

Building a Generative Adversarial Network

by John Kundycki

What is a Generative Adversarial Network?



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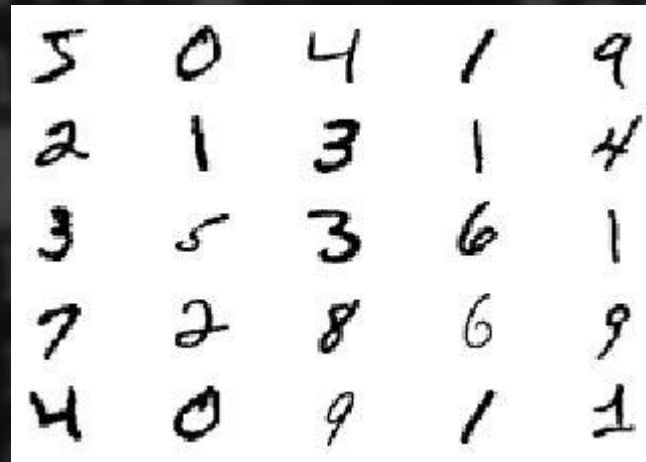
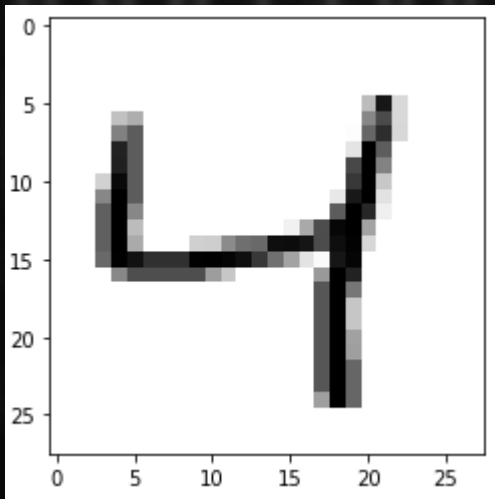


What are GANs used for?

- GANs are a practical tool to a data scientist as they can be used to generate more plausible data from a dataset
- GANs can be used for Image Editing
- GANs can be used to enhance security software
- Generating Images
- GANs are a relatively new type of Deep Learning network, and new applications in the future will be soon to follow

The MNIST Dataset

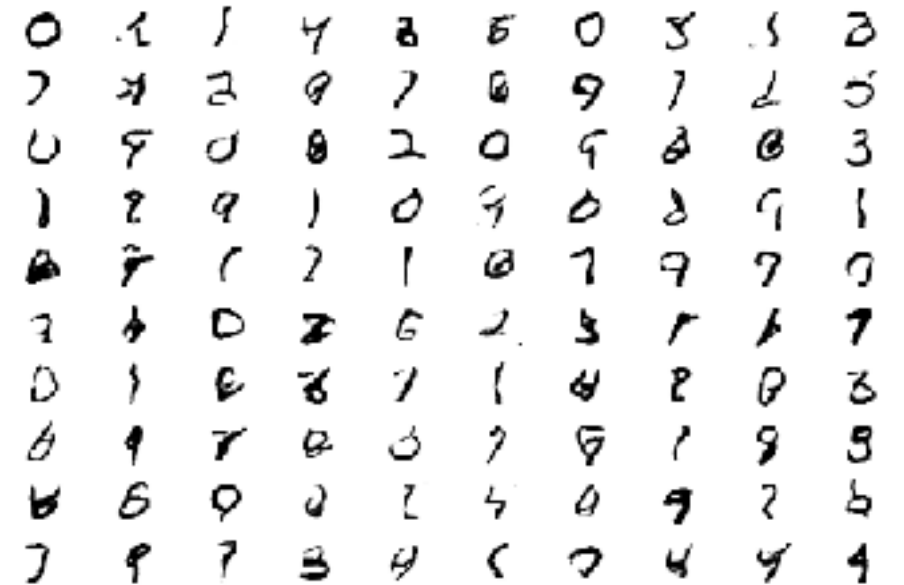
- The MNIST dataset was used to teach the model to generate handwritten digits similar to those of the dataset
- GANs are computational heavy
- The MNIST dataset contains small pictures that are in gray scale



MNIST Generated Images



8	9	11	5	9	9	8	4	9	8
8	5	8	1	4	5	8	3	4	2
3	4	5	5	8	5	8	3	0	3
2	4	9	5	7	2	0	4	2	5
8	0	4	5	2	10	8	0	5	11
7	9	4	4	9	7	5	0	4	4
4	9	8	2	9	2	3	3	8	5
9	4	1	4	4	5	9	3	2	5
1	5	4	8	5	7	3	0	8	3
11	4	0	4	0	7	0	9	4	6



0	1	1	4	8	5	0	3	1	2
7	4	2	8	7	6	9	7	2	5
0	5	0	8	2	0	4	8	8	3
1	2	9	1	0	9	0	8	9	1
8	7	1	2	1	8	7	9	7	0
2	4	0	2	6	2	3	7	1	7
0	1	6	8	7	1	4	2	8	3
8	4	7	8	0	7	9	1	9	5
6	6	9	0	2	4	0	9	2	6
7	9	7	3	4	5	0	4	4	4

Future Work

- As we speak, a model I've created is working on learning how to generate faces
- Hope to use what I've learned in this research project to generate data for my other projects in the future

Questions





Thank you!