Hongyeob Kim

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Research Interests

Computer Vision **& Multi Modal** ,

mostly interested in any computer vision area but specifically.

- *Object detection, Instance segmentation.*
- *Weakly/Self-supervised training strategy.*
- *Tackling open world unseen categories.*
- *Multi-modal; Language and Vision*

Education

Sep. 2023 ∼ Current ***Sungkyunkwan University***,

M.S Immersive Media Engineering.

Mar. 2013 ∼ Aug. 2019 ***Korea Maritime Ocean University***,

B.S Refrigeration, Air-conditioning and Energy Systems Engineering.

- ***GPA*** *4.06/4.5* ***Major*** *4.03/4.5*

Research Experience

Jul. 2022 - Currently ***Algorithmic Machine Intelligence Lab, POSTECH***,

External Research Participant (Advisor : Prof. TaeHyun Oh).

- *Researched on Text-driven Visual Augmentation, paper will be submitted for ICCV 2023.*
- *Implemented baseline and conducted a comparison experiment on classification and Few-shot Object Detection.*

Work Experience

Dec. 2021 ∼ Current ***NuviLab Inc.***,

AI Engineer.

- *Currently working on*
  - *Building test set.*
  - *Leverage active learning for selecting meaningful data.*
- *Optimized detection models with TensorRT, successfully reducing costs for AWS.*
  - *Speed up detection model approx. x3 faster and make it simple to use with Torch-TensorRT*
- *Configured a fitter tokenizer to improve text processing accuracy, specifically for food names.*
- *Developed state-of-the-art vision and language multi-modal models to enhance service quality.*
- *Utilized weakly supervised models, such as BoxInst, to drive successful computer vision projects.*
- *Created and implemented a robust trainer library that allows for the training of various model types via PyTorch Lightning in a multi-GPU environment.*
- *Enhance and automate tray scanning system on cpu only environment.*
- *Better batch sampler for contrastive learning and multi-gpu training.*
  - *Performance enhancement; 84 85 f1 score to 86 87 f1 score for approx. 800 validation classes.*
  - *Decrease training time; 15days training time to 2days training time.*

Aug. 2021 ∼ Nov. 2021 ***Upstage Inc.***,

AI Research Engineer Intern.

- *Conducted thorough data analysis to identify weaknesses and areas for improvement.*
- *Implemented DBNet using PyTorch Lightning, successfully addressing the shortcomings of previous models.*
- *Developed and implemented TextFuseNet, a cutting-edge scene text detection model, using PyTorch Lightning*

Sep. 2020 - Dec. 2020 ***mAy-I Inc.***,

AI Researcher Intern.

- ***[Github]*** *Implemented PoseFix in PyTorch to effectively handle occluded keypoints and improve overall accuracy.*
- *Designed and developed a state-of-the-art generative model to effectively address missing keypoints and improve performance.*

Competition

Jan. 2021 ∼ Jun. 2021 **Naver AI BoostCamp**,

Team and Personal Competition through multiple tasks.

- ***[GitHub]*** *Mask, Age, Gender Classification. (4/250)*
- ***[GitHub]*** *Relation Extraction between words in a sentence. (40/135)*
- ***[GitHub]*** *Trash Detection in real world. (2/21)*
- ***[GitHub]*** *Trash Segmentation in real world. (1/21)*
- *Optical Character Recognition for math equations. (2/12)*

Jul. 2020 ∼ Aug. 2020 **AIRUSH 2020**,

Competition hosted by Naver CLOVA.

- *Round 1: Image classification. (rank 5)*
- *Round 2: Station classification by music audio and meta data. (rank 5)*

DACON,

Competition hosted by DACON.

- **[Github]** *Motion Keypoints Estimation, (2/158).*
- *Image Enhancement Competition, (5/228).*

Extra

Tech skills.

- *(2018 ∼ Current) Python, Linux*
- *(2019 ∼ 2020) TensorFlow*
- *(2020 ∼ Current) Pytorch*
- *(Dec. 2022 ∼ Current) C++ & CUDA*

Languages.

- *Korea (native fluency), English (limited working proficiency)*