# Wooseong Jeong

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## Education

- **Korea Advanced Institute of Science and Technology (KAIST)** — Daejeon, Korea
  Ph.D. Candidate in Mechanical Engineering — March 2023 – August 2027 (Expected)
  Advisor: Kuk-Jin Yoon
- **Korea Advanced Institute of Science and Technology (KAIST)** — Daejeon, Korea
  M.S. in Mechanical Engineering — March 2021 – February 2023
  Advisor: Kuk-Jin Yoon
  Thesis: Connection Strength-based Optimization with Progressive Multi-modal Feature Exchange for Multi-task Learning
- **Korea Advanced Institute of Science and Technology (KAIST)** — Daejeon, Korea
  B.S. in Mechanical Engineering — March 2015 – February 2021
  Double Major: Mechanical Engineering and Electrical Engineering, cum laude
  Dean's List: Fall 2017

## Research Interests

- Parameter-efficient learning and model merging (LoRA/PEFT, conflict-aware weight composition, preference-aligned merging)
- Multi-task learning and scalable optimization (task interaction, Pareto optimization, preference-based multi-objective learning)
- Test-time adaptation and robust learning under distribution shift
- Autonomous driving and robotics (motion planning, vision-language-action models, robust autonomy)

## Publications

- **Wooseong Jeong***, Wonyoung Lee*, and Kuk-Jin Yoon, "Preference-Aligned LoRA Merging: Preserving Subspace Coverage and Addressing Directional Anisotropy", **CVPR 2026**.
- Wonyoung Lee*, **Wooseong Jeong***, and Kuk-Jin Yoon, "Label-Free Cross-Task LoRA Merging with Null-Space Compression", **CVPR 2026**.
- **Wooseong Jeong***, Jegyeong Cho*, Youngho Yoon*, Jaeyoung Lee, and Kuk-Jin Yoon, "Stabilizing Multi-Task Latent Spaces: Recursive Refinement with Coordinators in Partially Labeled Learning", **IEEE Access 2026**.
- Giwon Lee*, **Wooseong Jeong***, Daehee Park, Jaewoo Jeong, and Kuk-Jin Yoon, "Interaction-Merged Motion Planning: Effectively Leveraging Diverse Motion Datasets for Robust Planning", **ICCV 2025** (**Highlight**).
- **Wooseong Jeong** and Kuk-Jin Yoon, "Resolving Token-Space Gradient Conflicts: Token Space Manipulation for Transformer-Based Multi-Task Learning", **ICCV 2025**.
- **Wooseong Jeong***, Jegyeong Cho*, Youngho Yoon*, and Kuk-Jin Yoon, "Synchronizing Task Behavior: Aligning Multiple Tasks during Test-Time Training", **ICCV 2025**.
- Jihun Kim*, Hoyong Kwon*, Hyeokjun Kweon*, **Wooseong Jeong**, and Kuk-Jin Yoon, "DC-TTA: Divide-and-Conquer Framework for Test-Time Adaptation of Interactive Segmentation", **ICCV 2025**.
- **Wooseong Jeong***, Jihun Kim*, Hyeokjun Kweon*, and Kuk-Jin Yoon, "Multi-View 3D Scene Abstraction From Drone-Captured RGB Images", **IEEE Access 2025**.
- **Wooseong Jeong** and Kuk-Jin Yoon, "Selective Task Group Updates for Multi-Task Optimization", **ICLR 2025**.
- **Wooseong Jeong** and Kuk-Jin Yoon, "Quantifying Task Priority for Multi-Task Optimization", **CVPR 2024**.
- Hyeokjun Kweon*, Hyeonseong Kim*, Yoonsu Kang*, Youngho Yoon*, **Wooseong Jeong**, and Kuk-Jin Yoon, "Pixel-wise Warping for Deep Image Stitching", **AAAI 2023**.

## Manuscripts Under Review

- **Wooseong Jeong***, Giwon Lee*, and Kuk-Jin Yoon, "Latent Reasoning Path Guidance: Adapting ICL Samplers for Cross-Domain Retrieval", **EMNLP 2026** (Under Review).
- Giwon Lee*, **Wooseong Jeong***, and Kuk-Jin Yoon, "CHORUS: Adapting the Number of Demonstrations via Test-Time LLM Consensus", target: **NeurIPS 2026** (Under Review).

- Hyemin Yang*, **Wooseong Jeong***, Giwon Lee*, and Kuk-Jin Yoon, "Triggering Generalist Reasoning via Predictive Uncertainty for Dual-System VLA", target: **NeurIPS 2026** (Under Review).

## In Preparation

- **Wooseong Jeong**, Giwon Lee, and Kuk-Jin Yoon, "Cross-Scenario Adaptation via Modular Knowledge Merging in E2E Autonomous Driving", target: **RA-L**.
- Yujeong Chae*, **Wooseong Jeong***, and Kuk-Jin Yoon, "LiDAR-RADAR Rebalancing for 3D Detection under Domain Shifts and Sensor Failure", **AAAI 2026**.

## Patents

- Kuk-Jin Yoon, Hyeokjun Kweon, Yoonsu Kang, **Wooseong Jeong**, Hyeonseong Kim, and Hwi-Sung Park, "Apparatus and Method for Generating Image Dataset for Learning and Evaluation of Image Stitching", Republic of Korea Patent No. 10-2645640, Registered Mar. 5, 2024.
- Kuk-Jin Yoon, Hyeokjun Kweon, Yoonsu Kang, **Wooseong Jeong**, Hyeonseong Kim, and Hwi-Sung Park, "Apparatus and Method for Image Stitching", Republic of Korea Patent No. 10-2571530, Registered Aug. 23, 2023.

## Research Experience

- **Project Leader** March 2025 – Present
  Core Technology Development for Autonomous Driving in Unstructured Off-Road Environments
  Funded by Hanwha Aerospace. Real-world deployment target in unstructured off-road terrain.
- **Project Leader** March 2024 – March 2025
  Unmanned Swarm CPS Research Lab
  Funded by Agency for Defense Development (ADD). Multi-agent perception and coordination for autonomous robotic systems.
- **Project Leader** March 2022 – February 2024
  Development of a 2kg-Class Small Electro-Optical Tracking System for Drones
  Funded by Institute of Civil-Military Technology Cooperation. Multi-modal (EO/IR) detection and tracking deployed on drone hardware.
- **Project Member** March 2021 – February 2022
  Unmanned Swarm CPS Research Lab
  Funded by Agency for Defense Development (ADD). Multi-agent perception research for autonomous robotic systems.

## Academic Service

- Reviewer for NeurIPS (2024, 2025), ICLR (2025, 2026), CVPR (2025, 2026), ICML (2025), ICCV (2025), ECCV (2026).

## Skills

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| **Languages** | Python (proficient), C++ (proficient), MATLAB |
| **ML Frameworks** | PyTorch, JAX, NumPy, OpenCV |
| **Efficient Training** | PyTorch DDP, DeepSpeed, flash-attention, xformers |
| **Hugging Face** | Transformers, Diffusers, PEFT, Accelerate |
| **Experiment & DevOps** | Weights & Biases, TensorBoard, Docker, Git |
| **Robotics** | ROS, ROS2 |
| **Spoken Languages** | Korean (native), English (fluent) |