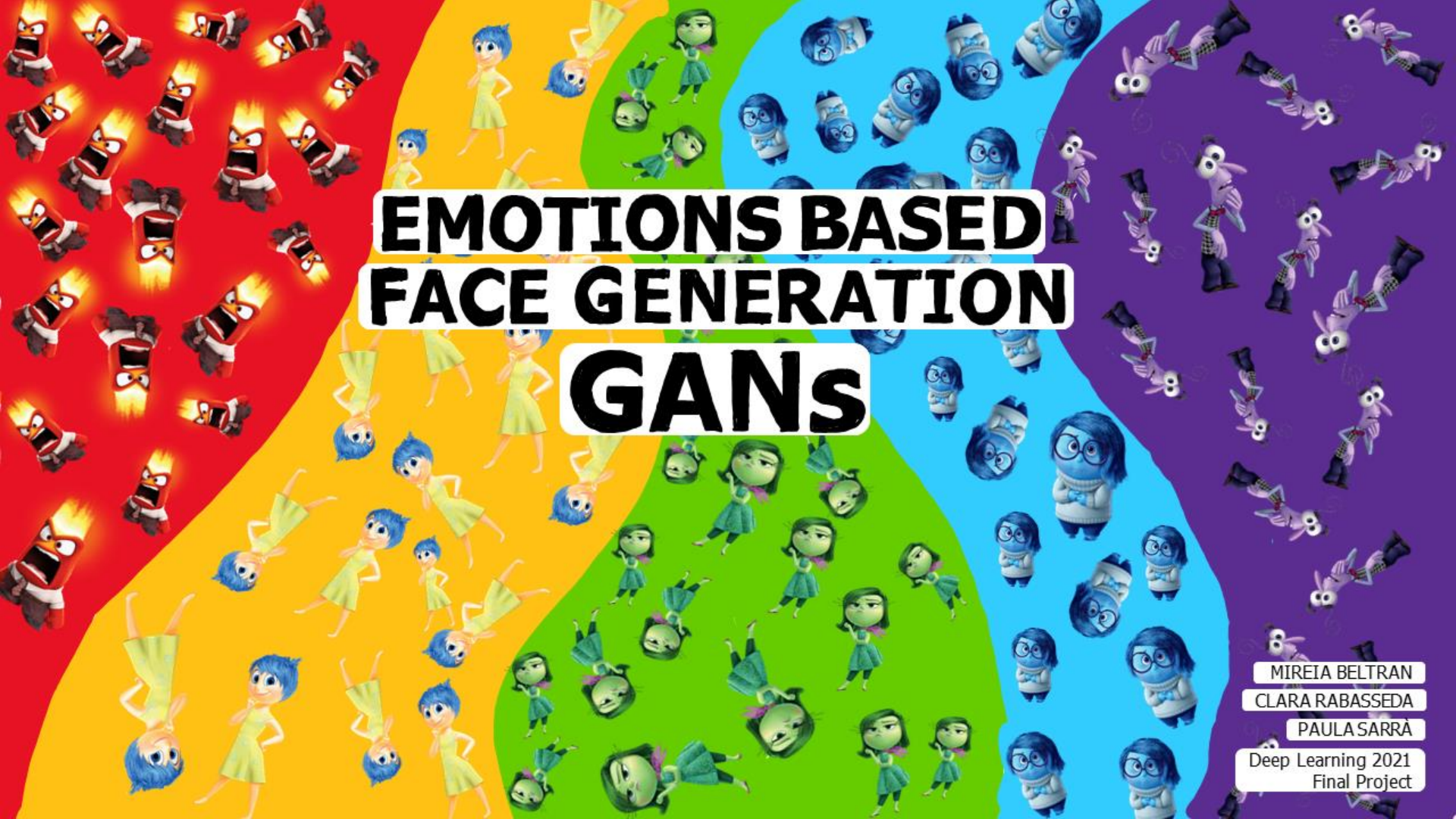


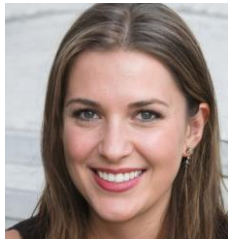
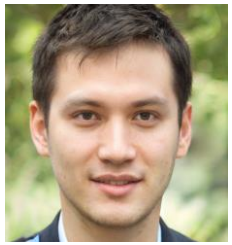
MIREIA BELTRAN
CLARA RABASSEDA
PAULA SARRÀ

Deep Learning 2021
Final Project

INDEX

1. MOTIVATION



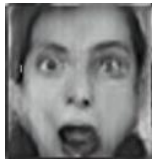



This person does not exist!

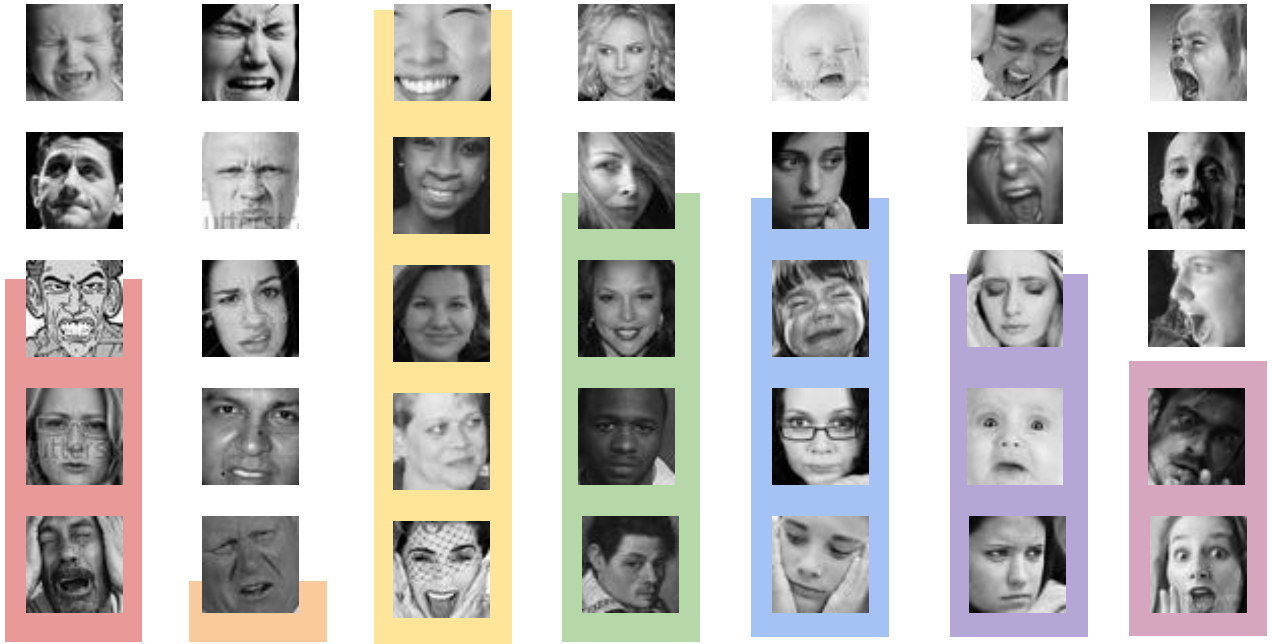
https://thispersondoesnotexist.com/

1. MOTIVATION

Real or fake?



2. THE DATASET



ANGRY
3993

DISGUST
436

HAPPY
7164

NEUTRAL
4972

SAD
4938

FEAR
4103

SURPRISE
3205

28811 IMAGES

BLACK AND WHITE

7 EMOTIONS

The emotions classifier

DISGUST

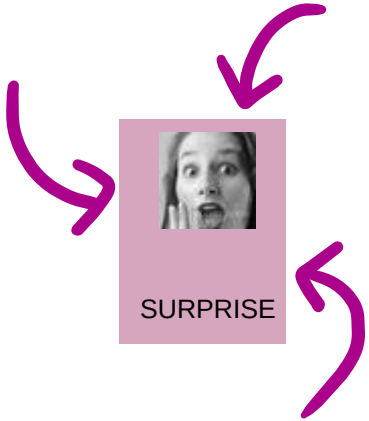
ANGRY

SAD

FEAR

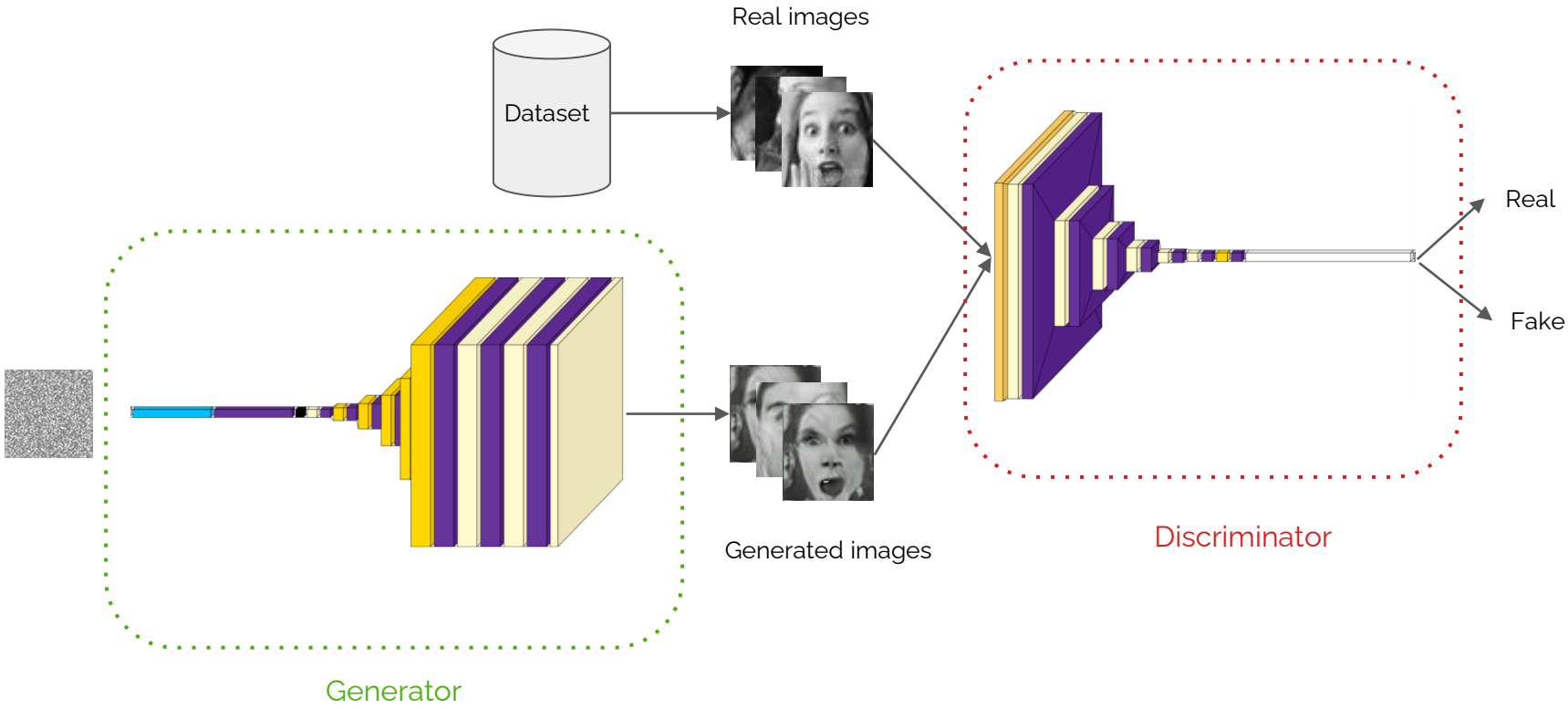
NEUTRAL

HAPPY

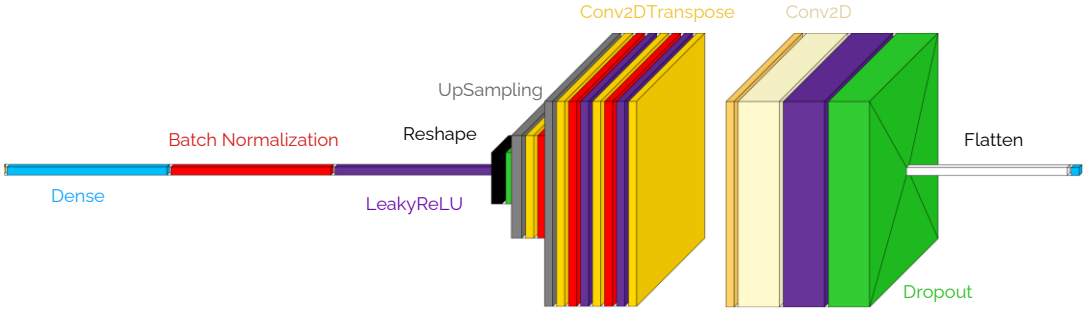


SURPRISE

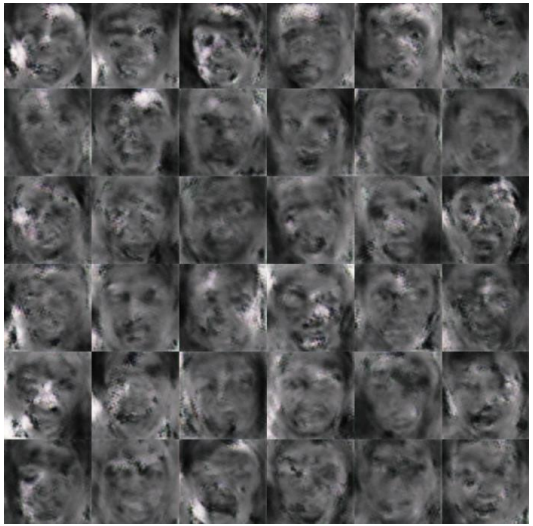
GAN architecture

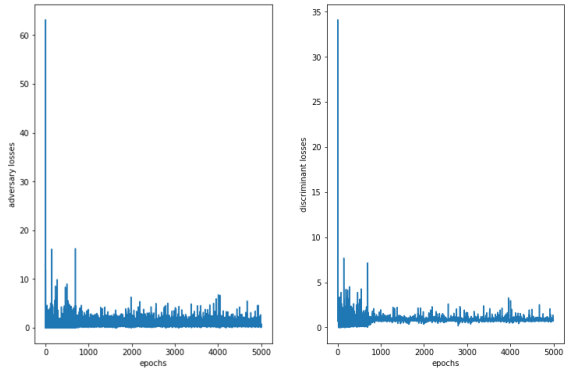


GAN: Model 1



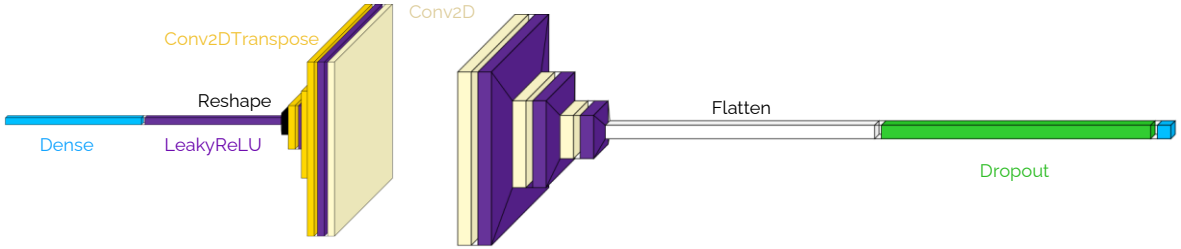

```
UpSampling2D()
Conv2DTranspose()
BatchNormalization()
LeakyReLU()
Flatten()
Dense()
```

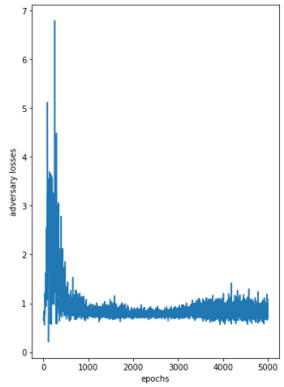


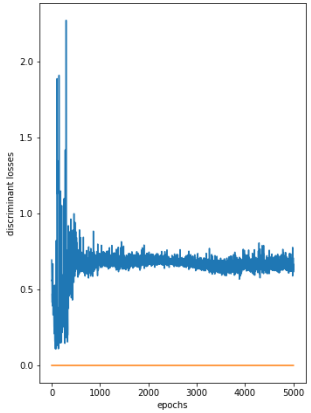


Iteration:	Loss G:	Loss D:
4700/5000:	1.4499	0.7351
4750/5000:	1.3989	0.7252
4800/5000:	1.3885	0.7327
4850/5000:	1.0660	0.7123
4900/5000:	2.0571	0.9407
4950/5000:	1.3312	0.7999
5000/5000:	0.7880	0.8081

GAN: Model 2

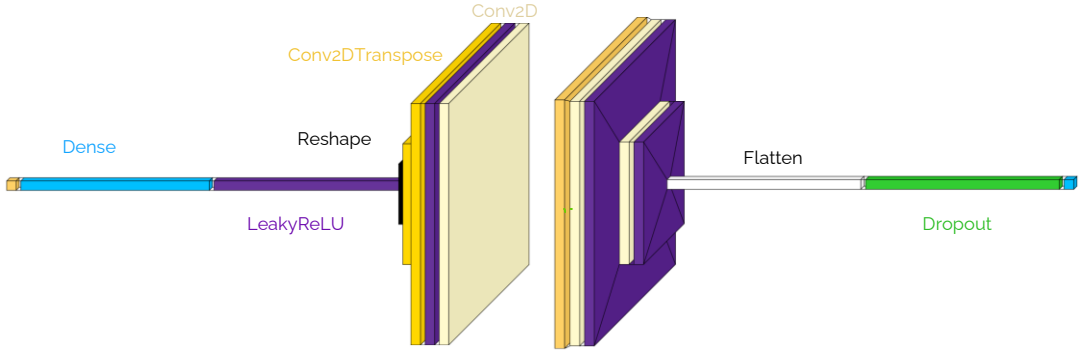


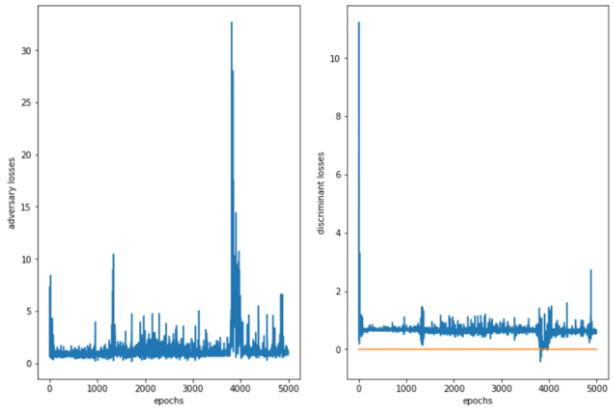




Iteration:	Loss G:	Loss D:
4600	0.90107	0.65704
4650	0.8417	0.65524
4700	0.8092	0.69491
4750	0.8037	0.71217
4800	0.7744	0.66343
4850	0.8612	0.64434
4900	1.0061	0.70671
4950	0.79973	0.68932
5000	1.0942	0.66498

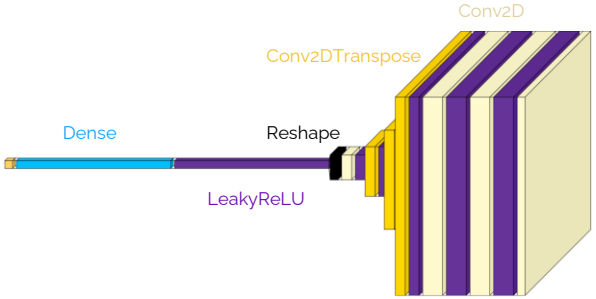
GAN: Model 3

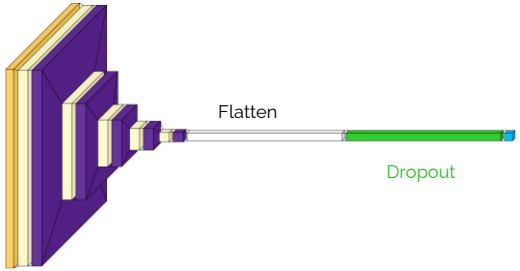


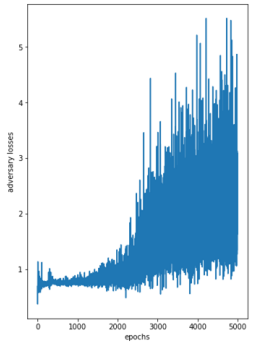


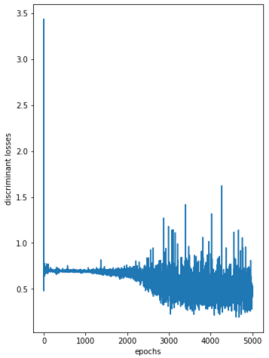
Iteration:	Loss G:	Loss D:
4800	0.966127	0.6234787
4850	, 2.58845	0.3376667
4900	1.3295066	0.6171076
4950	1.211410	0.5672503
5000	1.170069	0.5962437

GAN: Model 4



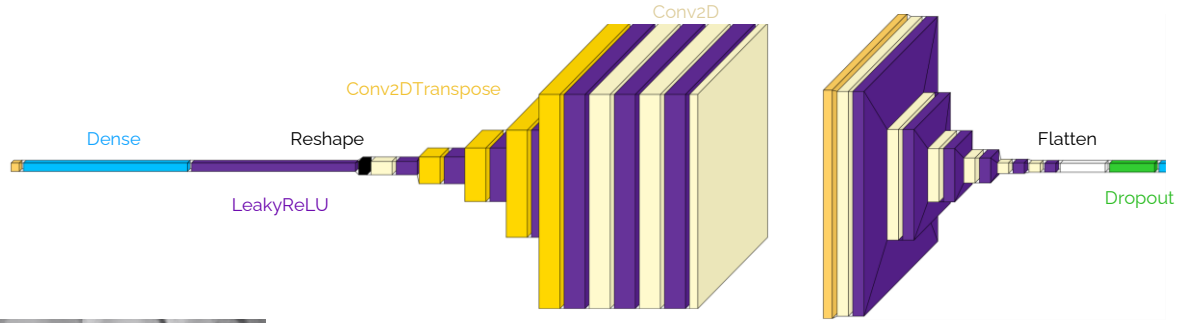


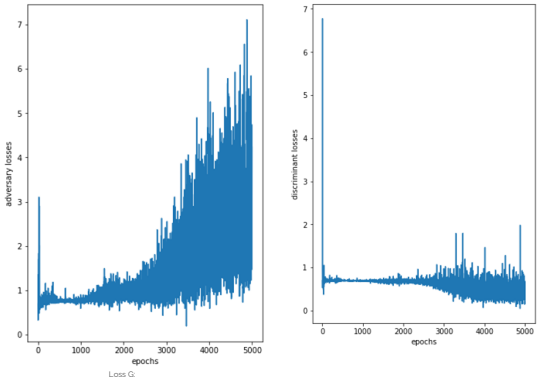




Iteration:	Loss G:	Loss D:
4800/5000:	2.2811	0.4479
4850/5000:	2.3706	0.3060
4900/5000:	2.7910	0.4618
4950/5000:	3.7024	0.3633
5000/5000:	2.0732	0.4560

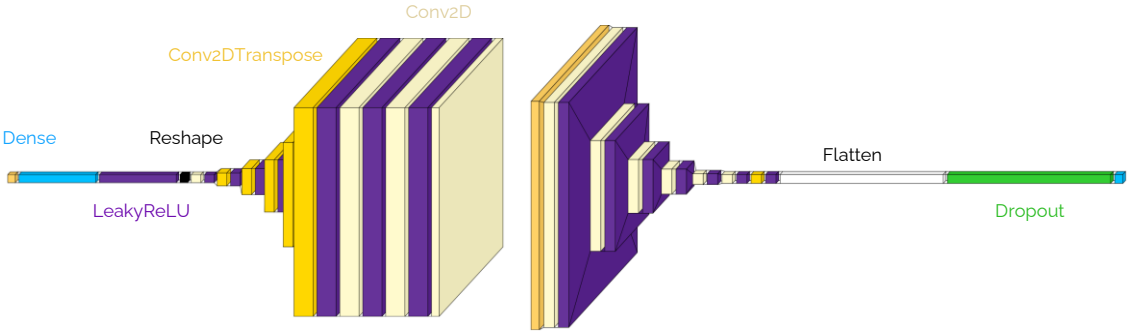
GAN: Model 5

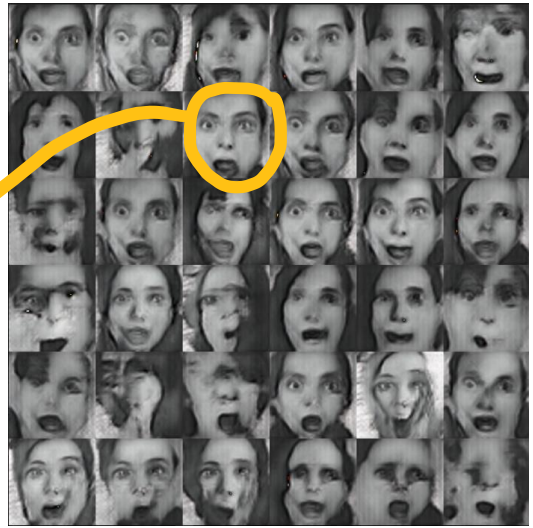


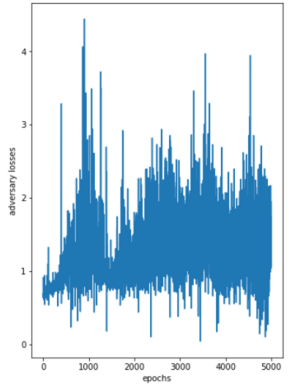


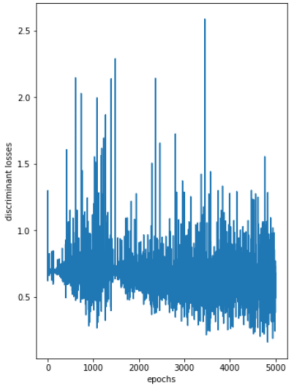
Iteration:	Loss G:	Loss D:
4700/5000:	0.9438	0.6005
4750/5000:	1.9324	0.4094
4800/5000:	1.9671	0.3452
4850/5000:	3.5805	0.4340
4900/5000:	2.4203	0.3222
4950/5000:	3.2858	0.8873
5000/5000:	4.2305	0.3252

GAN: Model 6









Iteration:	Loss G:	Loss D:
4700/5000:	1.4125	0.6406
4750/5000:	1.9831	0.4272
4800/5000:	0.9892	0.6099
4850/5000:	1.1716	0.6088
4900/5000:	1.3798	0.5113
4950/5000:	1.4085	0.8980
5000/5000:	1.2259	0.6774

Let's see the evolution...

CONCLUSIONS

Unstable results in the generator - Mode collapse

ITER 4700

ITER 4850

Unrealistic results

- Problem to determine positioning of the objects
- Problem in understanding perspective
- Low quality of the dataset

And lots of training time...

Bibliography

Brownlee, J., 2021. *Generative Adversial Networks with Python*. 1st ed. Machine Learning Mastery, pp.106-109.

Oheix, J., 2021. Face expression recognition dataset. [online] Kaggle.com. Available at: <https://www.kaggle.com/jonathanoheix/face-expression-recognition-dataset>

GitHub. 2021. nageshsinghc4/Face-generation-GAN. [online] Available at: <https://github.com/nageshsinghc4/Face-generation-GAN>

Madan, A., 2021. Facial expression recognition in tensorflow. [online] Kaggle.com. Available at: <https://www.kaggle.com/deepakvelmurugan/facial-expression-recognition-in-tensorflow>

Vincent, J., 2018. These faces show how far AI image generation has advanced in just four years. [online] The Verge. Available at: <https://www.theverge.com/2018/12/17/18144356/ai-
>

MIREIA BELTRAN
CLARA RABASSEDA
PAULA SARRÀ

Deep Learning 2021
Final Project

ANNEX. GANs Other emotions

Happy dataset

Disgust dataset

Fear dataset