Special Topics in Deep Learning

Spring 2023

* **Image recognition best papers (Deep learning broke from here)**
  + Krizhevsky, Alex, Ilya Sutskever, and Geoffrey E. Hinton. "Imagenet classification with deep convolutional neural networks." Advances in neural information processing systems. 2012. (AlexNet, Deep Learning Breakthrough)

<http://papers.nips.cc/paper/4824-imagenet-classification-with-deep-convolutional-neural-networks.pdf>

* + Simonyan, Karen, and Andrew Zisserman. "Very deep convolutional networks for large-scale image recognition." arXiv preprint arXiv:1409.1556 (2014). (VGGNet,Neural Networks become very deep!)

<https://arxiv.org/pdf/1409.1556.pdf>

* + Szegedy, Christian, et al. "Going deeper with convolutions." Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition. 2015. (GoogLeNet)

<https://www.cv-foundation.org/openaccess/content_cvpr_2015/papers/Szegedy_Going_Deeper_With_2015_CVPR_paper.pdf>

* + He, Kaiming, et al. "Deep residual learning for image recognition." arXiv preprint arXiv:1512.03385 (2015). (ResNet,Very very deep networks, CVPR best paper)

<https://arxiv.org/pdf/1512.03385.pdf>

* **Object Detection**
  + Girshick, Ross, et al. "Rich feature hierarchies for accurate object detection and semantic segmentation." Proceedings of the IEEE conference on computer vision and pattern recognition. 2014. (RCNN)

<https://www.cv-foundation.org/openaccess/content_cvpr_2014/papers/Girshick_Rich_Feature_Hierarchies_2014_CVPR_paper.pdf>

* + Girshick, Ross. "Fast r-cnn." Proceedings of the IEEE International Conference on Computer Vision. 2015.

<https://pdfs.semanticscholar.org/8f67/64a59f0d17081f2a2a9d06f4ed1cdea1a0ad.pdf>

* + Ren, Shaoqing, et al. "Faster R-CNN: Towards real-time object detection with region proposal networks." Advances in neural information processing systems. 2015.

<https://arxiv.org/pdf/1506.01497.pdf>

* + Redmon, Joseph, et al. "You only look once: Unified, real-time object detection." arXiv preprint arXiv:1506.02640 (2015). (YOLO,Oustanding Work, really practical)

<https://homes.cs.washington.edu/~ali/papers/YOLO.pdf>

* + Liu, Wei, et al. "SSD: Single Shot MultiBox Detector." arXiv preprint arXiv:1512.02325 (2015).

<https://arxiv.org/pdf/1512.02325.pdf>

* + He, Gkioxari, et al. "Mask R-CNN" arXiv preprint arXiv:1703.06870 (2017).

<https://arxiv.org/abs/1703.06870>

* **Style transfer**
  + Gatys, Leon A., Alexander S. Ecker, and Matthias Bethge. "A neural algorithm of artistic style." arXiv preprint arXiv:1508.06576 (2015). (Outstanding Work, most successful method currently)

<https://arxiv.org/pdf/1508.06576.pdf>

* + [Xun Huang](https://arxiv.org/search/cs?searchtype=author&query=Huang%2C+X), [Serge Belongie](https://arxiv.org/search/cs?searchtype=author&query=Belongie%2C+S), "Arbitrary Style Transfer in Real-time with Adaptive Instance Normalization,” European Conference on Computer Vision. ICCV 2017. <https://arxiv.org/abs/1703.06868>
  + Johnson, Justin, Alexandre Alahi, and Li Fei-Fei. "**Perceptual losses for real-time style transfer and super-resolution**." arXiv preprint arXiv:1603.08155 (2016).

<https://arxiv.org/pdf/1603.08155.pdf>

* **Unsupervised Learning / Deep Generative Model**
  + Goodfellow, Ian, et al. "Generative adversarial nets." Advances in Neural Information Processing Systems. 2014. (GAN,super cool idea)

<http://papers.nips.cc/paper/5423-generative-adversarial-nets.pdf>

* + Radford, Alec, Luke Metz, and Soumith Chintala. "Unsupervised representation learning with deep convolutional generative adversarial networks." arXiv preprint arXiv:1511.06434 (2015). (DCGAN)

<https://arxiv.org/pdf/1511.06434.pdf>

* + Progressive GAN

ArXiv: <https://arxiv.org/abs/1710.10196>

* + StyleGAN (2018)

https://arxiv.org/abs/1812.04948

* + StyleGAN2 (2019)

<https://arxiv.org/abs/1912.04958>

* **Image-to-Image translation papers**
  + Image-to-Image Translation with Conditional Adversarial Networks, CVPR 2017 • Phillip Isola • Jun-Yan Zhu • Tinghui Zhou • Alexei A. Efros

<https://arxiv.org/pdf/1611.07004v3.pdf>

* + Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks

ICCV 2017 • Jun-Yan Zhu • Taesung Park • Phillip Isola • Alexei A. Efros

<https://arxiv.org/pdf/1703.10593v6.pdf>

* + StarGAN: Unified Generative Adversarial Networks for Multi-Domain Image-to-Image Translation CVPR 2018 • Yunjey Choi • Minje Choi • Munyoung Kim • Jung-Woo Ha • Sunghun Kim • Jaegul Choo

<https://arxiv.org/pdf/1711.09020v3.pdf>

* + StarGAN v2: Diverse Image Synthesis for Multiple Domains 4 Dec 2019 • Yunjey Choi • Youngjung Uh • Jaejun Yoo • Jung-Woo Ha

<https://arxiv.org/pdf/1912.01865v1.pdf>

* + Multimodal Unsupervised Image-to-Image Translation ECCV 2018 • Xun Huang • Ming-Yu Liu • Serge Belongie • Jan Kautz

<https://arxiv.org/pdf/1804.04732v2.pdf>

* + Few-Shot Unsupervised Image-to-Image Translation ICCV 2019 • Ming-Yu Liu • Xun Huang • Arun Mallya • Tero Karras • Timo Aila • Jaakko Lehtinen • Jan Kautz

<https://arxiv.org/pdf/1905.01723v2.pdf>

* **Font generation using Deep Learning**
  + Zi2zi

<https://github.com/kaonashi-tyc/zi2zi>

* + DCFont

<http://www.icst.pku.edu.cn/zlian/docs/20181024110234919639.pdf>

* + GlyphGAN

<https://arxiv.org/pdf/1905.12502.pdf>

* + Multicontent-GAN

<https://arxiv.org/pdf/1712.00516.pdf>

* + AGIS GAN

<https://arxiv.org/pdf/1910.04987.pdf>

* + DM-Font

<https://www.ecva.net/papers/eccv_2020/papers_ECCV/papers/123640715.pdf>

* + LF-Font

<https://www.aaai.org/AAAI21Papers/AAAI-1379.ParkS.pdf>

* + MX-Font

<https://arxiv.org/abs/2104.00887>