Jinyoon Kim

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Education

May 2024 B.S., Computer Science, Pennsylvania State University-Harrisburg

Awards & Honors

National Ackroyd Healthier Days Scholarship, 2024. Awarded for a research project focused on improving health environments for patients through a skin cancer detection application. This project was conducted in collaboration with *the Ackroyd Family Foundation and the Penn State community*.

PennState Harrisburg Computer Science Department Undergraduate Student Award, 2023. Recognized by *the Penn State Harrisburg Computer Science Department* for my participation in the ICMLA 2023 conference, where I presented research on a self-supervised learning algorithm for an automated image segmentation system.

Research Interests

Research Areas: Artificial Intelligence, Computer Vision

Research Interests: Machine Learning, Medical Image Analysis, 3D Computer Vision, Vision and Language, Multimodal Learning

Current Work: I am working on research to improve vision-language models that originally integrate text embeddings and vision features for real-time object detection tasks. My focus is on enhancing the overall architecture to optimize how these features are fused, improving efficiency and effectiveness in handling diverse object categories while maintaining real-time performance.

Publications

Jinyoon Kim, Tianjie Chen, Hien Nguyen, and Md Faisal Kabir. (2024). YOLO-SCSA: Enhanced YOLOv8 with Spatially Coordinated Shuffling Attention Mechanisms for Skin Cancer Detection, In *Proceedings of IEEE International Conference on Machine Learning and Applications 2024* (ICMLA 2024). Accepted on September 8, 2024.

Jinyoon Kim, Tianjie Chen, and Md Faisal Kabir. (2025). Automated Image Segmentation Using Self-Iterative Training and Self-Supervised Learning with Uncertainty Scores. In *Recent Advances in Deep Learning Applications: New Techniques and Practical Examples* (Chapter 1). April 4, 2025.

Jinyoon Kim and Md Faisal Kabir. (2023). Automated Data Labeling for Object Detection via Iterative Instance Segmentation, In *Proceedings of International Conference on Machine Learning and Applications 2023* (ICMLA 2023), pp. 845-850.

Project Experience

Jinyoon Kim. (2024). Participating in the ISIC 2024 Skin Cancer Detection competition on Kaggle, developing a high-performance skin lesion classification model.

- To develop a high-performance model for skin lesion classification in the ISIC 2024 Skin Cancer Detection competition on Kaggle
- Developed a model that utilizes ensemble learning with EfficientNet and other deep learning architectures to achieve high performance
- Participating in the competition and developing a classification model with high performance in the competition

Jinyoon Kim and Tianjie Chen. (2023). Development of the Skin Cancer Detection Web App for Capstone Project

- To create a web application for skin cancer detection, making it accessible and user-friendly
- Developed the application using YOLOv8, combined ISIC datasets, and implemented confounding factors removal and interpretability techniques
- Successfully created a PWA-based web application, ensuring wide accessibility and transparent diagnostic processes through visual interpretability

Jinyoon Kim, Aditya Kendre, et al. (2023). Machine Learning Project: Face Recognition Program.

- To build a face recognition system with high accuracy and feature extraction capabilities
- Developed the system using fine-tuned ResNet and implemented a Top k features algorithm for enhanced feature extraction
- Created a model that can accurately classify the group members of the team through face recognition

Jinyoon Kim. (2023). Plant Village Demo: Machine Learning Classification on Mobile Application.

- To create a mobile application for detecting plant diseases using neural networks
- Developed and fine-tuned MobileNet for plant disease detection on mobile devices
- The application runs efficiently and accurately classifies images of plant diseases in a mobile environment

Internship

June 2024 – Current — Intern at K&C Love Consulting Corp, Staff Researcher.

- Study and development of AI based computer vision systems

Service

Mar. 2020 – Sep. 2021 — Republic of Korea Army, Signal Intelligent Agent.

- Fulfilled national duty of a Korean citizen by serving a national army
- Experienced teamwork alongside fellow soldiers and learned the importance of maintaining discipline in challenging and tedious environments