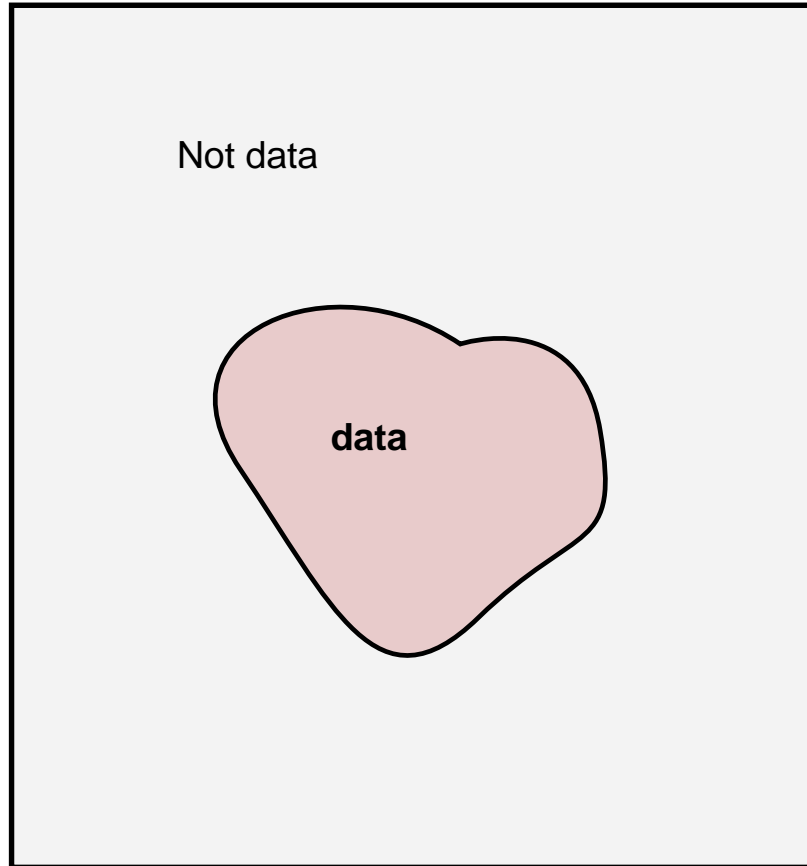


GANS

MUSTAFA HAJIJ

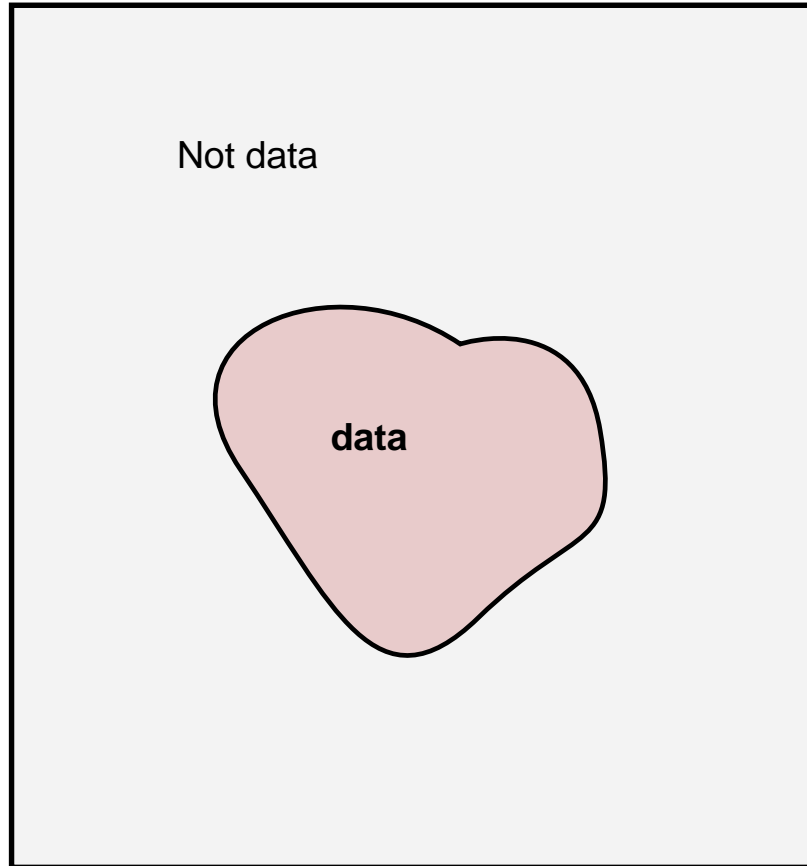
# Main idea

**Set of all possible images**



# Main idea

Set of all possible images

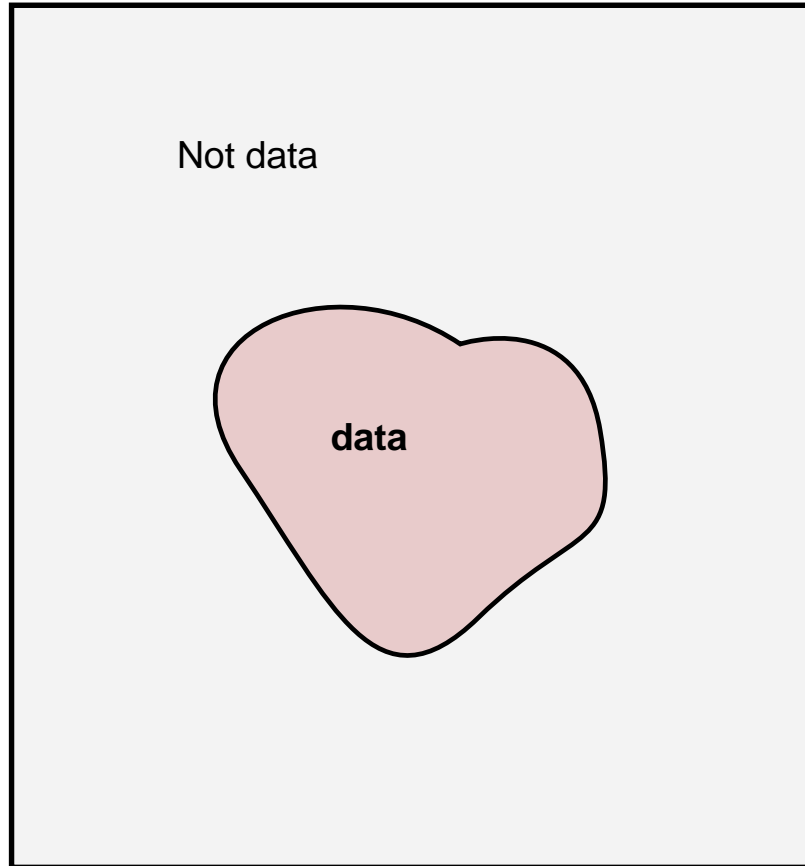


Find a function that maps data to 1  
And not data to 0

→ [0,1]

# Main idea

Set of all possible images



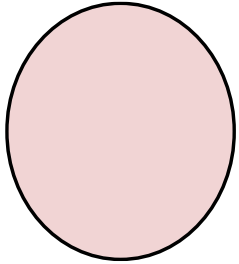
Find a function that maps data to 1  
And not data to 0

→ [0,1]

If we do that using the naïve method (just sample from non-data and data and use classification), how can we use such a function to sample more data points other than the ones available in the training data?—we must somehow be able to capture not only the dataset points but also the underlying distribution !

# Main idea

Simple space  
we can samples  
from (Gaussian)



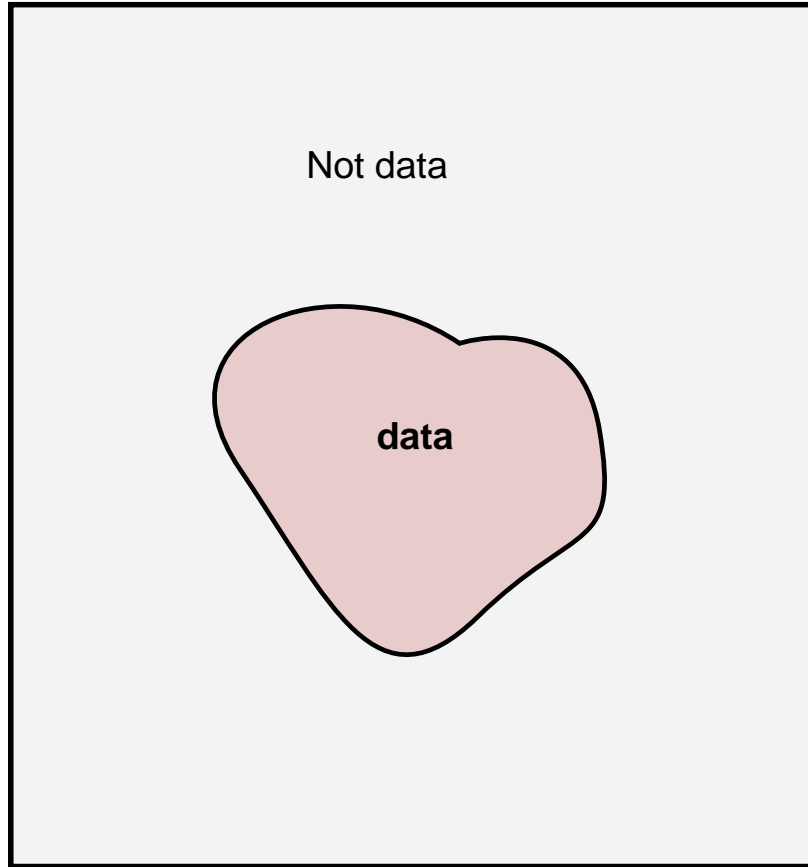
G



Solution introduce G,  
A function that maps a simple  
Space (that we can sample from)  
to data.

Not data

data



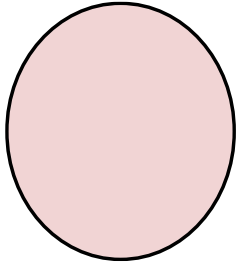
D



[0,1]

# Main idea

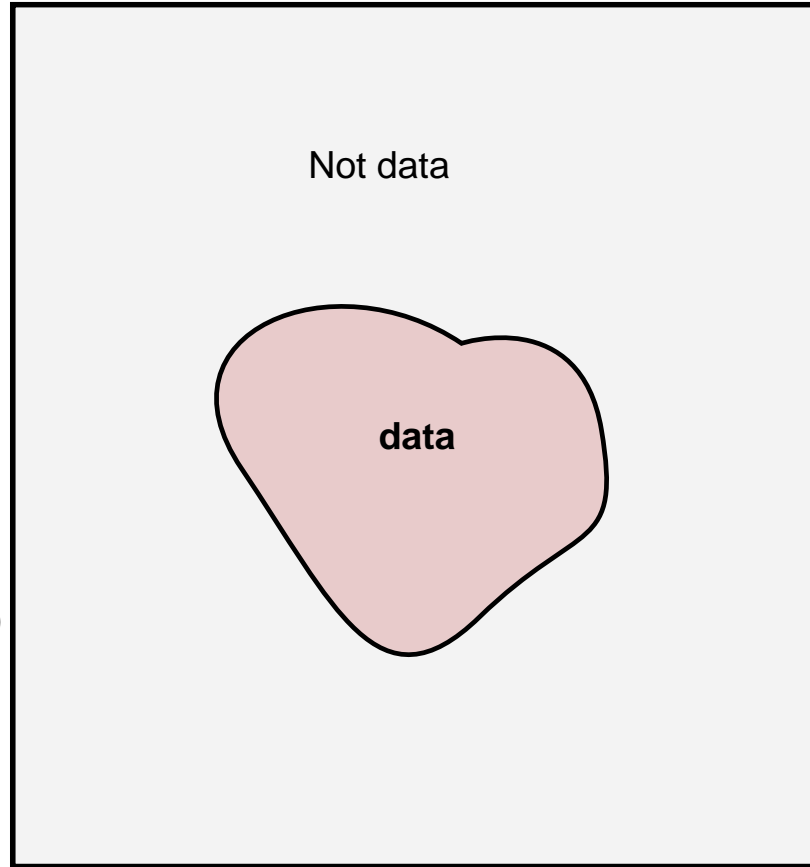
Simple space  
we can samples  
from (Gaussian)



G



Solution introduce G,  
A function that maps a simple  
Space (that we can sample from)  
to data.



Not data

data

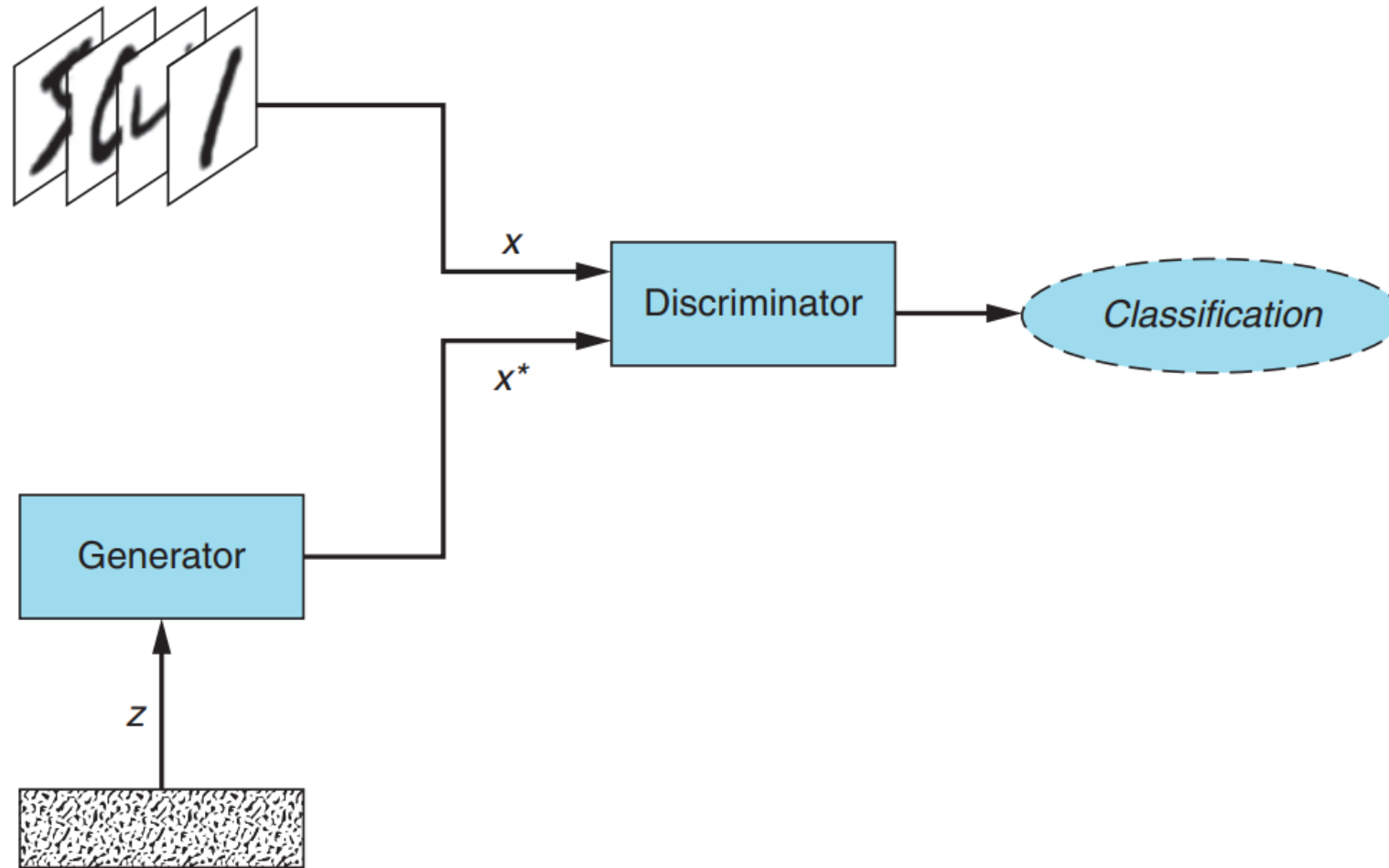
D



[0,1]

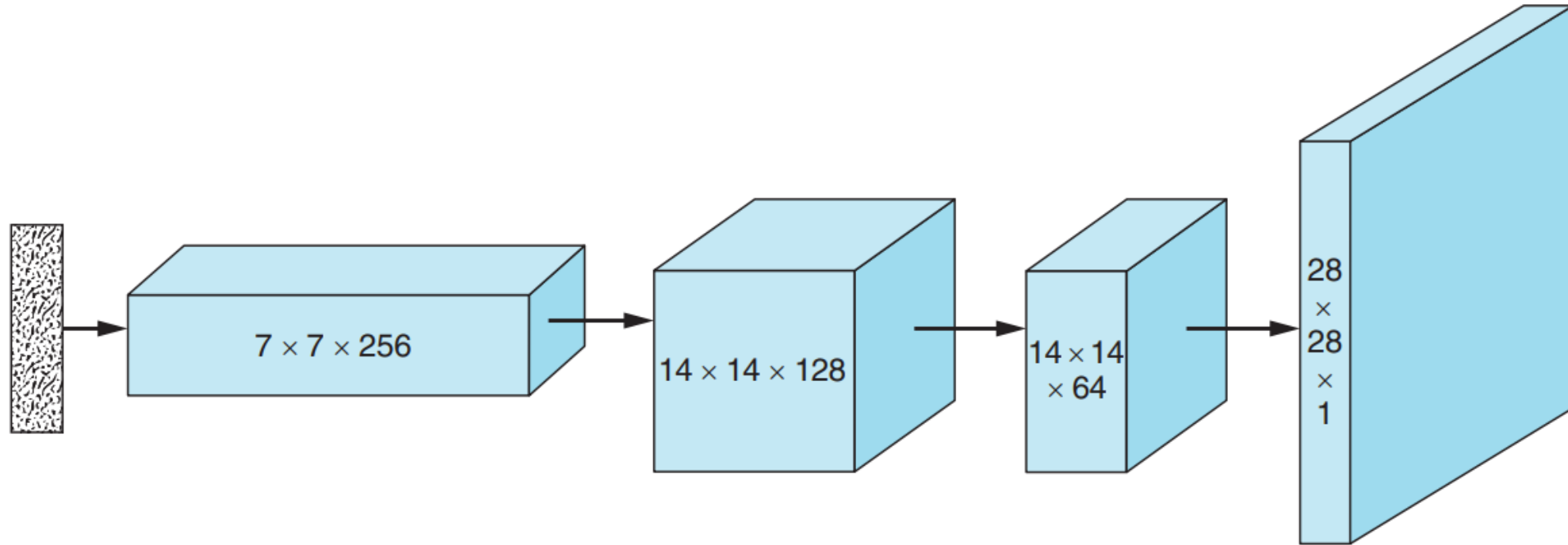
Assuming G exists we can sample from the simple space a point  $z$ ,  
then use G to obtain  $G(z)$  a new datapoint in the data subspace.

# Main idea



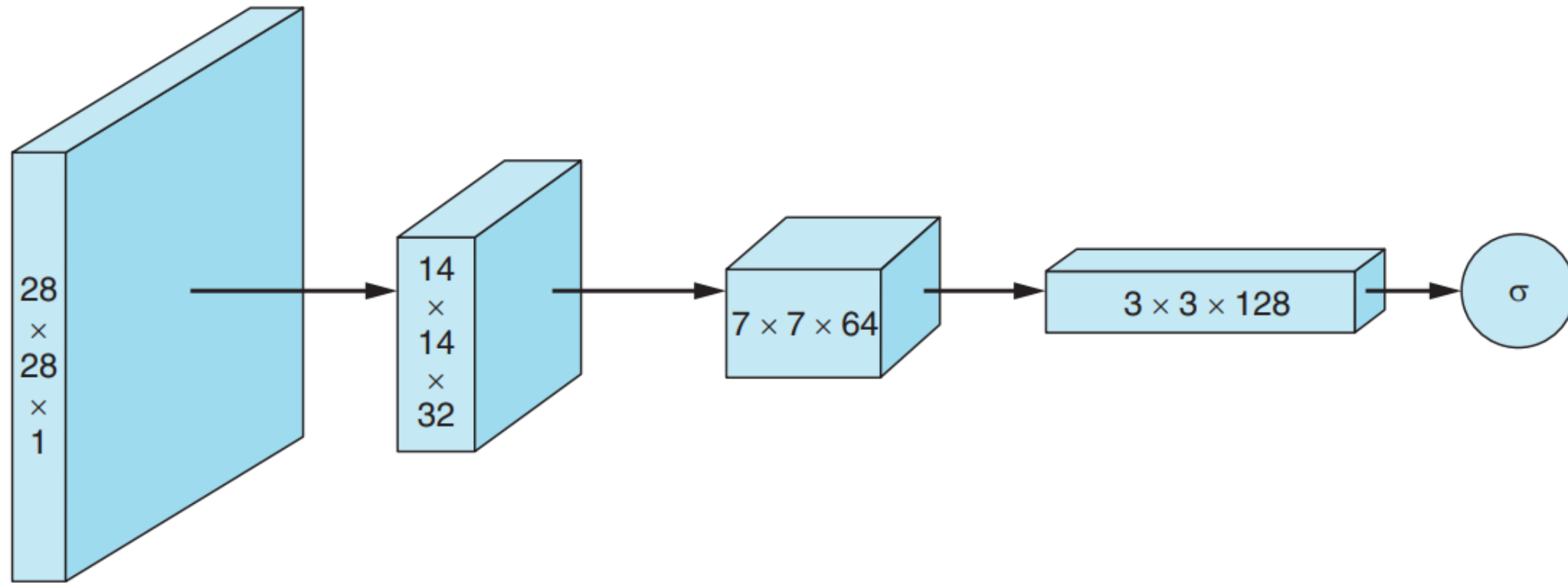
In practice G and D are NNs. How can we train them?

# Implementation of CNN Generator





# Implementation of CNN Discriminator



## Refs

