Hyeonwoo Jung

junghw3333@gmail.com | github.com/jung0228

Education

BS in AI Convergence Mar. 2021 – Present
Soongsil University, Seoul, Republic of Korea
GPA: 4.32/4.5, Rank: 2/75

BoostCamp AI Tech 7th Aug. 2024 – Feb. 2025
Naver Connect Foundation, Computer Vision

Experience

Undergraduate Research Intern Mar. 2023 – Apr. 2024
Soongsil University, Advised by Prof. Kunwoo Park

- Developed and evaluated a prime number reasoning dataset with varying difficulty levels to assess the mathematical reasoning capabilities of large language models

Publications

Domestic Journal

- **Hyeonwoo Jung, Kunwoo Park**, "In-Depth Evaluations of the Primality Testing Capabilities of Large Language Models: with a Focus on ChatGPT and PaLM 2", Journal of KIISE, 2024.

Domestic Conference

- **Hyeonwoo Jung, Kunwoo Park**, "In-Depth Evaluations of the Primality Testing Capabilities of Large Language Models", Korea Software Conference, 2023.
- **Yejun Yoon, Hyeonwoo Jung, Seunghyun Yoon, Kunwoo Park**, "A Multilingual CLIP-based Contrastive Learning Framework for Understanding News Image Representativeness: A cross-lingual experiment using English and Korean data", Korea Computer Conference, 2023.

Awards

Grand Award, Autonomous Driving Data Utilization Competition 2024

- Organized by: Advanced Institute of Convergence Technology (Gyeonggi Autonomous Driving Center)
- Real-time CCTV Object Detection using YOLO

Excellence Award (Kakao Mobility CEO Award), Autonomous Driving AI Challenge 2024

- Organized by: Ministry of Science and ICT
- Traffic Light Detection for Vehicles using MMDetection's CO-DINO

Outstanding Paper Award in Language Engineering 2023

- Organized by: Korean Institute of Information Scientists and Engineers
- Prime Number Reasoning to Assess LLMs' Mathematical Abilities

Excellence Award, Soongsil University AI Convergence Code Challenge 2022

- Organized by: Soongsil University
- Soongsil University Algorithm Competition

Projects

Hand Bone Segmentation **PDF**

- Developed a hand bone segmentation model using a UNet++ architecture with the smp library.
- **Data Improvement,** Identified and corrected mislabeled validation data, improving dataset quality and enabling more accurate performance evaluation.
- **Loss Function Optimization,** Addressed memory issues by replacing BCE + IoU + MS-SSIM loss with a more memory-efficient BCE + IoU combination, achieving a Dice Score of 0.9733.

Recyclable Item Object Detection **PDF**

- Developed an object detection model using the Co-DINO architecture from the MMDetection library to classify recyclable items.
- **Hyperparameter Optimization,** Enhanced performance by 2% (mAP50 0.72) through image resizing and scheduler adjustments.
- **Ensemble Techniques,** Applied NMW ensemble to optimized models, increasing mAP50 to 0.7422.

Sketch Image Classification **PDF**

- Used ConvNext model from the timm library. Initially, The model initially achieved 89.2% accuracy.
- **Training Optimization,** Reduced training time by 5x using gradient accumulation and mixed precision for more experiments.
- **Data Augmentation,** Due to a small dataset, used diffusion models to data augmenation, increasing accuracy to 91.8%.

Language

TOEIC 870 2023

- Capable of reading academic papers in English, experienced in solo backpacking across Europe, and able to engage in basic communication with foreigners.