Jinyoon Kim

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GitHub — Website — LinkedIn

Education

University of Virginia (UVA) *M.S. Computer Science, 2025–2026*
Cumulative GPA: **3.94/4.00**
Pennsylvania State University *B.S. Computer Science, 2024*

Research Interests

Human-Robot Interaction · Embodied AI · Robotics · Computer Vision · Reinforcement Learning

Skills

Languages: Python, C++, Java, LaTeX
Technologies: PyTorch, OpenCV, Docker, Linux, Git, AWS

Publications

J. Kim, Y. Kuo. *Affordance-Aware Humanoid Assistance in Embodied AI.* Leveraging the Habitat Lab framework to develop humanoid agents capable of interpreting human movement and intent to provide physically grounded assistance through object affordance reasoning and collaborative manipulation. *In progress.*

J. Kim, M. Kabir. *Automated Image Segmentation Using Self-Iterative Training and Self-Supervised Learning with Uncertainty Scores. Book Chapter in Recent Advances in Deep Learning Applications,* Chapman & Hall/CRC, 2025.

J. Kim, T. Chen, H. Nguyen, M. Kabir. *YOLO-SCSA: Enhanced YOLOv8 with Spatially Coordinated Shuffling Attention for Skin Cancer Detection. ICMLA*, 2024.

J. Kim, M. Kabir. *Automated Data Labeling for Object Detection via Iterative Instance Segmentation. ICMLA*, 2023.

Projects

3D Vision Editing

- Developing a text-guided 3D editing pipeline on **nerfstudio** using Gaussian Splatting and **Instruct-Pix2Pix**.
- Integrating **Grounding DINO** and **SAM** to generate 3D-consistent segmentation masks for targeted object removal and high-fidelity scene inpainting.

RL for LLM Fine-Tuning

- Fine-tuning Large Language Models on the **FinQA** dataset to improve multi-step mathematical reasoning.
- Benchmarking RL algorithms (**PPO, GRPO, RLOO, DPO**) to analyze trade-offs between reward modeling stability and reasoning accuracy.

Vision Applications Suite

- Developed diverse vision systems including a Skin Cancer detector (YOLOv8), Face Recognition (ResNet), and Plant Disease classifier (MobileNet).

Experience

Intern, K&C Love Consulting Corp. (2024–2025). Supported ML workflows through data cleaning, organization, and documentation.

Awards

- Ackroyd Healthier Days Scholarship, 2024. Recognized for research improving patient health.
- Penn State CS Undergraduate Award, 2023. Honored for ICMLA 2023 publication.