

人工神经网络--补充材料

1. class2_nn

- 可视化并理解 CNN : <https://zhuanlan.zhihu.com/p/24833574>
- Python 徒手实现 CNN : <https://zhuanlan.zhihu.com/p/102119808>
- 卷积操作详解 (代码+扩展) : https://zh.d2l.ai/chapter_convolutional-neural-networks/conv-layer.html
- 如何读论文 (李沐) : https://www.bilibili.com/video/BV1H44y1t75x/?spm_id_from=333.999.0.0
- 如何读论文-李沐 (以 ResNet 为例) : https://www.bilibili.com/video/BV1P3411y7nn/?spm_id_from=333.999.0.0

2. class3_optimization

- B 站课程 : 李沐-动手学深度学习 (第 4 到第 15 节课) <https://space.bilibili.com/1567748478/channel/seriesdetail?sid=358497>
- 一个框架看懂优化算法之异同 SGD/AdaGrad/Adam : <https://zhuanlan.zhihu.com/p/32230623>
- 什么是过拟合, 如何避免过拟合 : <https://zhuanlan.zhihu.com/p/462736611>
- L1 正则化容易引起稀疏解的解释 : <https://zhuanlan.zhihu.com/p/50142573>
- Dropout 的原理及实现 : <https://developer.aliyun.com/article/1207717>
- 模型集成方法 bagging、boosting、stacking : <https://www.jiqizhixin.com/articles/2019-05-15-15>
- 反向传播算法 python 实现 : <https://zhuanlan.zhihu.com/p/158870007>
- 矩阵乘法的反向传播算法实现 : https://blog.csdn.net/m0_63238256/article/details/126632188

3. class4_cnn_issue

- Resnet 论文精讲 : https://www.bilibili.com/video/BV1P3411y7nn/?spm_id_from=333.999.0.0
- Batch normalization 详解 : <https://zhuanlan.zhihu.com/p/437446744>
- Python 徒手实现 CNN : <https://zhuanlan.zhihu.com/p/102119808>
- 卷积操作详解 (代码+扩展) : https://zh.d2l.ai/chapter_convolutional-neural-networks/conv-layer.html
- 深度学习常用激活函数的原理和优缺点 <https://www.jiqizhixin.com/articles/2021-02-24-7>

4. class9_semantic_image_segmentation

- Semantic segmentation:
 - Stanford CS231n: Deep Learning for Computer Vision, Lecture 11: Object Detection and Image Segmentation

- <https://www.bilibili.com/video/BV1nJ411z7fe>
 - http://cs231n.stanford.edu/slides/2023/lecture_11.pdf
- 46 语义分割和数据集【李沐 动手学深度学习 v2】
<https://www.bilibili.com/video/BV1BK4y1M7Rd>
- 语义分割前言
<https://www.bilibili.com/video/BV1ev411P7dR>
- Minaee et al., Image Segmentation Using Deep Learning: A Survey, PAMI, 2022
<https://ieeexplore.ieee.org/abstract/document/9356353>
<https://arxiv.org/abs/2001.05566>
- FCN:
 - 转置卷积【吴恩达 深度学习】(P79)
<https://www.bilibili.com/video/BV16c411k7F4>
 - 47 转置卷积【李沐 动手学深度学习 v2】
<https://www.bilibili.com/video/BV17o4y1X7Jn>
 - 47.2 转置卷积是一种卷积【李沐 动手学深度学习 v2】
<https://www.bilibili.com/video/BV1CM4y1K7r7>
 - 48 全连接卷积神经网络 FCN【李沐 动手学深度学习 v2】
<https://www.bilibili.com/video/BV1af4y1L7Zu>
 - 转置卷积 (transposed convolution)
<https://www.bilibili.com/video/BV1mh411J7U4>
 - FCN 网络结构详解(语义分割)
<https://www.bilibili.com/video/BV1J3411C7zd>
 - Jonathan Long, Evan Shelhamer, Trevor Darrell, Fully Convolutional Networks for Semantic Segmentation, CVPR, 2015
https://openaccess.thecvf.com/content_cvpr_2015/html/Long_Fully_Convolutional_Networks_2015_CVPR_paper.html
<https://arxiv.org/abs/1605.06211>
- U-Net:
 - U-Net【吴恩达深度学习】(P76 P81)
<https://www.bilibili.com/video/BV16c411k7F4>
 - U-Net 网络结构讲解(语义分割)
<https://www.bilibili.com/video/BV1Vq4y127fB>
 - Ronneberger O, Fischer P, Brox T, U-net: Convolutional networks for biomedical image segmentation, MICCAI, 2015
https://link.springer.com/chapter/10.1007/978-3-319-24574-4_28
<https://arxiv.org/abs/1505.04597>
- PSPNet:
 - Pyramid scene parsing network, CVPR, 2017
https://openaccess.thecvf.com/content_cvpr_2017/html/Zhao_Pyramid_Scene_Parsing_CVP_R_2017_paper.html
<https://arxiv.org/abs/1612.01105>
- DeepLab :
 - 膨胀卷积(Dilated convolution)详解
<https://www.bilibili.com/video/BV1Bf4y1g7j8>

- DeepLabV1 网络简介(语义分割)
<https://www.bilibili.com/video/BV1SU4y1N7Ao>
- DeepLabV2 网络简介(语义分割)
<https://www.bilibili.com/video/BV1gP4y1G7TC>
- DeepLabV3 网络简介(语义分割)
<https://www.bilibili.com/video/BV1Jb4y1q7j7>
- (DeepLabV1) Chen et al., Semantic Image Segmentation with Deep Convolutional Nets and Fully Connected CRFs, arXiv, 2014
<https://arxiv.org/abs/1412.7062>
- (DeepLabV2) Chen et al., DeepLab: Semantic Image Segmentation with Deep Convolutional Nets, Atrous Convolution, and Fully Connected CRFs, PAMI, 2017
<https://ieeexplore.ieee.org/abstract/document/7913730>
<https://arxiv.org/abs/1606.00915>
- (DeepLabV3) Chen et al., Rethinking Atrous Convolution for Semantic Image Segmentation, arXiv, 2017
<https://arxiv.org/abs/1706.05587>
- (DeepLabV3+) Chen et al., Encoder-decoder with atrous separable convolution for semantic image segmentation, ECCV, 2018
https://openaccess.thecvf.com/content_ECCV_2018/html/Liang-Chieh_Chen_Encoder-Decoder_with_Atrous_ECCV_2018_paper.html
<https://arxiv.org/abs/1802.02611>
- Fu et al., Dual Attention Network for Scene Segmentation, CVPR, 2019
https://openaccess.thecvf.com/content_CVPR_2019/html/Fu_Dual_Attention_Network_for_Scene_Segmentation_CVPR_2019_paper.html
<https://arxiv.org/abs/1809.02983>
- Liu et al., Auto-DeepLab: Hierarchical Neural Architecture Search for Semantic Image Segmentation, CVPR, 2019
https://openaccess.thecvf.com/content_CVPR_2019/html/Liu_Auto-DeepLab_Hierarchical_Neural_Architecture_Search_for_Semantic_Image_Segmentation_CVPR_2019_paper.html
<https://arxiv.org/abs/1901.02985>
- Computer Graphics:
 - Kirillov et al., PointRend: Image Segmentation as Rendering, CVPR, 2020
https://openaccess.thecvf.com/content_CVPR_2020/html/Kirillov_PointRend_Image_Segmentation_As_Rendering_CVPR_2020_paper.html
<https://arxiv.org/abs/1912.08193>
- Others:
 - Taghanaki et al., Deep Semantic Segmentation of Natural and Medical Images: A Review, Artificial Intelligence Review, 2020
<https://link.springer.com/article/10.1007/s10462-020-09854-1>
<https://arxiv.org/abs/1910.07655>
 - Transformer 如何内卷医学图像分割？31 种最新方法汇总
<https://mp.weixin.qq.com/s/KO1uGZyAMap3w3rvbIryWw>
 - Transformer 结合 UNet，称霸医学图像分割！10 种融合方法汇总
<https://mp.weixin.qq.com/s/buJwbwIwpYAioWPJeYFFWQ>

5. 免费的 GPU 资源

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平台	GPU	显存	RAM	算力, 单精 /半精 (TFLOPS)	备注
Google Colab https://colab.google/	T4	16GB	12GB	8.14/65.13	前台执行连续 12h
Kaggle https://www.kaggle.com/	P100 T4 x2	16GB 16GB x2	30GB	9.526/19.05 8.14/65.13 x2	(验证手机后) 每周 30h
Amazon SageMaker https://studiolab.sagemaker.aws/	-	-	-	-	需要注册后等待申请 GPU 连续执行 4 个 小时 CPU 连续执行 12 小 时
阿里云天池实验室 https://tianchi.aliyun.com/noticebook-ai	V100	-	-	15.7/125	每年免费使用 60h, 参加天池比赛获得积 分兑换时长

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