *Dec. 2023 – Feb. 2024*
Seoul, Republic of Korea,
AI Intern

- Developed a rule-based AI system to control non-playable characters (NPCs) and in-game characters, and designed character mechanics using the Unity game engine, significantly enhancing gameplay dynamics. in puy

PUBLICATIONS

[C.1] "By My Eyes: Grounding Multimodal Large Language Models with Sensor Data via Visual Prompting"
Hyungjun Yoon, **Biniyam Aschalew Tolera**, Taesik Gong, Kimin Lee, and Sung-Ju Lee
[EMNLP '24]

[C.2] "SelfReplay: Adapting Self-Supervised Sensory Models via Adaptive Meta-Task Replay"
Hyungjun Yoon, Jaehyun Kwak, **Biniyam Aschalew Tolera**, Gaole Dai, Mo Li, Taesik Gong, Kimin Lee, and Sung-Ju Lee
Conference on Embedded Artificial Intelligence and Sensing Systems [SenSys '25]

[C.3] "Leveraging Synthetic Data for Data-Free Knowledge Distillation"
Biniyam Aschalew Tolera, Bryan Nathanael Wijaya, Minhajur Rahman Chowdhury Mahim
Korean Software Conference [KSC '24]

[C.4] "Socially-Aware User Representation Modeling Toward Parameter-Efficient Graph Collaborative Filtering"
Doyun Choi, Cheonwoo Lee, **Biniyam Aschalew Tolera**, Taewook Ham, Chanyoung Park, Jaemin Yoo
[WWW '26]

PROJECTS

Leveraging synthetic data for zero-shot knowledge distillation [C.3] *Spring 2024*
KAIST, CS570 Course Project Link

- Improved zero-shot knowledge distillation performance through synthetic data generation. Responsibilities included conducting literature reviews, implementing methodologies and baselines, and designing the experimental pipeline.

Lang ReCaptcha *Summer 2023*
Junction Asia 2023 Hackathon, Project Link

- Designed and implemented a custom ReCAPTCHA system to collect data for low-resource languages and authenticate user behavior, utilizing the KoBERT model for verifying user input and labeling data.

Fake Import Declaration Detection Competition *Spring 2023*
KAIST, CS360 Course Project

- **Ranked 3rd out of 190+ participants** in a Kaggle competition hosted by KAIST CS360 and the Korean Customs Service. Developed an advanced model ensemble and innovative data processing to detect fake import declarations

HONORS & AWARDS

CoE Leadership Award (Research Excellence) Mar. 2025
Daewoong AI and Big Data Global Scholarship Mar. 2024
KAIST Full Scholarship Mar. 2021
Hanseong-Sonjaehan Scholarship Award Mar. 2021
MindPlus National Mathematics Olympiad Gold Medalist Aug. 2019

TEACHING EXPRIENCE

AddisCoder Programming Summer Camp | *Teaching Assistant* Fall 2025
Introduction to Algorithm (CS300), KAIST | *Teaching Assistant* Fall 2022
Introduction to Programming (CS101), KAIST | *Teaching Assistant* Spring 2022
Introduction to Programming (CS101), KAIST | *Tutor* Mar. 2021 – Jun. 2022