

Seongwon Jang

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TECHNICAL SKILLS

Languages: Python, C++, C

Robotics & Perception: ROS2, Gazebo, OpenCV, YOLO/YOLOv8, solvePnP, stereo triangulation, force/torque sensor integration

ML & LLM: PyTorch, TensorFlow, vLLM, DeepSpeed, LoRA/SFT, LangChain, Hugging Face, DeepEval, Weights & Biases

DevOps & Tools: Docker, Docker Compose, Git, CMake, Pixi

Backend & Integration: FastAPI, MCP

Operating Systems: Linux

Databases: PostgreSQL, MySQL

EXPERIENCE

Research Intern

Jul. 2025 – Sep. 2025

Ubiquitous AI Lab (UAI Lab), UNIST (Advisor: Prof. Taesik Gong)

Ulsan, Korea

- Defined a controlled comparison setup for MoE parameter-efficient tuning by reviewing prior methods and selecting evaluation criteria.
- Implemented baseline and proposed tuning algorithms on **OLMoE-1B-7B-Instruct**, then benchmarked NLP tasks to compare tuning efficiency and task performance.

CONTESTS

AI for Industry Challenge | *PyTorch, ROS2, Gazebo, YOLO, OpenCV, HuggingFace*

Apr. 2026 – May. 2026

- Led a UR5e cable-port insertion project and developed a ROS2 staged motion-planning policy node to stabilize insertion under changing port positions and approach angles.
- Reduced repetitive robot-manipulation data-collection bottlenecks by building a Gazebo collection pipeline with headless launch, readiness checks, ROS-Gazebo contact bridge, and process cleanup.
- Improved port localization and insertion recovery by integrating YOLO detection, multi-view/stereo triangulation, yaw/XYZ alignment, and vision/force-torque guarded retry logic.
- Kept distributed experiment artifacts and team workflows traceable by managing GitHub/Hugging Face outputs, recruiting teammates, and documenting schedules, roles, and experiment flow.

Structural Stability Physical Reasoning AI | *PyTorch, VideoMAE, Knowledge Distillation*

Mar. 2026 – Mar. 2026

- Addressed image/video physical-reasoning failure cases by rebuilding the augmentation and preprocessing pipeline with brightness/rotation transforms and VideoMAE feature extraction.
- Searched stable training settings through model-architecture, learning-rate, and weight-decay sweeps, plus regularization and knowledge-distillation loss experiments.
- Ranked 66th out of 484 teams** (top 13.6%) by selecting the most stable training configuration under competition constraints.

MAJOR PROJECTS

Advanced Q&A Chatbot System for Public Offices | *LLM, vLLM, DeepSpeed, LoRA*

Jan. 2026 – Mar. 2026

- Addressed unstable instruction-following in complex public-service questions by building Chain-of-Thought golden datasets and a DeepEval Synthesizer data-generation flow.
- Reduced fine-tuning and serving bottlenecks by developing a **vLLM, DeepSpeed**, and **SFT/LoRA** pipeline for repeatable training and inference experiments.
- Prevented model-access and artifact-management fragmentation by building a Docker Compose/MCP access structure and publishing adapters/tokenizers to the Hugging Face Hub.

RoboDine: AI-Based Robotic Restaurant Automation Platform | *ROS2, YOLO, OpenCV*

Apr. 2025 – Jun. 2025

- Stabilized noisy 6-DoF object-pose estimates before robot-arm grasping by tuning **YOLOv8-pose**, applying 5-frame averaging, and recovering pose with **solvePnP**; reduced pose-estimation error by 14%.
- Reduced unsafe manipulation inputs by connecting vision estimates to robot-arm control and implementing foreign-object detection for restaurant automation.
- Improved mobile-robot operation safety by building a camera/LiDAR obstacle-classification and avoidance pipeline as ROS2 topics.
- Kept a six-person robotics project coordinated through Git, Jira, and Confluence-based task tracking, code review, and experiment documentation.

EDUCATION

Sejong University

Seoul, South Korea

B.S. in Electronics and Information Engineering

Mar. 2019 – Feb. 2026

- GPA: 4.02 / 4.5 (Major GPA: 4.13 / 4.5), **Magna Cum Laude**

HONORS & AWARDS

- 2025 – Grand Prize, ROS2 & AI Autonomous Driving / Robot Arm Developer Bootcamp
- 2024 – Excellence Prize, 1st In-Jeju IoT Innovation Challenge
- 2024 – Encouragement Award, Sejong University Reading Contest (May 2024, Dec. 2023); Grand Prize (Oct. 2023)

CERTIFICATES

- 2025 – Engineer Information Processing (Dec. 2025)

ENGLISH

- 2026 – OPIc IH
- 2025 – TOEIC 925

TUTOR EXPERIENCE

-  C Language Algorithm Mentor Mar. 2024 – Dec. 2024
 - Built a C-language problem set around stacks, queues, and linked lists to help students practice core data-structure implementation.
 - Improved students' solution quality through code reviews focused on time complexity, memory efficiency, and implementation clarity.

ALGORITHM

-  Problem Solving Jun. 2025 – Present
 - Solved **61+** LeetCode problems and maintained solutions in the Algorithm repository.
 - Achieved **Gold 1** rank on Baekjoon Online Judge (solved over 430+ problems).