JINYOON KIM

Computer Vision & Machine Learning

CONTACT

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Middletown,PA

Github Link

Website Link

EDUCATION

B.S. Computer Science

Pennsylvania State University

Harrisburg

2017-2019,2022-2024

GPA: 3.36 / 4.00

SKILLS

Python and Java

PyTorch and Tensorflow

CNN and NLP models

Database (MySQL,Mongo DB)

Web Development(Flask)

HTML/CSS

Git

CAREER OBJECTIVE

A Computer Science graduate specialized in machine learning, striving to enrich AI's capacity to understand and interact within our world. I am passionate about advancing **computer vision** and **NLP** research and application, and focus on crafting beneficial AI solutions across societal bounds. I am committed to fostering AI innovations that not only grasp complex human experiences but also catalyze transformative advancements, ensuring the technology I develop is accessible and adaptable to the diverse needs of communities worldwide, from remote areas to urban centers. Details of the projects and research are on my website.

RESEARCH EXPERIENCE

"Automated Data Labeling for Object Detection via Iterative Instance Segmentation"
IEEE International Conference on Machine Learning and Applications (IEEE ICMLA 2023), Conference Date: Dec 15-17, 2023.

- As the First Author, developed and programmed an auto-labeling system using YOLOv8 with its instance segmentation technique, integrating with uncertainty-based correction algorithm and iterative training to reduce the need for manual labeling
- Adopted the concepts of semi-supervised and active learning methods to refine the system
- Processed and adapted the PlantVillage Dataset, featuring over 20,000 data instances for our experiments
- Set new benchmarks in accuracy and efficiency, outperforming traditional models and the model conventionally trained on fully human-labeled dataset

PROJECT EXPERIENCE

Project with Hershey Medical Center for Skin Cancer Detection Web App (2023)

- Collaborating on a project at **Hershey Medical Center** to create a web application for skin cancer detection.
- Using image segmentation and a variety of advanced techniques, we aim to develop a highly effective diagnostic tool with superior performance.
- Utilizing federated learning to enhance data privacy, allowing local devices to contribute to a shared global model without exposing sensitive information
- Designing the application with a responsive interface for easy transition to a progressive web app, ensuring cross-platform use and offline access

- Integrating saliency maps to identify and visualize crucial image areas, making the diagnostic process transparent and understandable for users

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

- Created a Java-based Android application using Android Studio to classify plant diseases through images on mobile devices
- Utilized transfer learning techniques with the MobileNet model on the Plant Village dataset for accurate disease identification
- Designed the app to display plant health information and treatment advice from a room database, which is supported by android studio

Machine Learning Project: Face Recognition Program (2023)

- Built a face recognition system that uses neural network and PyTorch framework in the Artificial Intelligence course
- Preprocessed video data into image frames for the training dataset
- Applied fine-tuned ResNet for feature extraction
- Implemented a dimensionality reduction layer to distill highly correlated features for enhanced classification
- Analyzed the results of the models and visualized their metrics for the viewers

SERVICE EXPERIENCE

Signal Intelligent Agent - Mandatory Military Service, Republic of Korea (2019-2021)

- Fulfilled national duty of a Korean citizen by serving in a critical intelligence role
- Main responsibility centered on collecting information from foreign adversaries
- Gained Insights: Stress resistance, work ethic, gratitude, and appreciation
- Specific details cannot be discussed because of its security issues

CLUB ACTIVITY

- Association for Computing Machinery(ACM) club, Computer science club at Penn State Harrisburg for the group of students that are interested in programming contests and hackathons (2021-2022).
- Robotics Club: collaborated with the students at Dallas Lutheran High School who were interested in both mechanical building and software programming of robots which were used for task solving competitions (2015-2017).