

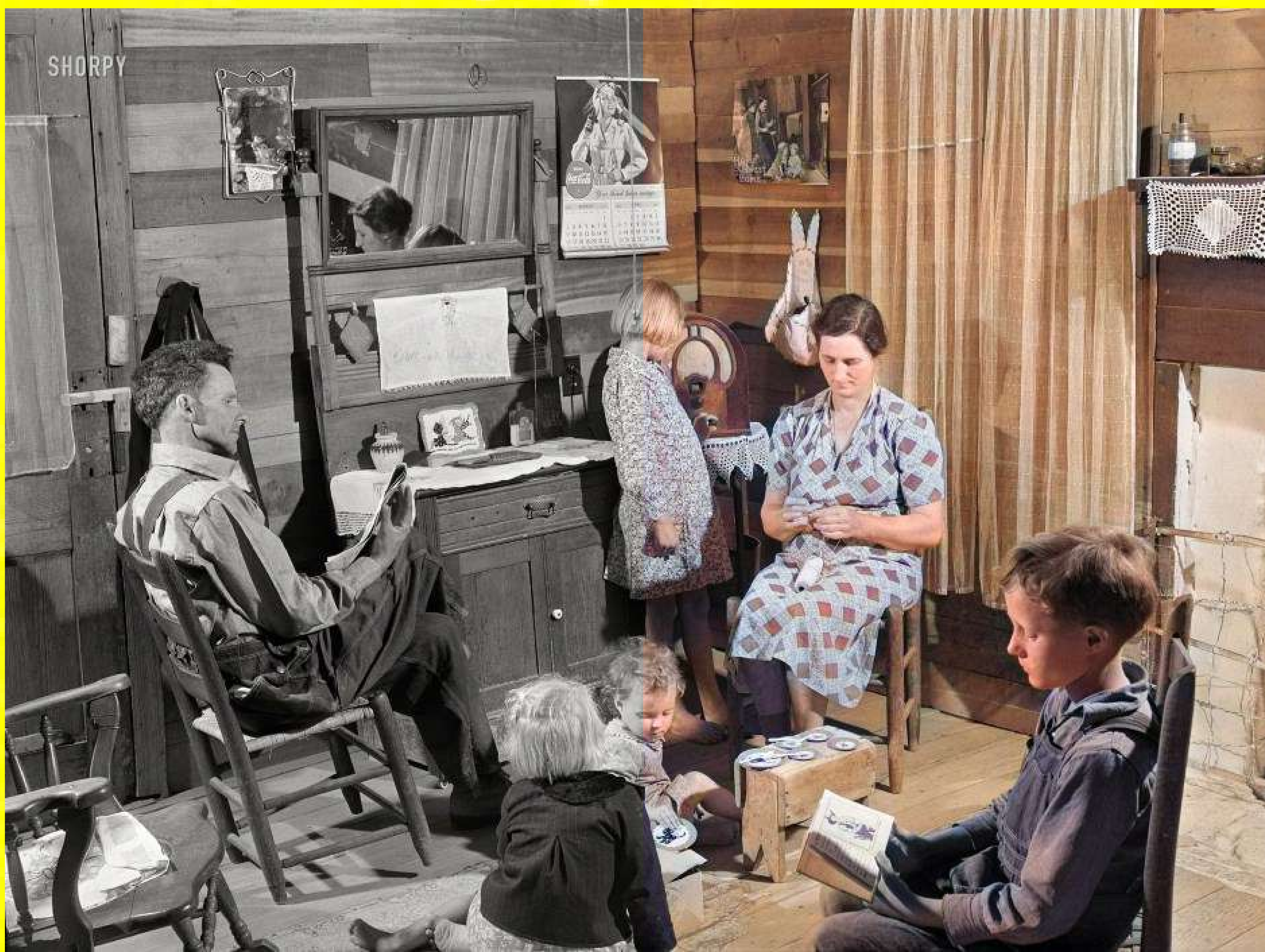
CONVERT BLACK & WHITE PHOTOS/VIDEOS TO COLOR (USING MACHINE LEARNING)



WHAT YOU WILL LEARN

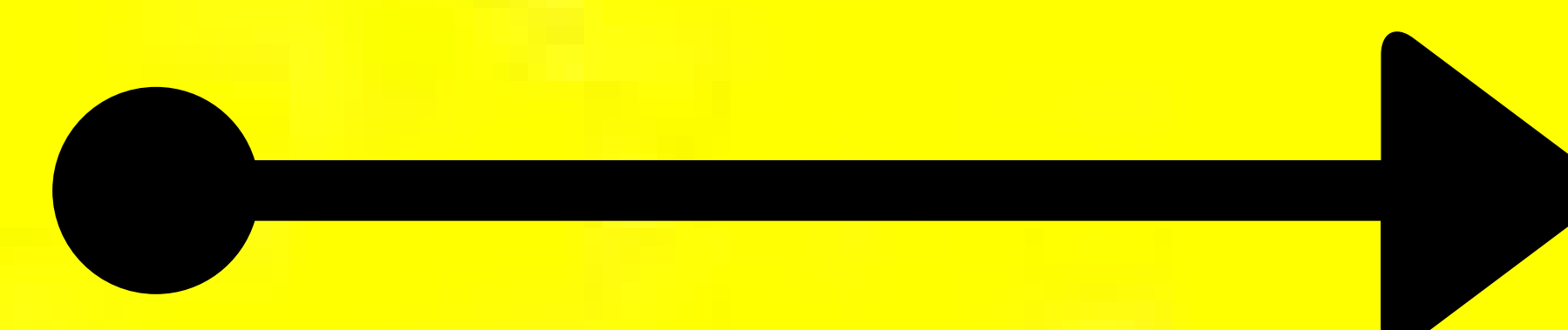
- ☐ Why converting B&W to color?
- ☐ Why we need machine learning?
- ☐ Why DeOldify? - 1
- ☐ How DeOldify works?
- ☐ Why DeOldify? - 2
- ☐ What is NoGAN training?
- ☐ Step-by-step guide





Why converting B&W to color?

- Did you have any special photos from your family or elsewhere that you wanted to restore.
- It brings old black and white photos to life, offering to see our ancestors in a new light.

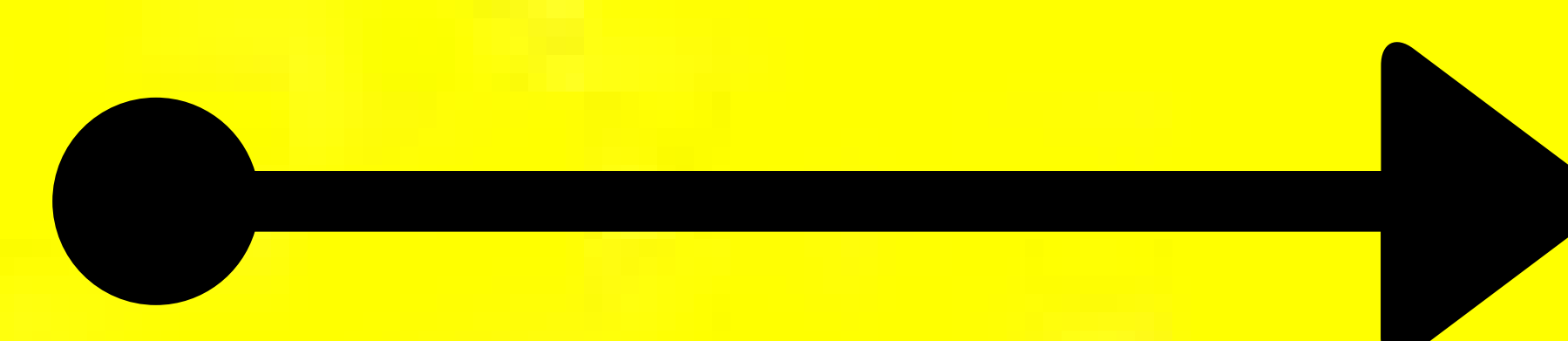


Manual vs Automatic



Why we need machine learning?

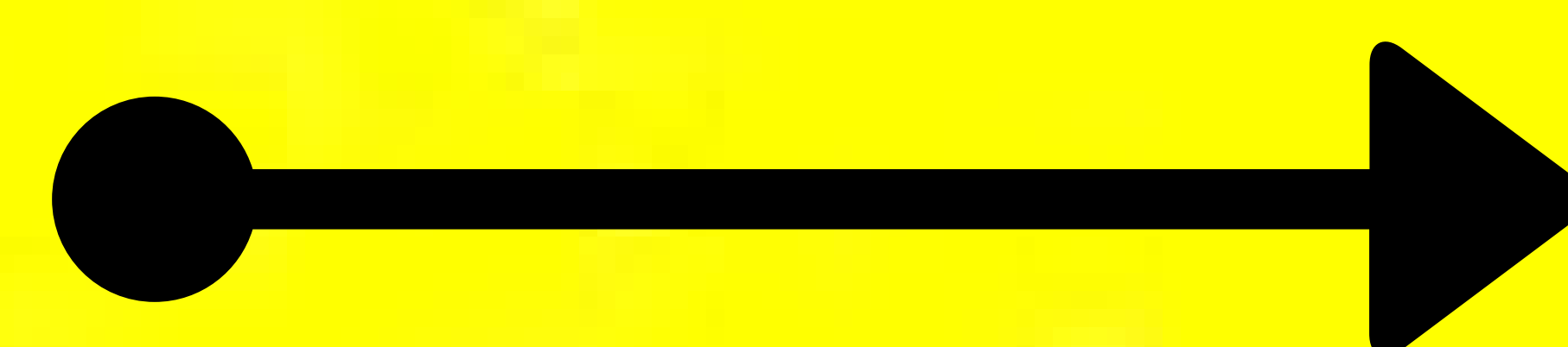
- Using Photoshop is basically a little cropping here and there, and randomly adding effects – which was absolutely painstaking and time consuming.
- Why can't we automate colorizing old black and white photos using deep learning.
- And then we got DeOldify which is used to colorize and restore old images and film footage.





Why DeOldify? - 1

- The reason why other DL models didn't work as well as they could was because there was still a human involved in hand-coding a key step.
- The most immediately obvious way to evaluate if the neural network creates a good image is by comparing pixels directly and penalizing according to how different they are.
- In contrast, GANs effectively replace those hand coded loss function with a network – the critic/discriminator.

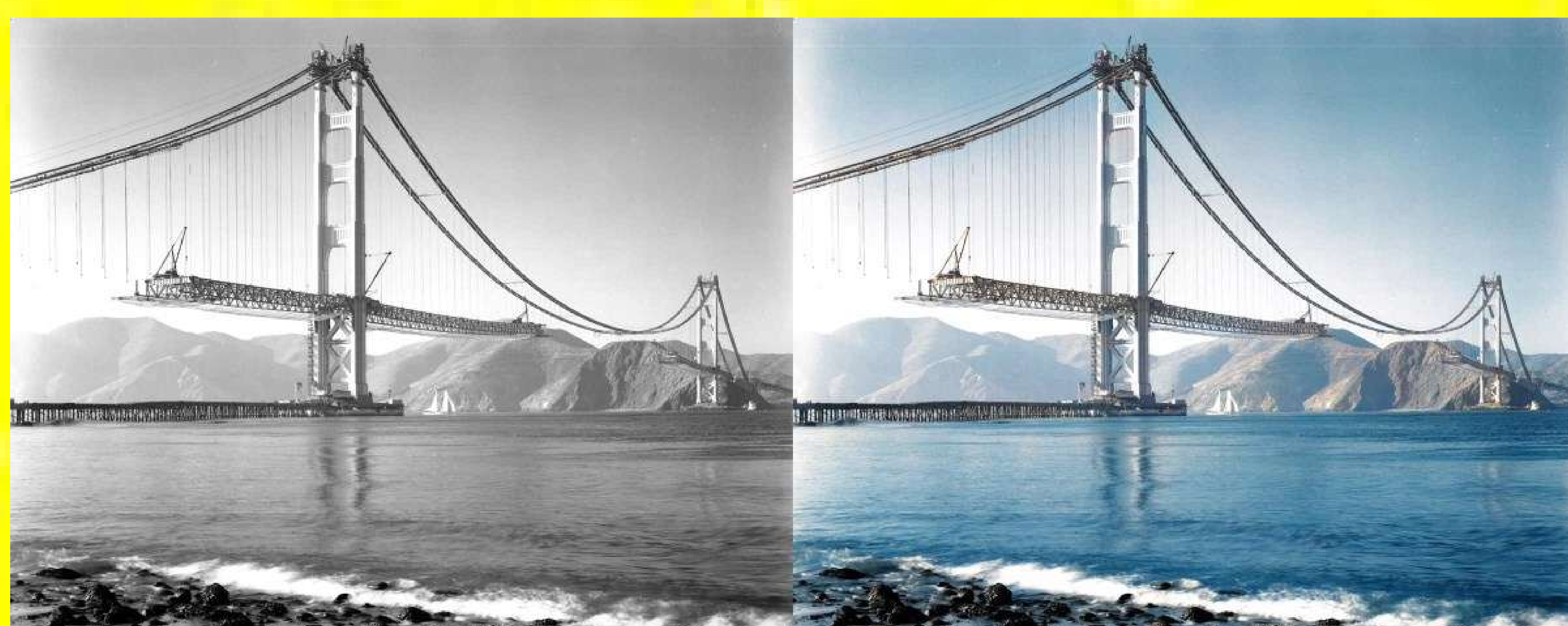
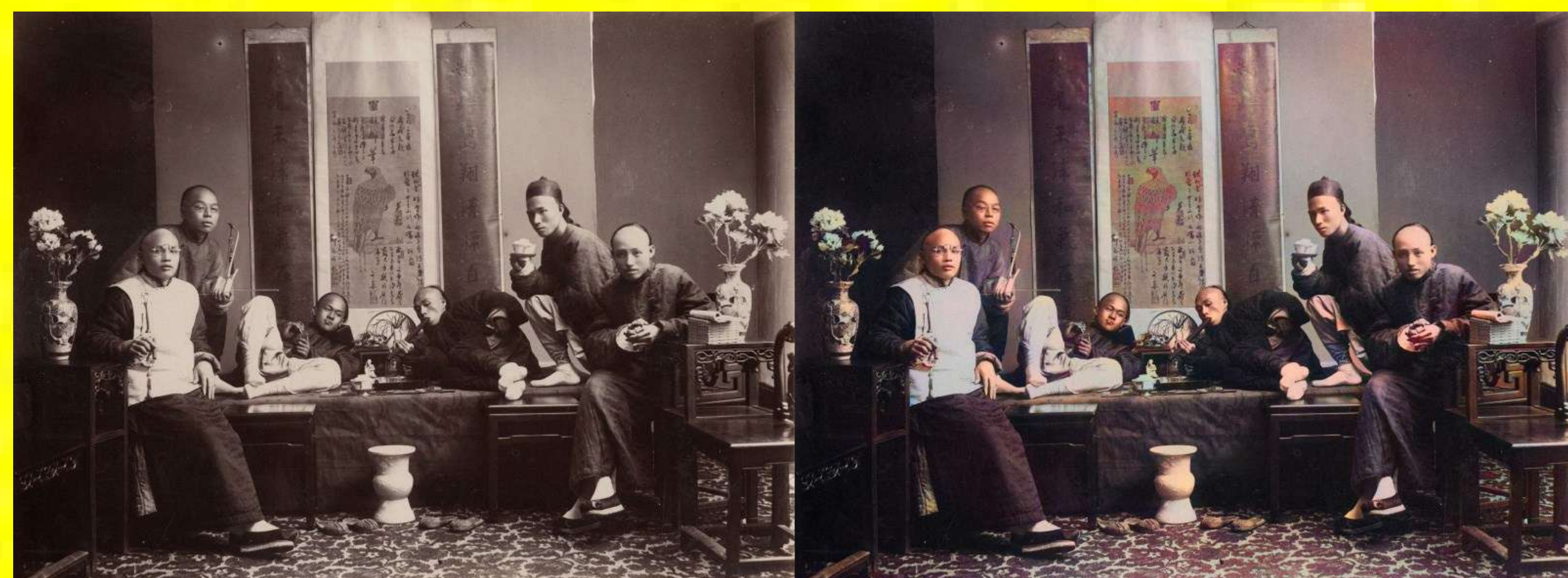




How DeOldify works?

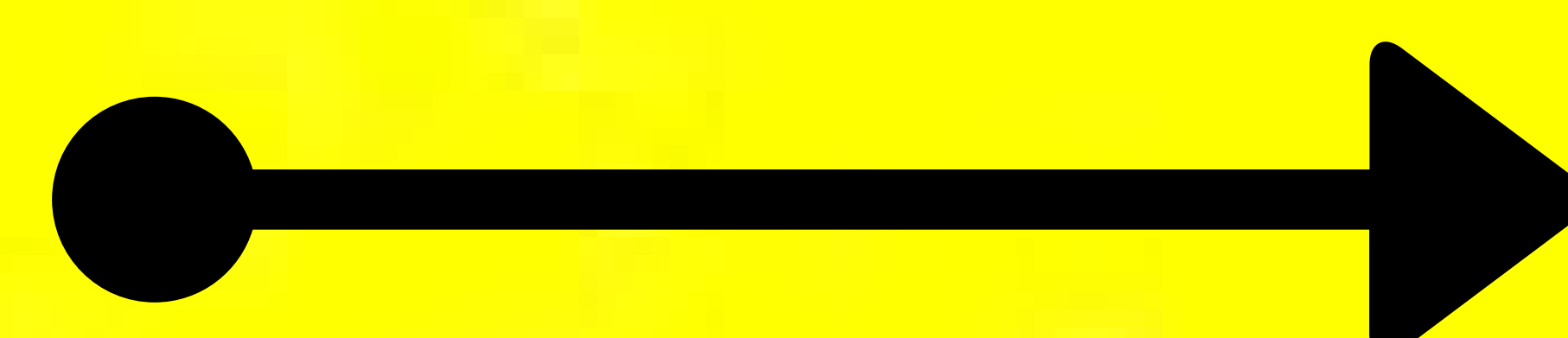
- The underhood architecture of DeOldify is GAN's
- GAN's have two models a generator and a discriminator.
- They're placed in competition with each other such that the generator is constantly trying to fool the discriminator, and the discriminator is constantly trying to not be fooled.
- First generator recognizes things in the image and figure out what most coloring should be used.
- It's try its best to make the image look real, because then the critic will take a look and try to figure out if it's real or not.
- The generator and critic keep getting better from this back and forth with each other, and therefore the images get better and better.





Why DeOldify? - 2

- The old version of DeOldify used GANs (Generative Adversarial Networks), a network architecture that includes repetitive interaction between two complementary neural networks: a generator and discriminator.
- After the introduction of NoGAN training (covered in more details below) and combining it with GAN training, DeOldify was able to produce more stable and colorful images.

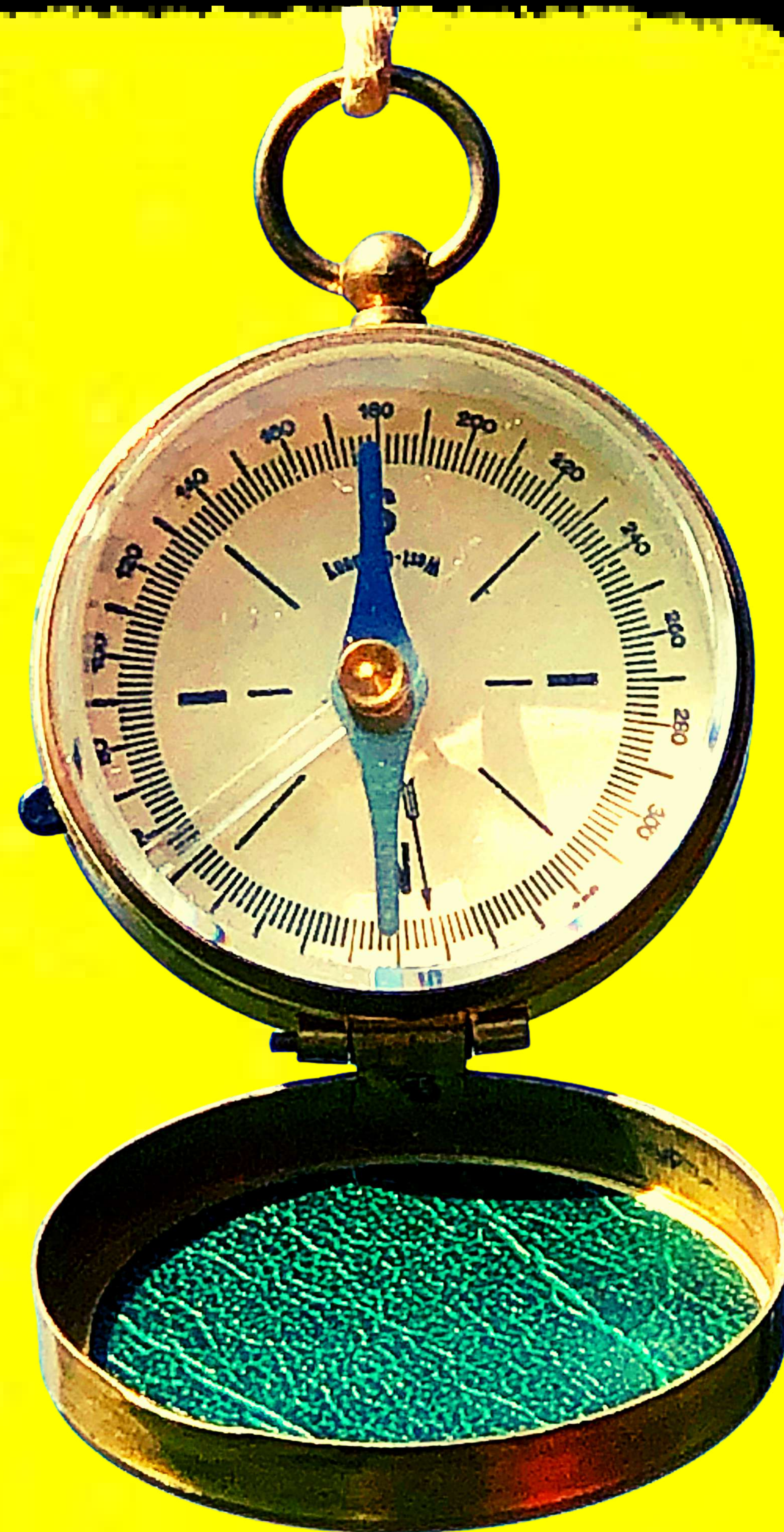




What is NoGAN training?

- To address stabilization problems in the previous DeOldify model, Jason Antic developed this new type of GAN training, which requires less time on GAN training and more time on pre-training the generator and discriminator separately with uncomplicated, fast, and reliable methods.





Step-by-step guide!

- Fork the DeOldify repository
- Install all the required packages
- Run all the required functions
- Run upload file code and upload image or video
- Run the main function by giving the image/video path
- Wait and enjoy!!!!
- Find code on my GitHub profile

