Sangyun Bae

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Education

Kwangwoon University Seoul, South Korea

B.S. in Information Convergence, Major in Data Science *Mar. 2021 - Feb. 2027 (Expected)*

- Total GPA 3.98 / 4.5 , Major GPA 4.02 / 4.5 (Credits Taken : 127/133)

Experience

Intern

Center for Humanoid Robotics, KIST (Korea Institute of Science and Technology) *Mar. 2026 – Sep. 2026*

- Conducting research on humanoid robotics at the ARC Lab
- Investing sim-to-real transfer methods to bridge the gap between simulated training and real-world deployment for Humanoid
- Applying system identification algorithms to estimate dynamic parameters of humanoid

ALLAI Inc. *Sep. 2025 – Feb. 2026*

- Developed and operated mobile robots using NVIDIA Jetson platform with ROS 1/2 and Arduino
- Optimized AI applications for Jetson using TensorRT and ONNX, covering image generation with Diffusion and GAN models, and object detection with YOLO

NIPA NVIDIA AI Course Participant

KOSA (Korea AI & Software Industry Association) *Jul. 2025 – Aug. 2025*

- Completed intensive AI/GPU computing program in collaboration with NVIDIA
- Awarded **Excellence Prize** and selected for Outstanding Final Project

College Student Mentor

Incheon Ganghwa Office of Education *May 2025 – Dec. 2025*

- Provided academic mentoring to students in STEM-related subjects

Projects

Flood Rescue System with AI | *YOLO, UNet, Isaac Sim, Jetson, TensorRT*

- Built a real-time flood rescue perception system using synthetic data generated in NVIDIA Isaac Sim
- Trained YOLO and UNet models on synthetic datasets; deployed on Jetson with TensorRT optimization
- Generated grid maps for rescue operation planning from aerial imagery

AI Outfit Recommendation System | *CNN, NLP*

- Built a clothing detection and scoring system using fine-tuned YOLOv8 and ResNet50
- Crawling 'Musinsa' clothes images for YOLOv8 fine-tuning
- Trained a ResNet+MLP network to evaluate clothing coordination scores using expert-curated matching dataset

Symptom-Based Hospital Finder | *Sentence Embedding, Cosine Similarity*

- Developed an NLP pipeline using sentence embeddings (BERT/SBERT) to match patient symptoms with hospital specialties
- Crawling hospital data from 'Modoodoc' and utilized LLMs to process fine-grained user query

Raspberry Pi 4 AI Car | *CNN, Raspberry Pi*

- Implemented autonomous driving on Raspberry Pi 4 using CNN-based lane following and YOLOv5 obstacle/crosswalk detection

ROS 2 Autonomous AI Car (Jetson + Arduino) | *ROS 2, SLAM*

- Designed and built a SLAM-capable autonomous robot using ROS 2 on Jetson hardware with Arduino motor control
- Used LiDAR sensor for mapping and Nav2 for path planning and autonomous navigation
- Implemented Jetson-Arduino serial communication bridge for real-time control

System Identification of the Unitree G1 using CMA-ES | *Robotics*

- Adapted a pace algorithm from quadruped to biped humanoid robots
- Trained an RL-based locomotion policy using identified dynamic parameters

AnimeGAN2/Stable-Diffusion for Jetson | *PyTorch, Docker, ONNX, TensorRT, Jetson*

- Ported AnimeGAN2/Stable-Diffusion to run efficiently on Jetson Orin Nano 8GB
- Applied ONNX conversion and TensorRT optimization to achieve real-time inference on edge hardware
- Leveraged CUDA and Docker for reproducible, low-memory deployment on edge devices

Certifications & Awards

NVIDIA DLI Certified

5 Courses Completed

- Computer Vision for Industrial Inspection
- Bootstrapping Computer Vision Models with Synthetic Data
- Learn OpenUSD: Stages, Prims and Attributes
- Fundamentals of Accelerated Computing with Modern CUDA C++
- Fundamentals of Accelerated Computing with CUDA Python

Excellence Prize

2025 NIPA NVIDIA-AI Course — KOSA *Aug. 2025*

- Awarded for outstanding performance and selected for Outstanding Final Project

Technical Skills

Languages: C, C++, Python, TypeScript
Tools & Infra: Git, Docker, CMake, Anaconda, MySQL, MongoDB, Linux
AI / ML: PyTorch, CUDA, TensorRT, ONNX
Robotics: ROS 1/2, Arduino, Jetson, Isaac Sim, Isaac Lab, MuJoCo
Web / Backend: React, Next.js, Tailwind CSS, Flask