TensorFlow Research Models

This directory contains code implementations and pre-trained models of published research papers.

The research models are maintained by their respective authors.

Table of Contents

Modeling Libraries and Models

Directory	Name	Description	Maintainer(s)
object_detection	TensorFlow Object Detection API	A framework that makes it easy to construct, train and deploy object detection models A collection of object detection models pre-trained on the COCO dataset, the Kitti dataset, the Open Images dataset, the AVA v2.1 dataset, and the iNaturalist Species Detection Dataset	jch1, tombstone, pkulzc
slim	TensorFlow-Slim Image Classification Model Library	A lightweight high-level API of TensorFlow for defining, training and evaluating image classification models • Inception V1/V2/V3/V4 • Inception-ResNet-v2 • ResNet V1/V2 • VGG 16/19 • MobileNet V1/V2/V3 • NASNet-A_Mobile/Large • PNASNet-5_Large/Mobile	sguada, marksandler2

Models and Implementations

Computer Vision

Directory	Paper(s)	Conference	Maintainer(s)
attention_ocr	Attention-based Extraction of Structured Information from Street View Imagery	ICDAR 2017	xavigibert
autoaugment	[1] AutoAugment [2] Wide Residual Networks [3] Shake-Shake regularization [4] ShakeDrop Regularization for Deep Residual Learning	[1] CVPR 2019 [2] BMVC 2016 [3] ICLR 2017 [4] ICLR 2018	barretzoph
deeplab	[1] DeepLabv1: Semantic Image Segmentation with Deep Convolutional Nets and Fully Connected CRFs [2] DeepLabv2: Semantic Image Segmentation with Deep Convolutional Nets, Atrous Convolution, and Fully Connected CRFs [3] DeepLabv3: Rethinking Atrous Convolution for Semantic Image Segmentation [4] DeepLabv3+: Encoder-Decoder with Atrous Separable Convolution for Semantic Image Segmentation	[1] ICLR 2015 [2] TPAMI 2017 [4] ECCV 2018	aquariusjay, yknzhu
delf	[1] DELF (DEep Local Features): Large-Scale Image Retrieval with Attentive Deep Local Features [2] Detect-to-Retrieve: Efficient Regional Aggregation for Image Search [3] DELG (DEep Local and Global features): Unifying Deep Local and Global Features for Image Search [4] GLDv2: Google Landmarks Dataset v2 -- A Large-Scale Benchmark for Instance-Level Recognition and Retrieval	[1] ICCV 2017 [2] CVPR 2019 [4] CVPR 2020	andrefaraujo
lstm_object_detection	Mobile Video Object Detection with Temporally-Aware Feature Maps	CVPR 2018	yinxiaoli, yongzhe2160, lzyuan
marco	MARCO: Classification of crystallization outcomes using deep convolutional neural networks		vincentvanhoucke
vid2depth	Unsupervised Learning of Depth and Ego-Motion from Monocular Video Using 3D Geometric Constraints	CVPR 2018	rezama

Natural Language Processing

Directory	Paper(s)	Conference	Maintainer(s)
adversarial_text	[1] [Adversarial Training Methods for Semi-Supervised Text](#) Classification [2] [Semi-supervised Sequence Learning](#)	[1] ICLR 2017 [2] NIPS 2015	rsepassi, a-dai
cvt_text	[Semi-Supervised Sequence Modeling with Cross-View Training](#)	EMNLP 2018	clarkkev, lmthang

Audio and Speech

Directory	Paper(s)	Conference	Maintainer(s)
audioset	[1] [Audio Set: An ontology and human-labeled dataset for audio events](#) [2] [CNN Architectures for Large-Scale Audio Classification](#)	ICASSP 2017	plakal, dpwe
deep_speech	[Deep Speech 2](#)	ICLR 2016	yhliang2018

Reinforcement Learning

Directory	Paper(s)	Conference	Maintainer(s)
efficient-hrl	[1] [Data-Efficient Hierarchical Reinforcement Learning](#) [2] [Near-Optimal Representation Learning for Hierarchical Reinforcement Learning](#)	[1] NIPS 2018 [2] ICLR 2019	ofirnachum
pcl_rl	[1] [Improving Policy Gradient by Exploring Under-appreciated Rewards](#) [2] [Bridging the Gap Between Value and Policy Based Reinforcement Learning](#) [3] [Trust-PCL: An Off-Policy Trust Region Method for Continuous Control](#)	[1] ICLR 2017 [2] NIPS 2017 [3] ICLR 2018	ofirnachum

Others

Directory	Paper(s)	Conference	Maintainer(s)
lfads	[LFADS - Latent Factor Analysis via Dynamical Systems](#)		jazcollins, sussillo
rebar	[REBAR: Low-variance, unbiased gradient estimates for discrete latent variable models](#)	NIPS 2017	gjtucker

Old Models and Implementations in TensorFlow 1

:warning: If you are looking for old models, please visit the [Archive branch](#).

Contributions

If you want to contribute, please review the contribution guidelines.