

Suhyun Bae

baeshstar@gmail.com | 010 3357 4231 | linkedin.com/in/suhyun-bae-869043286 | github.com/Ricepunchb

Education

Korea University

Mar. 2024 – Feb. 2026

- Master of Science in Mathematical Data Science, GPA 4.17/4.5
- Advisor: Prof. Donghun Lee, Master Capstone Project: “Numbers Already Carry Their Own Embeddings”
- **Relevant Coursework:** Mathematics of Deep Learning, Mathematics of Reinforcement Learning, Mathematics of Artificial Intelligence, Applied Mathematics

Korea University

Mar. 2018 – Feb. 2024

- Bachelor of Science in Mathematics, GPA 3.5/4.5
- **Relevant Coursework:** Linear Algebra, Mathematical Methods in Artificial Intelligence, Calculus, Applied Number Theory, Real Analysis, Algebra, Topology, Set Theory

Research Interests

- Resource-efficient model architectures and algorithms
- Hallucination-robust design in large language models

Experience

SK Magic, Seoul, South Korea

Jul. 2024 – Jan. 2025

- Data Scientist (Intern)
- Developed an optimization algorithm to recommend the ideal number and placement of auxiliary air quality sensors, enabling autonomous navigation and effective air purification in smart air purifiers
- Designed an air quality risk index and implemented spatial interpolation techniques (IDW and A*-based methods) to predict and map air quality across entire indoor spaces using limited sensor data
- Researched and proposed third-party air quality data integration strategies, considering hardware constraints and real-time edge computing requirements
- Identified and explored AI-powered companion app services for seamless integration with the new product

Publications

Published

Exploring Hallucination Types in Question-Answering Generation and Limitation of Text Evaluation Metrics

Jun. 2024

Suhyun Bae, Donghun Lee

Proceedings of the Korea Information Science Society Conference, pp. 450–452.

Accepted

Numbers Already Carry Their Own Embeddings

Oct. 2025

Suhyun Bae, Donghun Lee

NeurIPS 2025 Workshop MATH-AI

OPC: One-Point-Contraction Unlearning Toward Deep Feature Forgetting

Jul. 2025

Jaeheun Jung, Bosung Jung, *Suhyun Bae*, Donghun Lee

ICCV 2025 Workshop U&ME

Preprint

Conference Presentations

Numbers Already Carry Their Own Embeddings NeurIPS MATH-AI Workshop, Dec. 6, 2025
Poster

Invited Talks

About Grokking: Why it Occurs? Korea Univ. Mathematics Department Spring Workshop, Oral Apr. 4, 2025

Adele Space: Embedding Space With Algebraic Structure Preservation Korea Univ. Mathematics Department Fall Workshop, Oral Sep. 12, 2025

Numbers Already Carry Their Own Embeddings Korea –Yonsei Univ. Joint Academic Exchange, Poster Nov. 14, 2025

Projects

2023 AI Grand Challenge Ministry of Science and ICT, South Korea

- Responsible for dataset creation, cleaning, and model fine-tuning
- Team award: 7th place

2024 AIMO – Progress Prize 1 Kaggle, XTX Markets

- Performed data preprocessing and QLoRA-based fine-tuning of 7B parameter models
- Tools: Accelerate, Hugging Face, Python

2025 PFVL Project AI4MATH Project

- Developed an agentic loop for automatic proof generation and verification of natural language math problems using Lean4 compiler
- Designed prompt engineering integrating commercial LLMs with formalized languages
- Tools: Lean4, Python

2025 SCPC: AI Challenge Samsung Electronics, Samsung Research

- Developed an on-device Vision-Language Model (VLM) capable of understanding everyday images and performing background knowledge-based reasoning
- Achieved top 9% (23rd place) and advanced to finals

Adele Embeddings Project MATH-AI 2025

- Designed a training-free embedding space based on Adele space to preserve algebraic structure in number token embeddings
- Tools: Pytorch, Python

Technical Skills

Programming Languages: Python, \LaTeX

Frameworks & Libraries: Pytorch, Huggingface, Pandas, Numpy

Tools: Linux, Git, Docker

Language

English

- OPIc: IH (Intermediate High)

Korean

- Native