Skillearn: ML Training Strategies Inspired by Humans’ Learning Skills (ICML’23a)

Skillearn framework

System

Betty: A Programming Framework for Multi-level Optimization (ICLR’23a, Notable-Top-5% Paper)

Instances of Skillearn

ML tasks

Healthcare applications

Pneumonia detection from CT scans (Scientific Reports’22a, Nature Portfolio)
Pneumonia detection from chest X-rays (Scientific Reports’22a, Nature Portfolio)
Brain tumor detection from MRIs (Scientific Reports’22b, Nature Portfolio)

Medical dialog generation (EMNLP’20, ACL’21b)
Pathology visual question answering (ACL’21a)
3D Medical Imaging Segmentation (AAAI’23)
Skin lesion detection from dermoscopy (ICML’23b)

Neural architecture search (ICML’22, CVPR’22, CVPR’21, ACM MM’22)
Data reweighting, selection, augmentation (ICML’23c, ICLR’22, ACL’22, TACL’22a, AAAI’22)

Learning by self-explanation (NeurIPS’22)
Learning-by-Grouping (ICML’23b)
Learning by teaching (ICLR’23b)

Small-group learning (CVPR’22)
Learning from mistakes (AAAI’22)
Reading by summarizing (TACL’22a)

End-to-end contrastive learning (TACL’22b)
Image understanding via captioning (ACM MM’22)
Self-directed learning (AI Open’22)

Pathology visual question answering (ACL’21a)

NeurIPS’22, CVPR’22, CVPR’21, ACM MM’22