Generative models

Supervised vs Unsupervised

Supervised learning

- Take (x,y) pairs

Unsupervised learning

- Take x alone

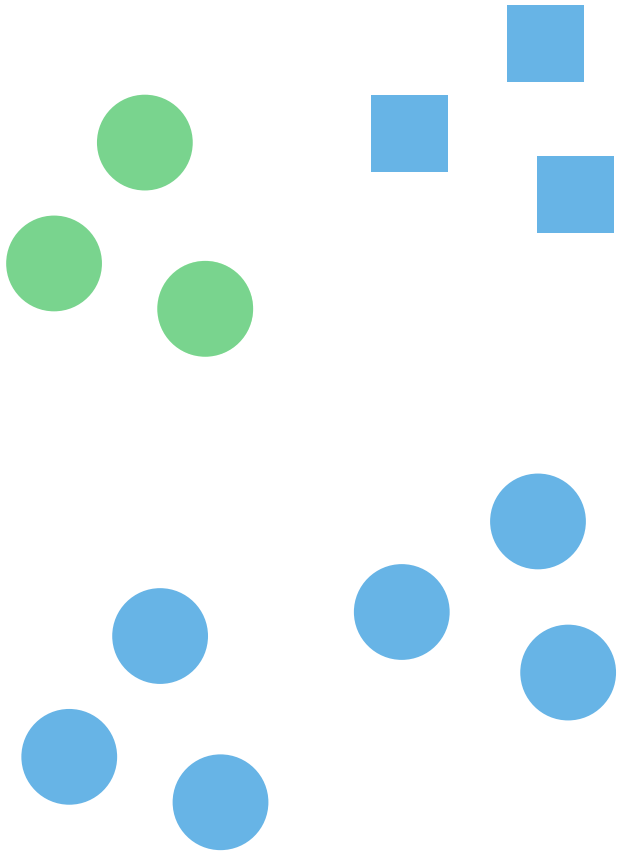
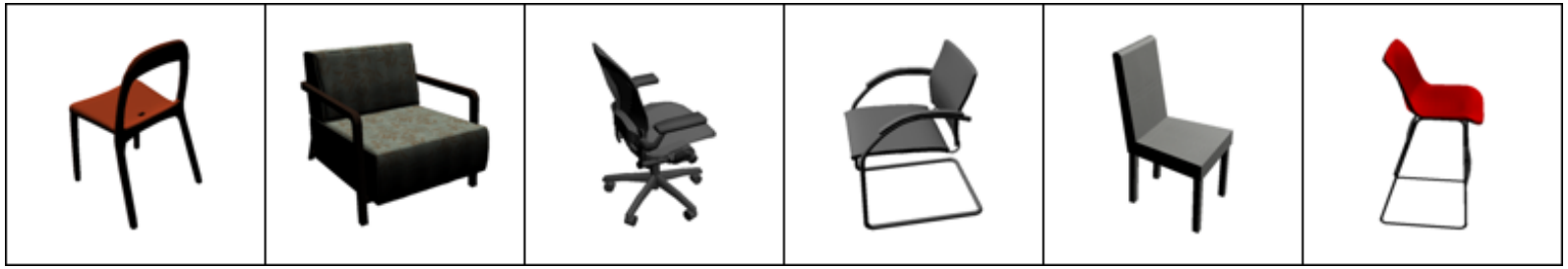


Image generation

Chairs (type, view, orientation)



Classifier

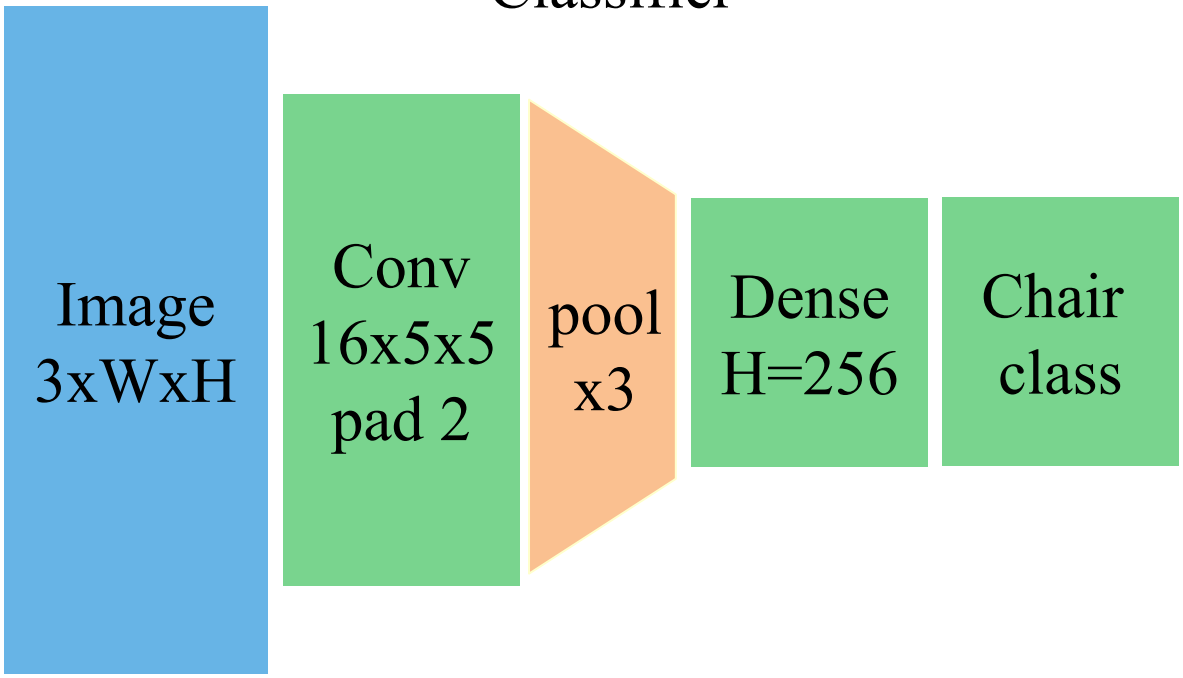
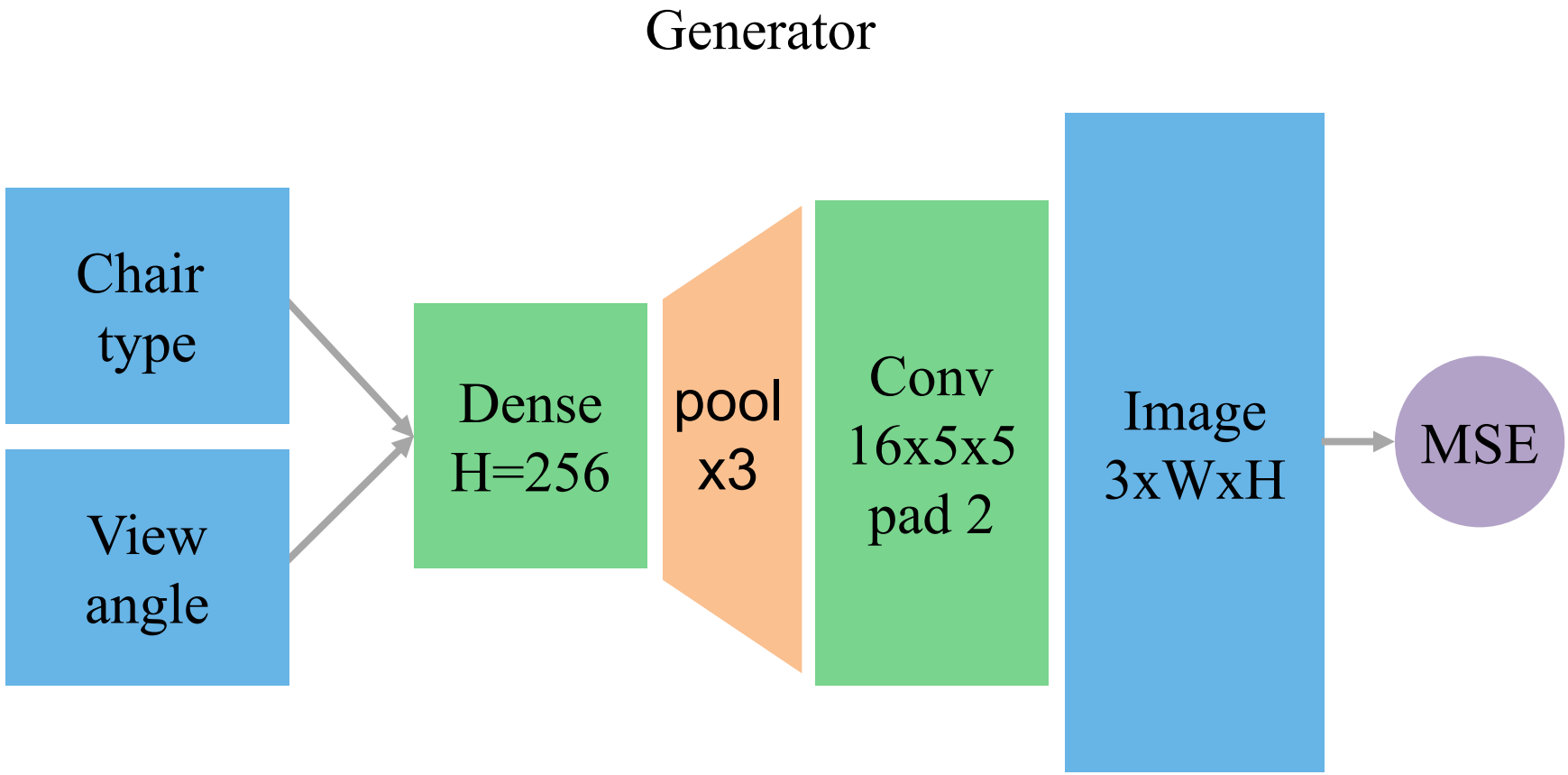


Image generation



Mean Squared Error

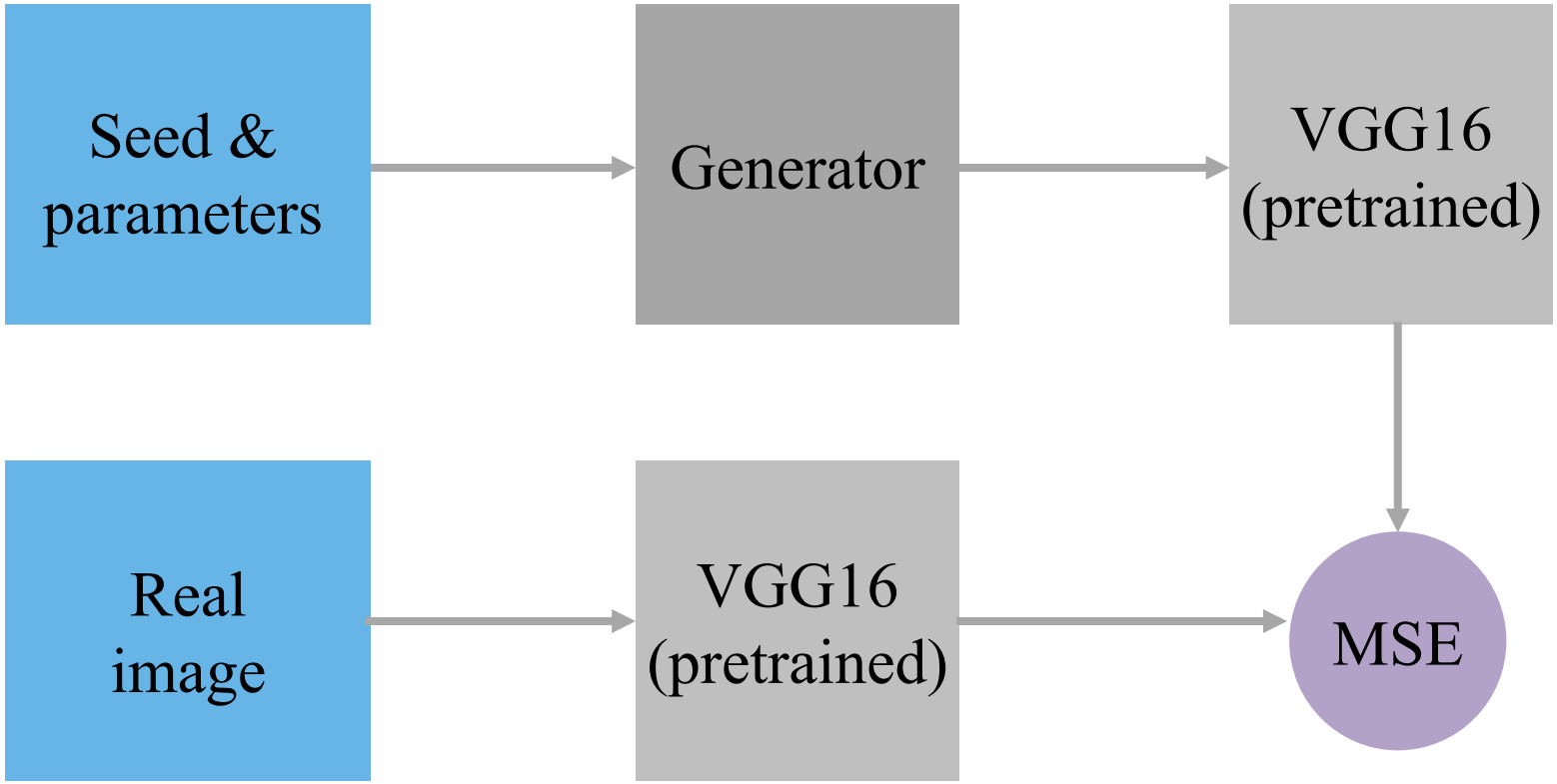
Pixelwise MSE:

- A **«cat on the left»** is closer to **«dog on the left»** than to **«cat on the right»**
- We may want to avoid that effect
- Can we obtain image representation that is less sensitive to small shifts?

Problem: MSE sucks at this task.

Ideas?

Sketch: using pre-trained nets



$$L = \left\| f(img) - f\left(Gen(seed)\right) \right\|$$

THIS IS HOW IT WORKS. our loss function would be to compute the difference between VGG output of a real image, vs a VGG output of a generated one.