LIYI YAO

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Summary

Dedicated graduate student pursuing a M.S. degree in Computer Science at the University of Southern California with a background in machine learning, computer vision, natural language processing, and robotics. Adept at leveraging Python, C++, PyTorch, Tensorflow, etc. Author of three research papers in the realm of machine learning. Previous experience has honed my teamwork skills and adaptability to dynamic environments. Seeking a position as a machine learning/computer vision engineer.

Education

University of Southern California   Jan 2023 – now
Master of Science in Computer Science   *Los Angeles, CA*

Sichuan University   Sep 2018 – Jun 2022
Bechalor of Engineer   *Chengdu, China*

Work Experience

USC Institute for Creative Technologies   Mar 2024 – now
Researcher   *Los Angeles, CA*

- Designed and deployed a data synthesis method based on feature domain matching to enhance unsupervised group activity recognition for video data.

DeepUSC, University of Southern California   Mar 2023 – Dec 2023
Research Intern   *Los Angeles, CA*

- Developed a tool for massive ablation experiments based on Pytorch and HuggingFace, and deployed it on Transformer-based models to probe to scaling law of large language models, which can save lots of manual efforts.
- Contributed to the development of a tool which is used to probe the reasoning abilities of large language models like GPT and Bert, which works on both regular expression and natural language datasets.
- Researched and implemented SOTA-level fine-tuning (transfer learning) methods and performed experiments to evaluate their performance.

pony.ai   Sep 2021 – Dec 2021
Software Development Intern   *Beijing, China*

- Contributed to the development of a large-scale autonomous driving perception system based on C++ and Python where I focused on training and maintaining traffic light recognition models and improved the detection accuracy on certain scenarios including single light, flashing yellow light, etc.
- Optimized classification models' backbones by merging various models into multi-branch models and improved the training strategy by weighting each branch based on the gradients to avoid overfitting, which can effectively reduce the parameter scale and save the storage space of on-board chips.

Sichuan University   Aug 2020 – June 2022
Research Assistant   *Chengdu, China*

- Proposed a novel unsupervised anomaly detection model based on knowledge distillation that can achieve SOTA-level performance on industrial manufacturing benchmark datasets like MVTec AD. Implemented the corresponding algorithm using Pytorch and developed a tool to generate anomaly heatmaps.
- Developed an end-to-end defect detection tool for railway system components based on GAN and Yolov3, which can achieve 95%+ accuracy and 93%+ mAP.
- Researched underwater image enhancement methods and designed an evaluation metric to probe the quantitative performance.

Technical Skills

Programming: Python, C++/C, Java
Machine Learning: Pytorch, Tensorflow, Keras, HuggingFace, Sklearn, MATLAB
Web Technology: JavaScript, Flask, AWS
Development: Github, Linux, HDFS, Kubernetes, Conda