





# 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*

- GPA: 4.36/4.5
- Complex Data Analytics LAB

Mar.2025 – Dec.2026 | **Alternative Military Service**

*Social Service Agent, Korea*

## Research Experience

Mar.2024 – Present | **Complex Data Analytics LAB (CDAL)**

*Undergraduate Researcher*

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

Activities

---

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

Languages

---

**Korean:** Native  
**English:** Proficient