# Taeyoon Kim

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Taeyoon Kim | tykim0507

Seoul, Korea

## OBJECTIVE

My long-term goal is to build **truly intelligent** systems. I am currently focused on **robotics** and **reinforcement learning**, as they enable the use of continuous real-world data to ground intelligence in common sense and physical understanding. My research interests include:

- **Continual lifetime learning with feedback**: Reinforcement Learning, Meta Learning

- **Utilizing Large Scale Data**: Large Scale Self-Supervised Learning models (LLMs, Diffusion models)

- **Data Driven Learning**: Learning algorithms that can scale

- **Efficient, Common Sense Learning**: Neuroscience-inspired Deep Learning

## EDUCATION

- **Seoul National University** *Mar. 2022 - Present*
  *B.S. in Computer Science and Engineering, Mathematical Science* Seoul, Korea
  ◦ GPA: 4.24/4.3 (18 months of mandatory military service included)

- **Seoul Science High School** *Mar. 2019 - Feb. 2022*
  *High School diploma* Seoul, Korea
  ◦ GPA: 4.27/4.3 (Graduated Top 5% among 128 students)

## RESEARCH EXPERIENCE

- **Computer Vision Lab, Seoul National University [🌐]** *Sep. 2023 - Aug. 2024*
  *Undergraduate Researcher (Advisor: Professor Bohyung Han)* Seoul, Korea
  ◦ **Personalized Video Diffusion models**: Implemented methods for generating high-quality videos with user-specified objects and styles

  ◦ **Zero shot editing Video Diffusion models**: Designed diffusion guidance techniques to enable video editing aligned with user intent without additional training

- **fal.ai [🌐]** *Apr. 2024 - Jun. 2024*
  *Granted Researcher* Remote
  ◦ Developed and released two open-source projects with GPU acceleration support in collaboration with fal.ai

  ◦ Pioneered the public release of SV3D training code, the first worldwide

  ◦ Pioneered the public release of Motion LoRA training code for the SVD model, the first worldwide

- **Learning and Decision Systems Lab, Seoul National University [🌐]** *Jun. 2023 - Aug. 2023*
  *Undergraduate Researcher (Advisor: Professor Insoon Yang)* Seoul, Korea
  ◦ **Maillard Sampling on LQR settings** : Developed and analyzed an algorithm for applying Maillard Sampling for LQR settings

## HONORS AND AWARDS

- **Presidential Scholarship 20th, Field of Informatives** *Mar. 2022*
  *Government of South Korea*
  ◦ Awarded the most prestigious national scholarship in Korea, granted annually to only 60 students for outstanding research performance

  ◦ Received $5,500 per semester covering full tuition and living expenses, funded by the Government of South Korea

- **SNU Semiconductor Specialized Scholarship 2nd** *Jan. 2024*
  *Seoul National University*
  ◦ Awarded Seoul National University Scholarship for outstanding performance in semiconductor-related fields; received $7,500 and additional benefits

- **2022 SNU Unmanned Store Product Recognition Competition 2nd place** *Jul. 2023*
  *Seoul National University*
  ◦ Developed an efficient, high-accuracy detection algorithm using YOLO and post-training optimization techniques, designed for deployment in unmanned retail stores.

- **College Student Math Contest Silver Prize** *Jul. 2023*
  *Korean Mathematical Society*

- **Director of Korea Institute for Advanced Study Prize** *Dec. 2021*
  *Korea Institute for Advanced Study*
  ◦ Prize given to students with outstanding performance in studying and research during their high school period.

## PROJECTS

- **AER** *Jun. 2025 - Present* [🌐]
  - Everyone can have a supercomputer in their homes
  - Built a system that allows individuals to access GPU resources only when needed, significantly reducing computing costs by enabling on-demand usage
  - Under review by the Korean military for potential adoption

- **Stable Video 3D training code release** *Apr. 2024 - Jun. 2024* [🔗]
  - Open-sourced SV3D training code, the first release of its kind worldwide
  - Conducted the project under a research grant with fal.ai

- **Motion LoRA for Stable Video Diffusion** *Apr. 2024 - Jun. 2024* [🔗]
  - Implemented a Low-Rank Adaptation (LoRA) training algorithm to enhance the Stable Video Diffusion model, enabling video generation aligned with motion patterns from limited video datasets
  - Conducted the project under a research grant with fal.ai

- **Novel View Refinement via Attention Fusion** *Apr. 2024 - Jul. 2024* [paper][slides]
  - Proposed a plug-in algorithm for refining novel view synthesis by fusing attention maps from an additional object image, applicable to SV3D and other novel view synthesis models

- **DeepKalmanRadarnet: Injecting temporal information to radar features** *Mar. 2024 - Jul. 2024* [slides]
  - Developed a plug-in Deep Kalman Filter to fuse temporal features, improving success rate and robustness of LiDAR–Radar based 3D detection and tracking algorithms

- **Mango: Mental Health Counseling App for Military soldiers** *Apr. 2025 - Jun. 2025* [slides]
  - Developed a mental health care application for military personnel using Flutter, FastAPI, and the GPT-4o API

## SKILLS

- **Programming Languages:** Python, C++, C#, C, Java, Javascript
- **Frameworks/Libraries:** Pytorch, PytorchLightning, Tensorflow, Cuda, HuggingFace, IsaacSim, Mujoco, LaTeX
- **Web Technologies:** Git, Docker, Kubernetes, AWS, JS, HTML, CSS, Spring, Flutter, SQL, FastAPI, Redis, Firebase
- **Language:** English, Korean

## CERTIFICATIONS AND OTHERS

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| **Korean Mathematical Olympiad Gold Prize** | *May. 2017* |
| **Korean Physics Olympiad Winter School Participant (Top 1%)** | *Jan. 2020, Jan. 2021* |
| **Korean Physics Olympiad Classical Mechanics Expert** | *Jul. 2019* |
| **CoRL 2025 Volunteer (Selected 60 people Worldwide)** | *Sep. 2025* |
| **SNU Summer Natural Language Processing Class Teaching Assistant** | *Jul. 2024 - Aug. 2024* |
| **2022 SNU Science Gifted Social Contributed Project Mentor for Field of Informatics** | *Nov. 2022 - Jan. 2023* |
| **Representative of SSHS/SNU (CSE & ECE)** | *Dec. 2023 - Aug. 2024* |
| **SNU Accelerator Programming Summer School Participant** | *Aug. 2023* |
| **Navy Startup Challenge Cheif of Navy Operations Prize (Top 1.62%)** | *Jun. 2025* |
| **Seoul Science High School Research Competition 1st place** | *Dec. 2020* |
| **Seoul Science High School Research Competition 2nd place** | *Dec. 2019* |
| **Seoul Science High School Research Graduation Thesis Presentation Contest 2nd place** | *Dec. 2021* |
| **TEPS 510/600** | *Feb. 2022* |
| **TOEIC 945/990** | *Aug. 2023* |