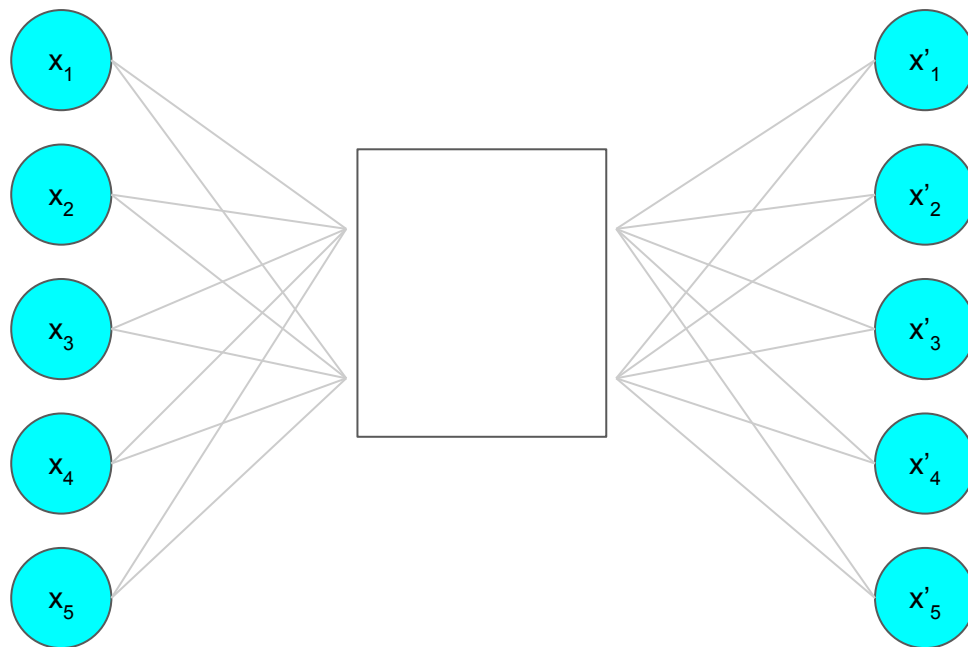


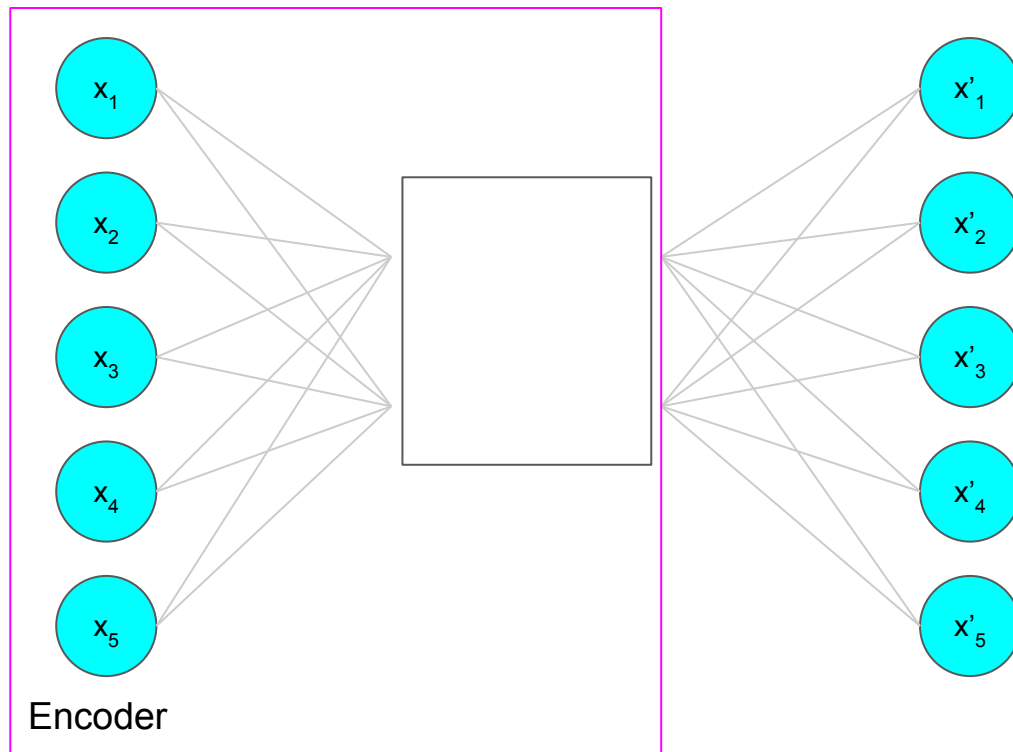
Generation with AutoEncoders: Results and Limitations

Valerio Velardo

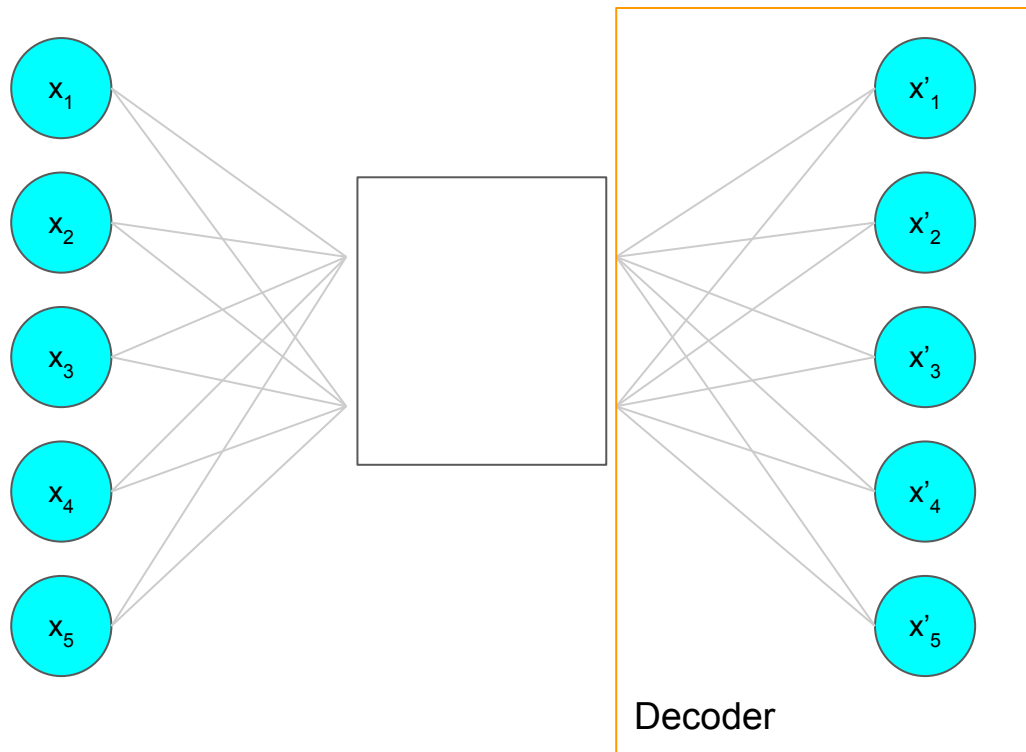
Generation with AEs



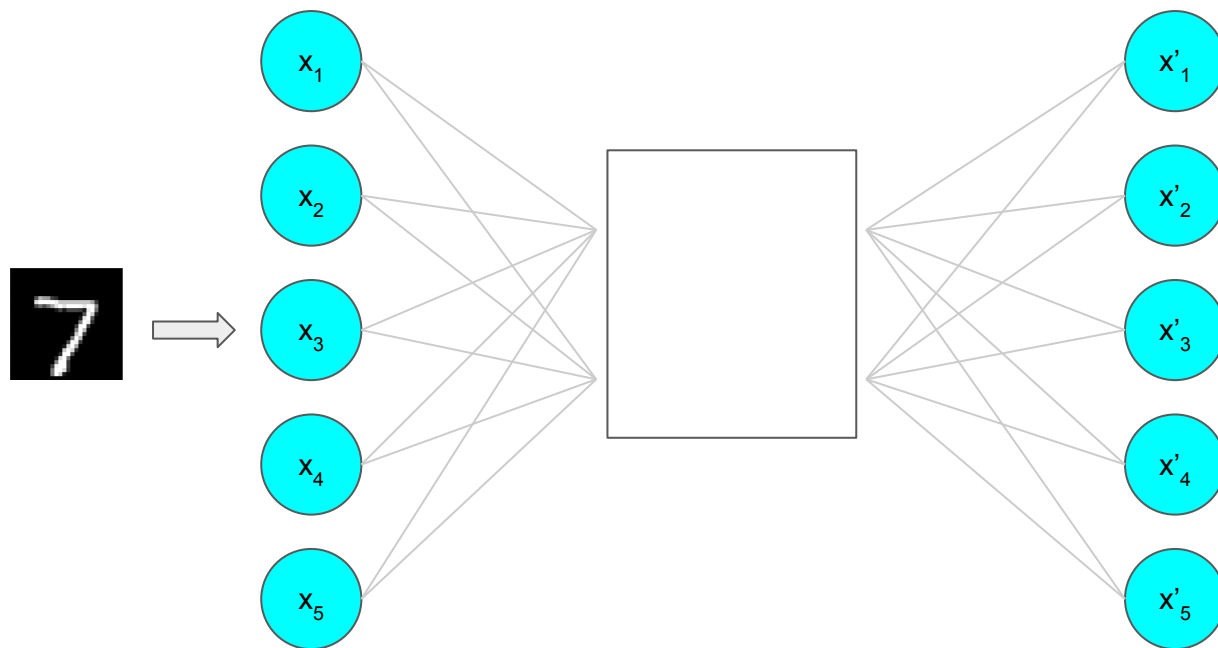
Generation with AEs



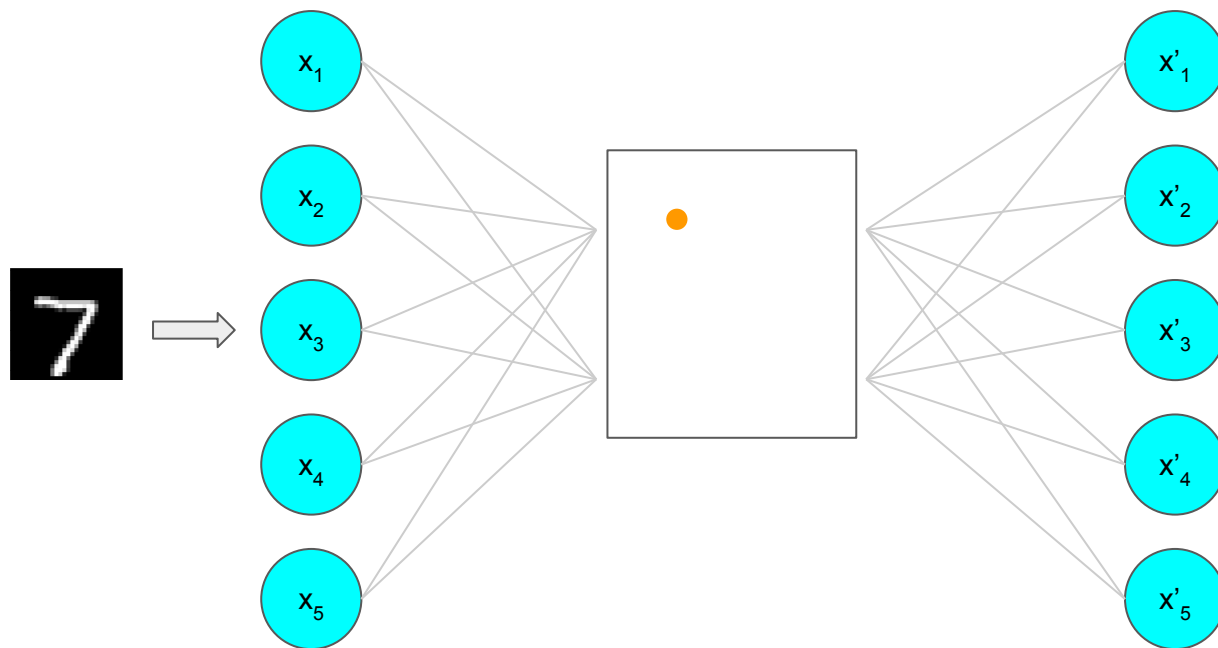
Generation with AEs



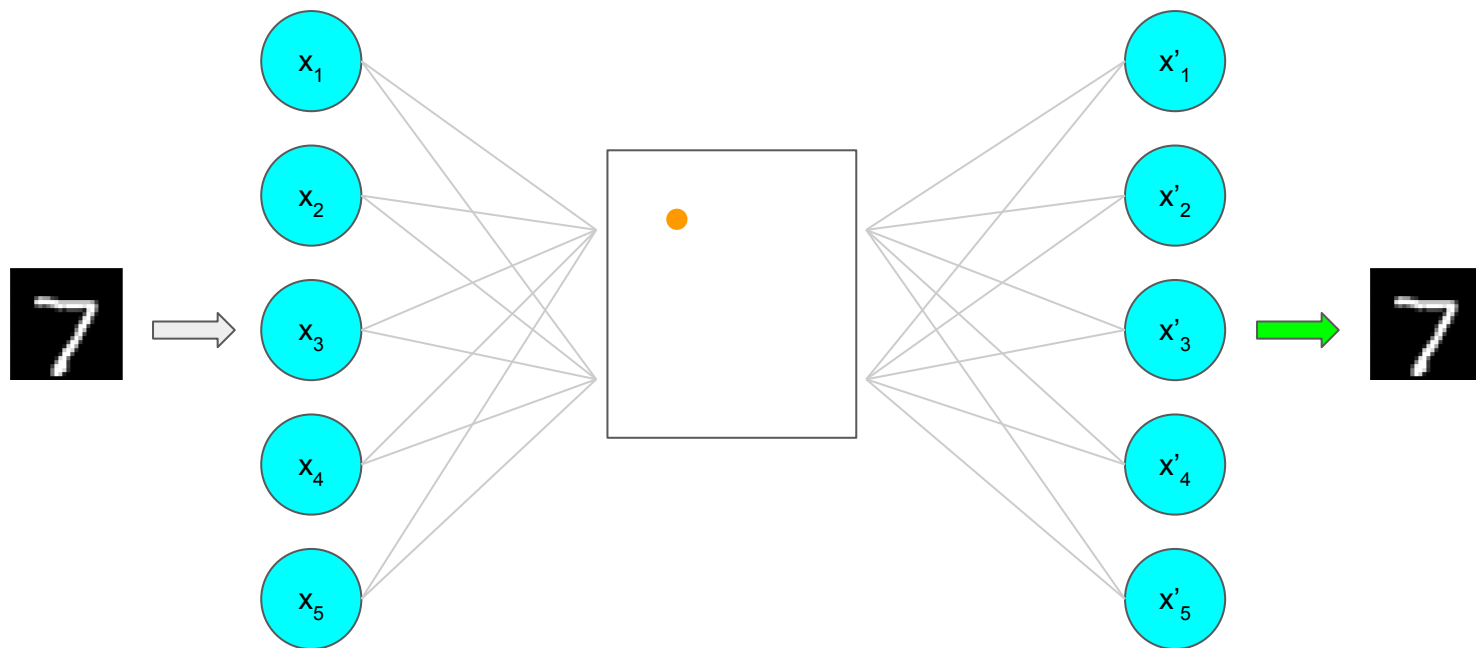
Generation with AEs



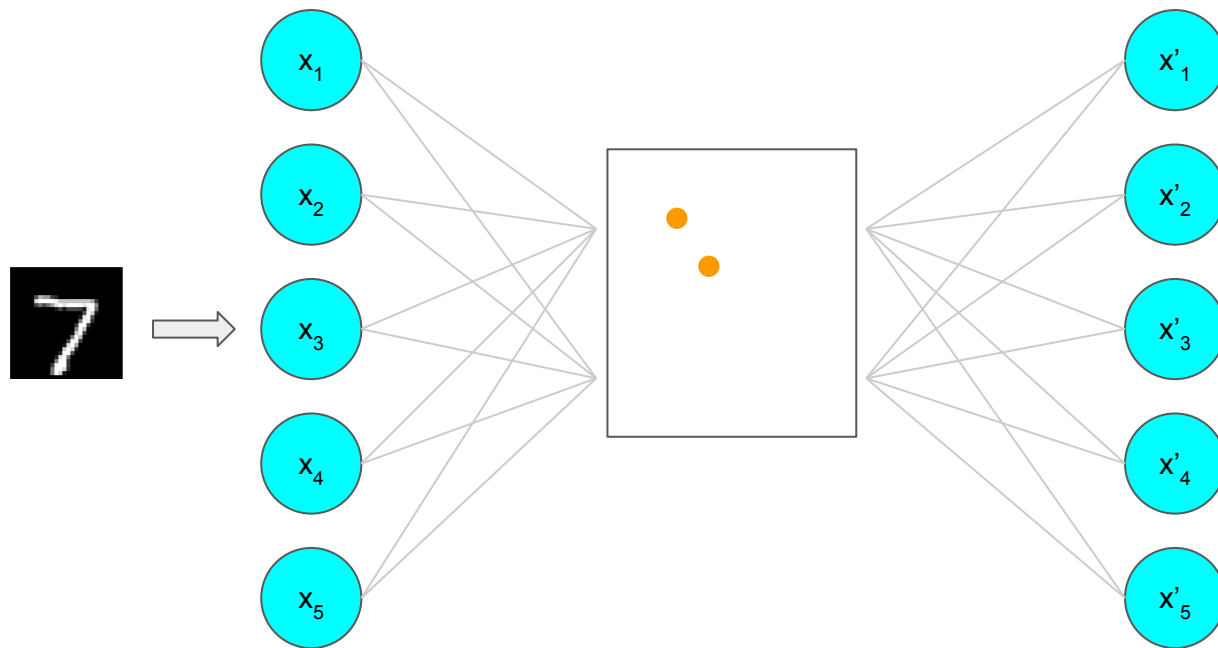
Generation with AEs



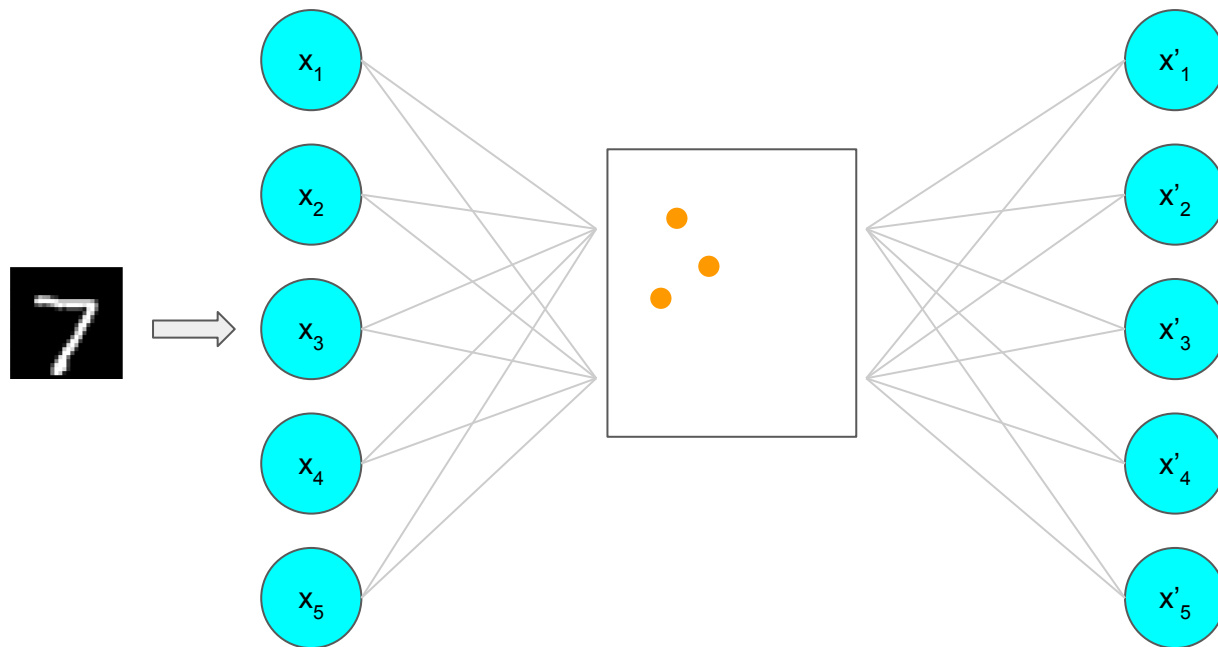
Generation with AEs



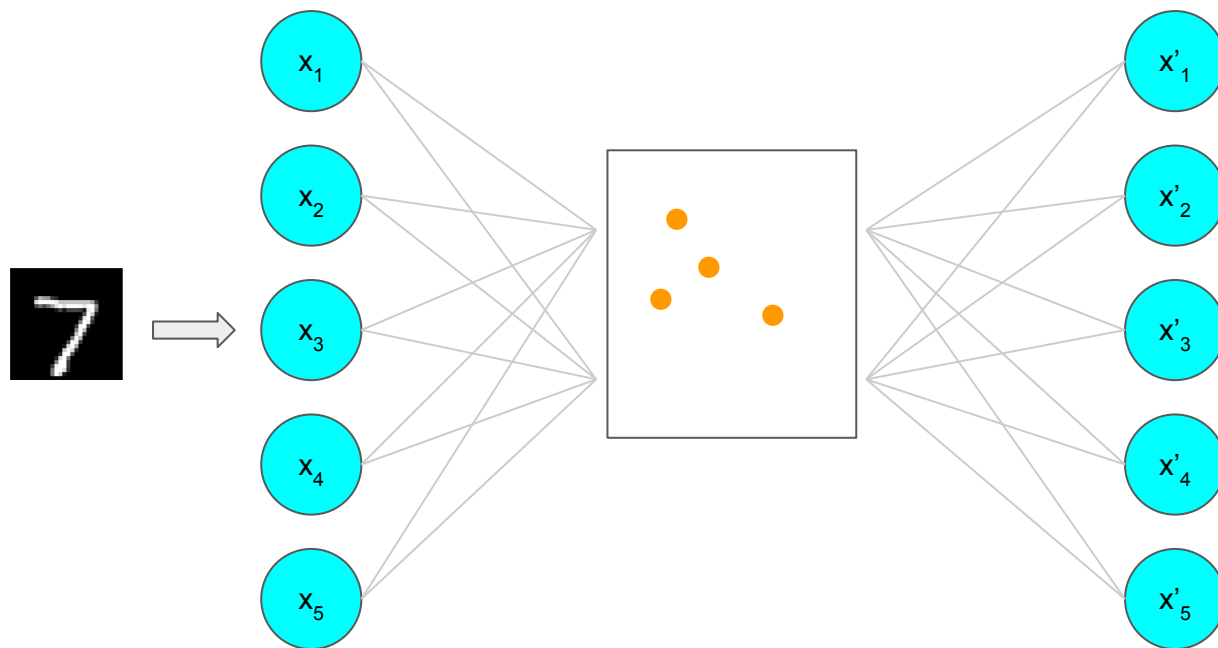
Generation with AEs



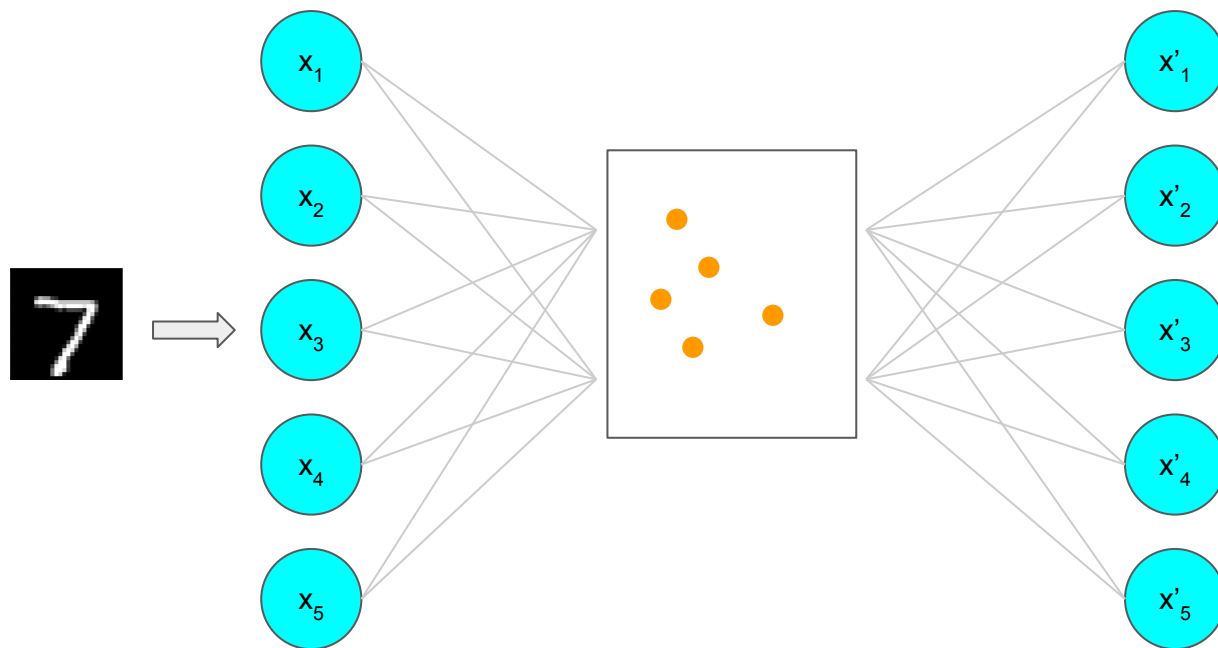
Generation with AEs



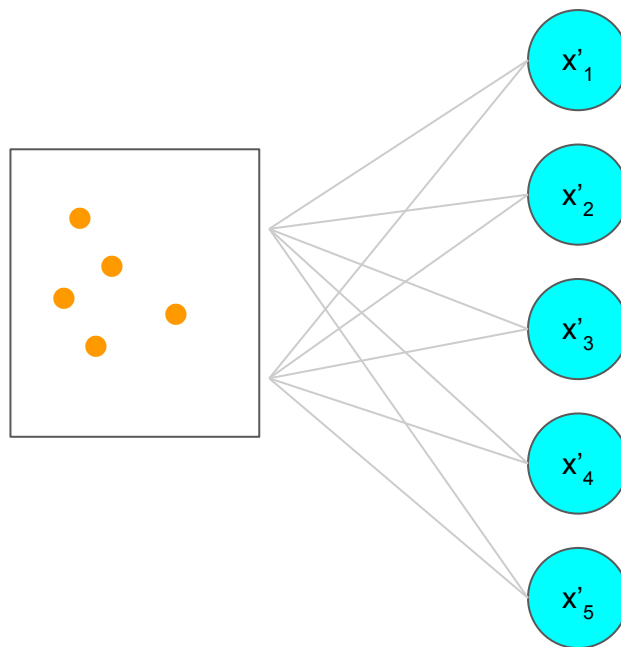
Generation with AEs



Generation with AEs

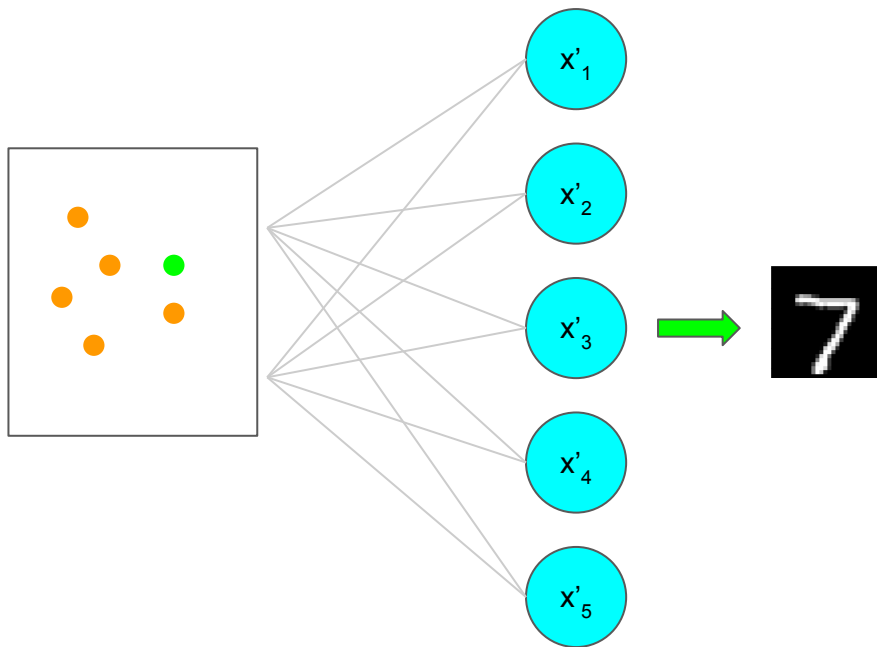


Generation with AEs



Generation with AEs

Sample a point in the latent space and pass it through the decoder



Problems with AEs for generation

The plot isn't
symmetrical around the
origin

Problems with AEs for generation

The plot isn't
symmetrical around the
origin



How do we sample a
point for generation?

Problems with AEs for generation

The plot isn't
symmetrical around the
origin



How do we sample a
point for generation?

Some labels are
represented over small
areas, others over large
ones

Problems with AEs for generation

The plot isn't
symmetrical around the
origin



How do we sample a
point for generation?

Some labels are
represented over small
areas, others over large
ones



Lack of diversity

Problems with AEs for generation

The plot isn't symmetrical around the origin



How do we sample a point for generation?

Some labels are represented over small areas, others over large ones



Lack of diversity

There are gaps between coloured points

Problems with AEs for generation

The plot isn't symmetrical around the origin



How do we sample a point for generation?

Some labels are represented over small areas, others over large ones



Lack of diversity

There are gaps between coloured points



Some generated images will be poor



AutoEncoder



Variational
AutoEncoder

What next?

- Introducing Variational Autoencoders