Bingchen Huang

bchuang21@m.fudan.edu.cn +86 18501521775

Education

Fudan University 2021.09 to 2024.01

Computer Science and Technology — Computer Science and Technology — Master *Current GPA: 3.5/4.0*

Supervisor: Yugang Jiang Laboratory: Fudan Vision and Learning Laboratory (FVL)

Research field: Computer Vision, Continual Learning, Object Detection

East China University of Science and Technology 2017.09 to 2021.06

Information Science and Engineering — Computer Science and Technology — Bachelor *GPA: 3.4/4.0*

Internship Experience

Baidu | *Technology Intern, AI Technology Ecology Department* 2021.10 to 2021.11

- Responsible for integrating cutting-edge AI models into Paddle series development kits
- Applied Baidu's self-developed deep learning framework PaddlePaddle, aligned the reproduction accuracy with the original paper, and wrote high-quality project introduction articles
- Completed reproduction of three cutting-edge works such as PANet, which have been recognized and cited by the author of the original paper, and become a high-quality project of Baidu AI Studio(4/22)

Xiaohongshu | *Intelligent Multimedia Algorithm Intern, Community Technology Department* 2023.05 to 2023.08

- Responsible for developing AI algorithms in business scenarios, e.g., scene recognition and image deduplication
- Improved the quality of the dataset by iterating through the process of data cleaning, labeling, and analysis
- Conducted experiments on network slimming, data augmentation, and category imbalance. The computational complexity of the scene recognition model was reduced by 1/3, the precision and recall was improved by 6%&8%
- Established image deduplication standards, supervised data cleaning and annotation, and the image deduplication model had a final computational capacity of 50 MFLOPS, with the precision and recall of 80%&80%
- By repeatedly optimizing the model and improving datasets quality, the badcase rate of scene recognition decreased from 38.1% to 4% and was initially launched. The image deduplication model also completed the development

Academic Projects

Research on Class Incremental Learning Algorithms 2022.02 to 2022.11

- Conducted research on over 30 influential incremental learning studies, analyzed the underlying reasons for deep learning methods forgetting old knowledge, and designed more effective incremental learning algorithms
- Proposed a new method called TCIL to encourage discriminative and fair feature utilization across tasks. TCIL performed a multi-level knowledge distillation to propagate knowledge learned from old tasks to the new one, and attention mechanism and classifier re-scoring are applied to generate fair classification scores
- Extensive experiments have been conducted on CIFAR100 and ImageNet under ten different benchmark settings, with accuracy rates exceeding the current sota incremental learning algorithm by 0.48% to 18.53%
- The research results have been accepted by AAAI 2023 (First Author, CCF-A) in the form of article: https://ojs.aaai.org/index.php/AAAI/article/view/25170

Research on Multilingual Incremental Text Recognition Algorithms 2022.09 to 2023.01

- Conducted research on the application of incremental learning in the field of text recognition, designed incremental learning algorithms that conform to multilingual characteristics
- Proposed a Multiplexed Routing Network (MRN) that performs weighted voting on recognizers for each language, effectively reducing dependence on old data and solving rehearsal imbalance
- Experiments were conducted with three popular text recognition backbones, and the accuracy exceeded the current sota incremental learning method by 10.3% to 27.4%
- The research results have been accepted by ICCV 2023 (CCF-A): https://arxiv.org/abs/2305.14758

Skills

Languages: Proficient in Python language development under Linux system, familiar with C++ and other languages
Deep learning frameworks: Proficient in Pytorch, familiar with PaddlePaddle, TensorFlow

Deep learning theory: Proficient in basic theories of machine learning, having the ability and experience of data analysis and model optimization. Capable of independently working on a Machine Learning project with guidance
Other abilities: Good team spirit, strong analytical and problem-solving skills, excellent communication skills