






Jaewon Kim

Undergraduate Student at Korea University, Seoul, Korea

 Semiconductor Engineering @ Korea University
 jwko302@korea.ac.kr
 linkedin.com/in/jaewon-kim
 github.com/eric98040
 jaewon.work

Research Interest

My research advances AI through mathematical analysis and optimization, focusing on generative models, reinforcement learning, and the integration of physical principles to enhance real-world performance.

- Generative Models (Diffusion, GANs) for controlled generation and optimization
- Reinforcement Learning (Model-based approaches, Sample efficiency)
- Physical AI: Integrating physical principles to improve real-world applicability

Education

Mar.2022 – Present	B.S. in Semiconductor Engineering Korea University, Seoul, Korea <ul style="list-style-type: none">• GPA: 4.36/4.5• <u>Complex Data Analytics LAB</u>
Mar.2025 – Dec.2026	Alternative Military Service Social Service Agent, Korea

Research Experience

Mar.2024 – Present	Complex Data Analytics LAB (CDAL) Undergraduate Researcher <ul style="list-style-type: none">• Advisor: <u>Prof. Seok Junhee</u>• PDE solver acceleration and inverse design of device designs• Sliced-CCDM: Conditional Diffusion Model with sliced vicinal constraints for inverse design• RL-SR: Reinforcement Learning approaches for Super-Resolution tasks
--------------------	---

Honors & Awards

Jul. 2022	Dean's List (2022-1) Award given to an undergraduate student with a perfect GPA (4.5/4.5) for a semester
2022 – present	Semester High Honors (2022-2, 2023-1, 2023-2, 2024-1, 2024-2) Award given to undergraduate students achieving a GPA of 4.0 or higher for a semester
2022 – present	KU Alumni Scholarship Merit-based scholarship awarded through SK Hynix-sponsored alumni program at KU
Oct. 2024	Outstanding Poster Award 12th SK Hynix Academic Conference

Projects

- Sep. 2024 – Dec. 2024 **DiffOptics**: Diffusion-Based Optical Design Generation with Wavelength and Power Control
Complex Data Analytics Lab (CDAL), Korea University
- Jul. 2024 – Oct. 2024 **FSI AIxData**: Dual-Pipeline Approach to Financial Fraud Detection: Balancing Classification Performance and Data Privacy
Financial Security Institute (FSI)
- Apr. 2024 – Jun. 2024 **CartoonGAN+**: Architectural Modifications for Stable Anime Style Transfer
BITAmin 12th Project
- Jan. 2024 – Mar. 2024 **INSIDE OUT**: Multi-label Emotion Classification and Instance Segmentation for Animated Characters
BITAmin 12th Project
- Sep. 2023 – Dec. 2023 **Optimal Motion Blur Preprocessing** for High-Speed Object Detection
SEMI204, Korea University

Activities

- Mar.2024 – Present **Young Engineers' Honor Society (YEHS)**
Organization under The National Academy of Engineering of Korea (NAEK)
- Aug.2023 – Aug.2024 **BITAmin** (Intercollegiate Big Data Academic Society)
Intercollegiate offline study group focusing on ML/DL research and projects
- Mar.2023 – Dec.2023 **Korea University International Student Assistant (KUISA)**
Voluntary student organization under Global Services Center

Languages

Korean: Native

English: Proficient