Works Cited

# (Optional) The Pix2Pix Paper

Want to know more about image-to-image translation and the research behind the components of Pix2Pix? Take a look at the original paper!

Image-to-Image Translation with Conditional Adversarial Networks (Isola, Zhu, Zhou, and Efros, 2018): <https://arxiv.org/abs/1611.07004>

# (Optional Notebook) Pix2PixHD

<https://colab.research.google.com/github/https-deeplearning-ai/GANs-Public/blob/master/C3W2_Pix2PixHD_(Optional).ipynb>

Please note that this is an optional notebook, meant to introduce more advanced concepts if you're up for a challenge, so don't worry if you don't completely follow!

In this notebook, you will learn about Pix2PixHD, which synthesizes high-resolution images from semantic label maps. Proposed in [High-Resolution Image Synthesis and Semantic Manipulation with Conditional GANs](https://arxiv.org/abs/1711.11585) (Wang et al. 2018), Pix2PixHD improves upon Pix2Pix via multiscale architecture, improved adversarial loss, and instance maps.

# (Optional Notebook) Super-resolution GAN (SRGAN)

<https://colab.research.google.com/github/https-deeplearning-ai/GANs-Public/blob/master/C3W2_SRGAN_(Optional).ipynb>

Please note that this is an optional notebook meant to introduce more advanced concepts. If you’re up for a challenge, take a look and don’t worry if you can’t follow everything. There is no code to implement—only some cool code for you to learn and run!

In this notebook, you will learn about Super-Resolution GAN (SRGAN), a GAN that enhances the resolution of images by 4x, proposed in [Photo-Realistic Single Image Super-Resolution Using a Generative Adversarial Network](https://arxiv.org/abs/1609.04802) (Ledig et al. 2017). You will also implement the architecture and training in full and be able to train it on the CIFAR dataset.

# (Optional) More Work Using PatchGAN

Want to see how a GAN can fill-in cropped-out portions of an image? Read about how PGGAN does that by using PatchGAN!

Patch-Based Image Inpainting with Generative Adversarial Networks (Demir and Unal, 2018): <https://arxiv.org/abs/1803.07422>

# (Optional Notebook) GauGAN

<https://colab.research.google.com/github/https-deeplearning-ai/GANs-Public/blob/master/C3W2_GauGAN_(Optional).ipynb>

Please note that this is an optional notebook meant to introduce more advanced concepts. If you’re up for a challenge, take a look and don’t worry if you can’t follow everything. There is no code to implement—only some cool code for you to learn and run!

In this notebook, you will learn about GauGAN, which synthesizes high-resolution images from semantic label maps, which you implement and train. GauGAN is based around a special denormalization technique proposed in [Semantic Image Synthesis with Spatially-Adaptive Normalization](https://arxiv.org/abs/1903.07291) (Park et al. 2019)

All of the resources cited in Course 3 Week 2, in one place. You are encouraged to explore these papers/sites if they interest you! They are listed in the order they appear in the lessons.

From the videos:

* DeOldify... (Antic, 2019): <https://twitter.com/citnaj/status/1124904251128406016>
* pix2pixHD (Wang et al., 2018): <https://github.com/NVIDIA/pix2pixHD>
* [4k, 60 fps] Arrival of a Train at La Ciotat (The Lumière Brothers, 1896) (Shiryaev, 2020): <https://youtu.be/3RYNThid23g>
* Image-to-Image Translation with Conditional Adversarial Networks (Isola, Zhu, Zhou, and Efros, 2018): <https://arxiv.org/abs/1611.07004>
* Pose Guided Person Image Generation (Ma et al., 2018): <https://arxiv.org/abs/1705.09368>
* AttnGAN: Fine-Grained Text to Image Generation with Attentional Generative Adversarial Networks (Xu et al., 2017): <https://arxiv.org/abs/1711.10485>
* Few-Shot Adversarial Learning of Realistic Neural Talking Head Models (Zakharov, Shysheya, Burkov, and Lempitsky, 2019): <https://arxiv.org/abs/1905.08233>
* Patch-Based Image Inpainting with Generative Adversarial Networks (Demir and Unal, 2018): <https://arxiv.org/abs/1803.07422>
* Image Segmentation Using DIGITS 5 (Heinrich, 2016): <https://developer.nvidia.com/blog/image-segmentation-using-digits-5/>
* Stroke of Genius: GauGAN Turns Doodles into Stunning, Photorealistic Landscapes (Salian, 2019): <https://blogs.nvidia.com/blog/2019/03/18/gaugan-photorealistic-landscapes-nvidia-research/>

From the notebooks:

* Crowdsourcing the creation of image segmentation algorithms for connectomics (Arganda-Carreras et al., 2015): <https://www.frontiersin.org/articles/10.3389/fnana.2015.00142/full>
* U-Net: Convolutional Networks for Biomedical Image Segmentation (Ronneberger, Fischer, and Brox, 2015): <https://arxiv.org/abs/1505.04597>