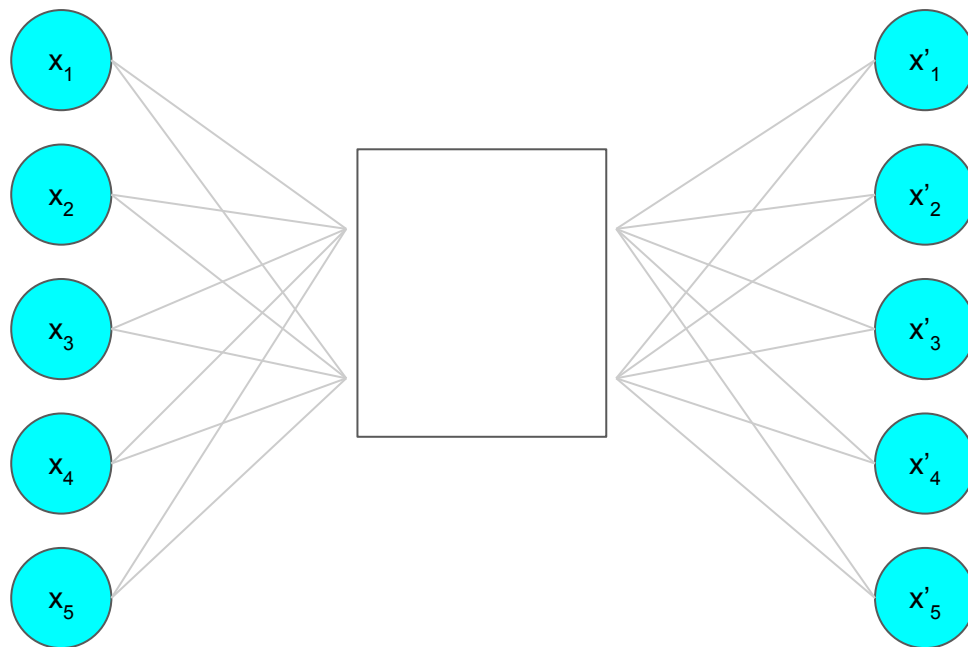


# Generation with AutoEncoders: Results and Limitations

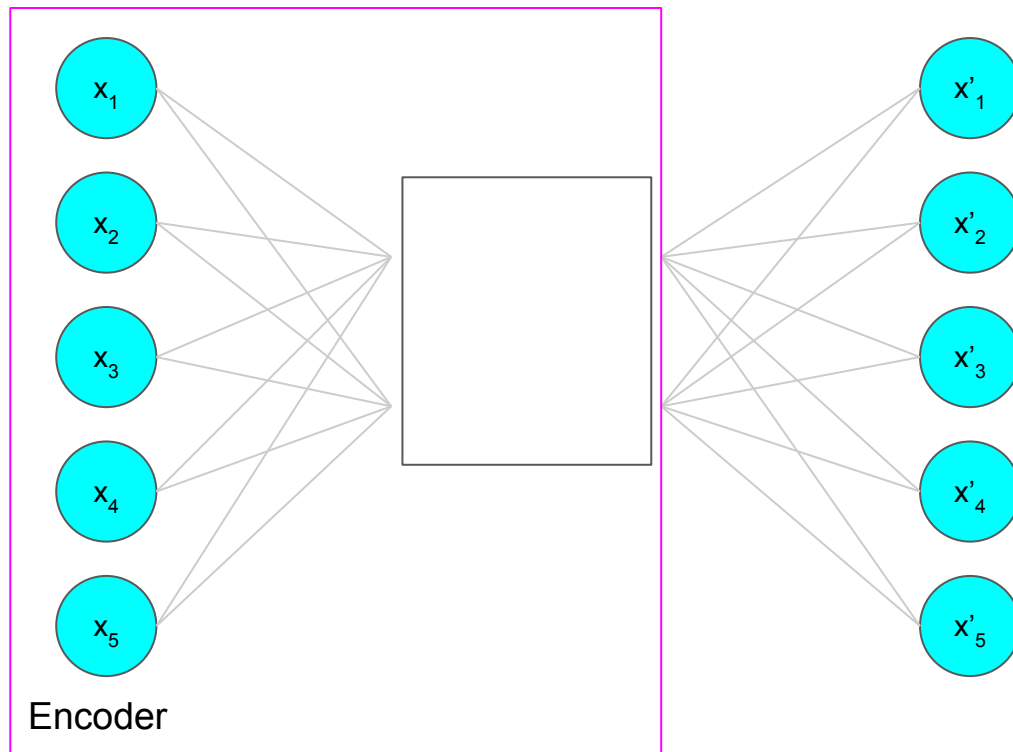
# Generation with AEs

---



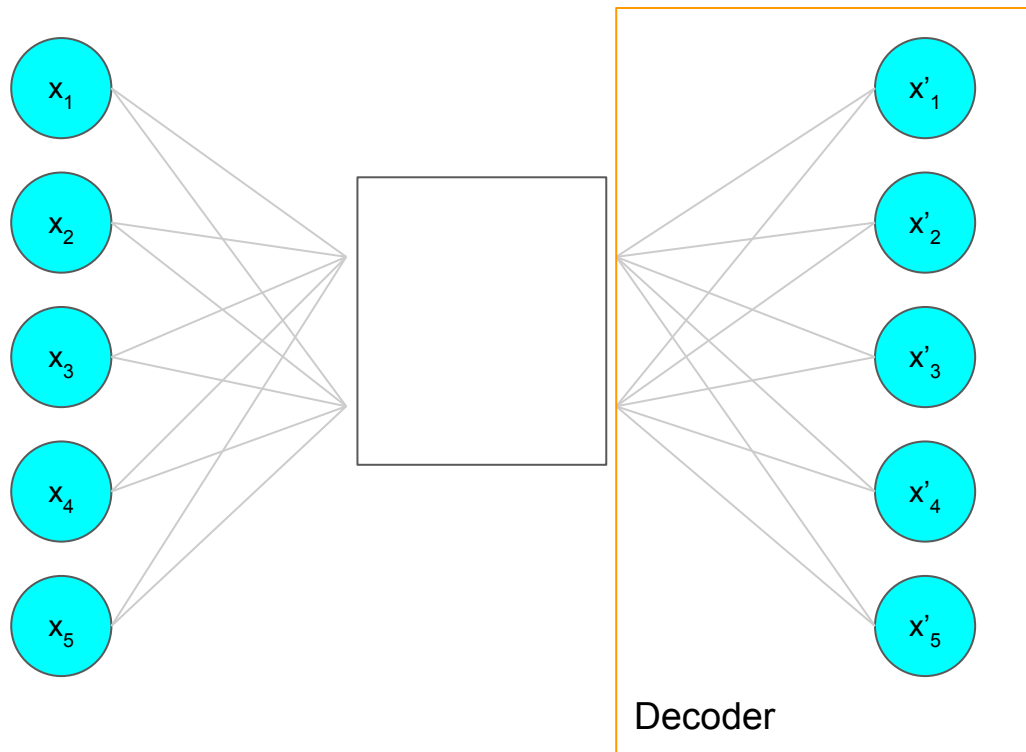
# Generation with AEs

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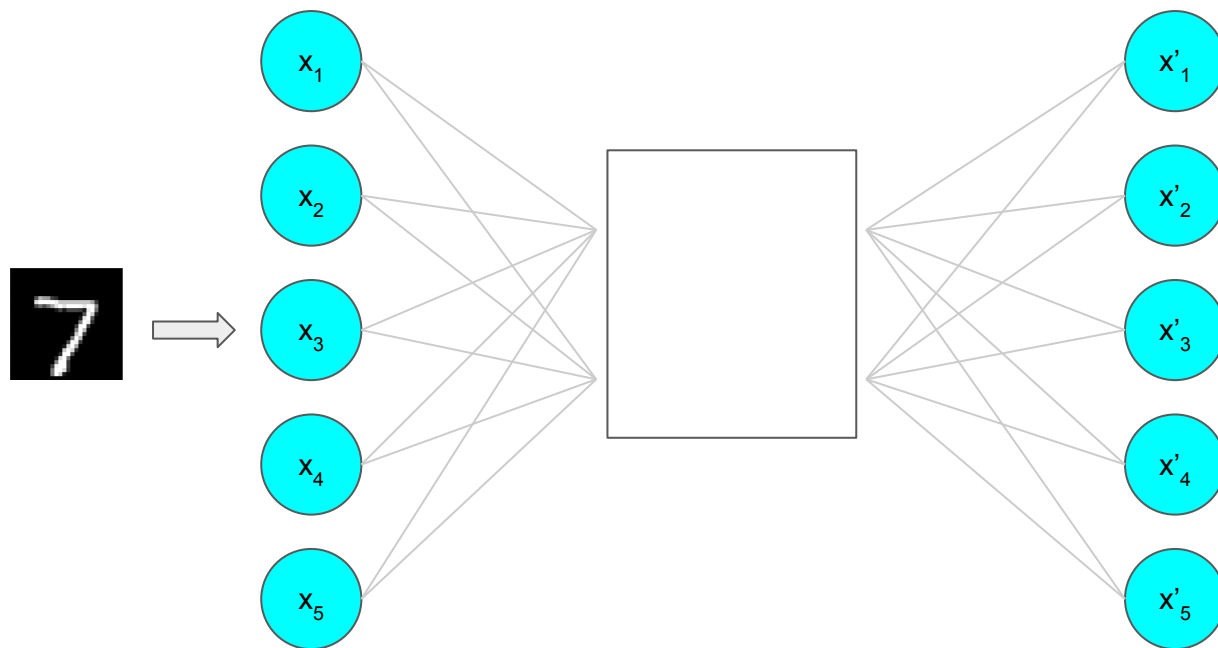
# Generation with AEs

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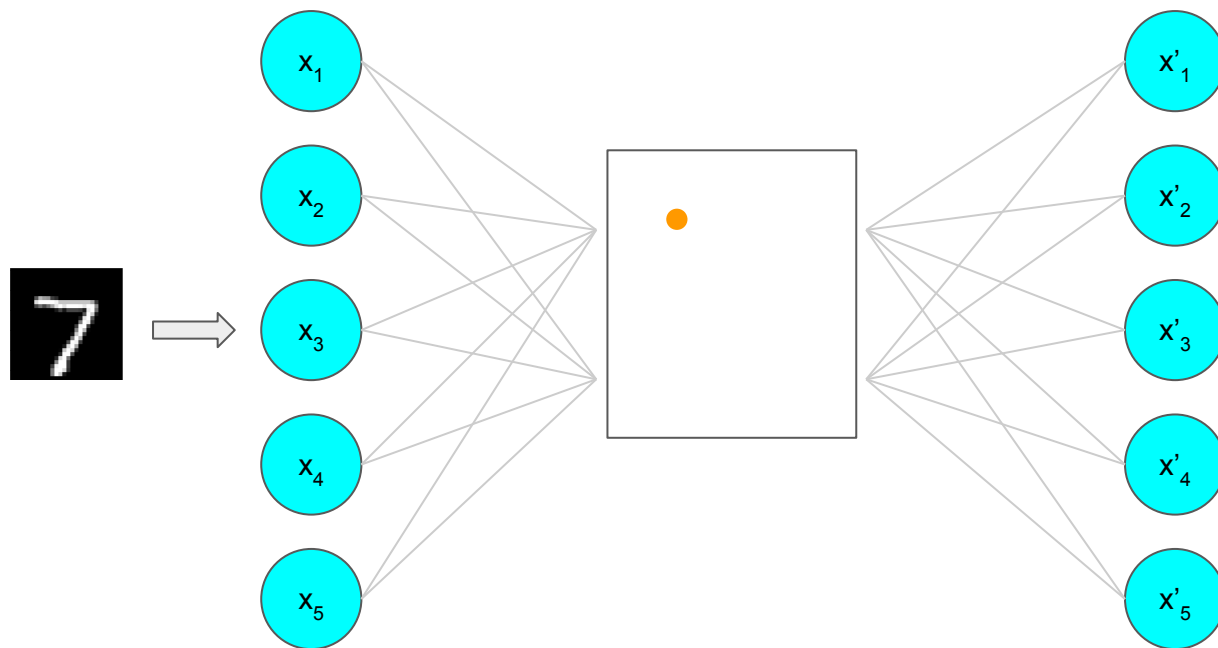
# Generation with AEs

---



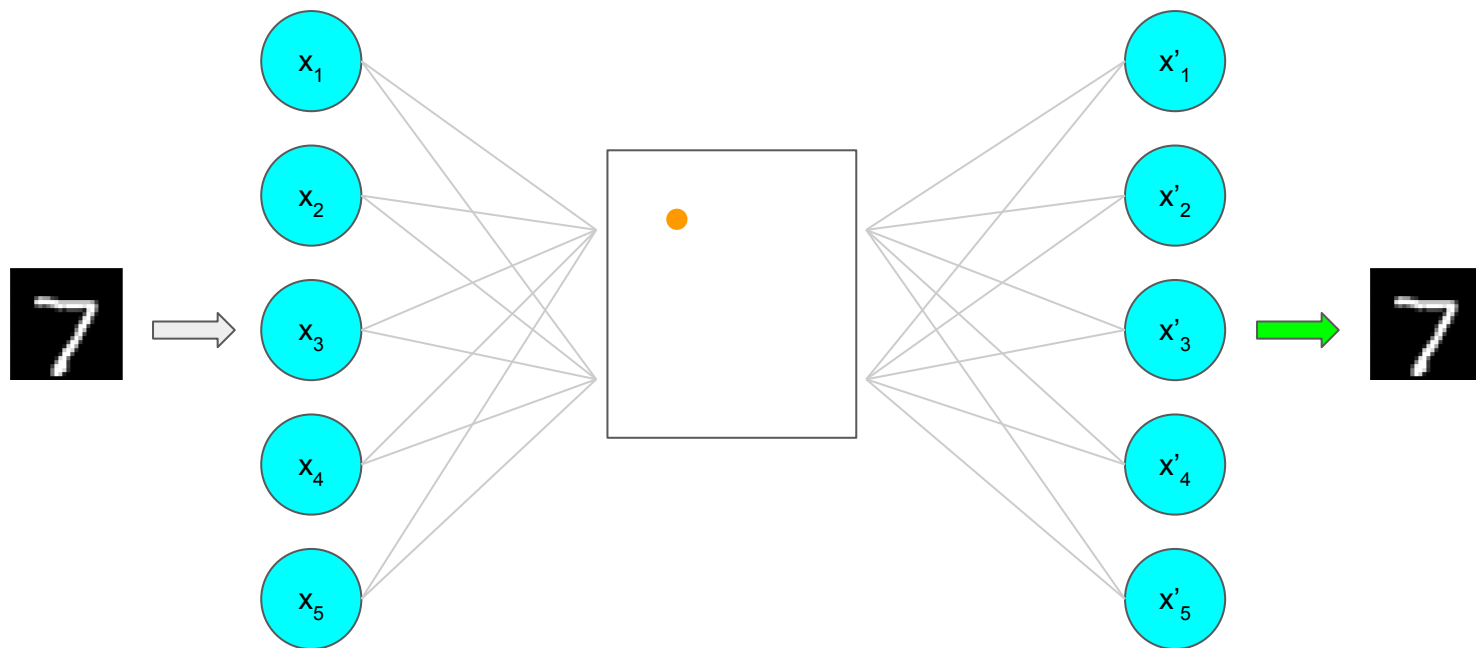
# Generation with AEs

---



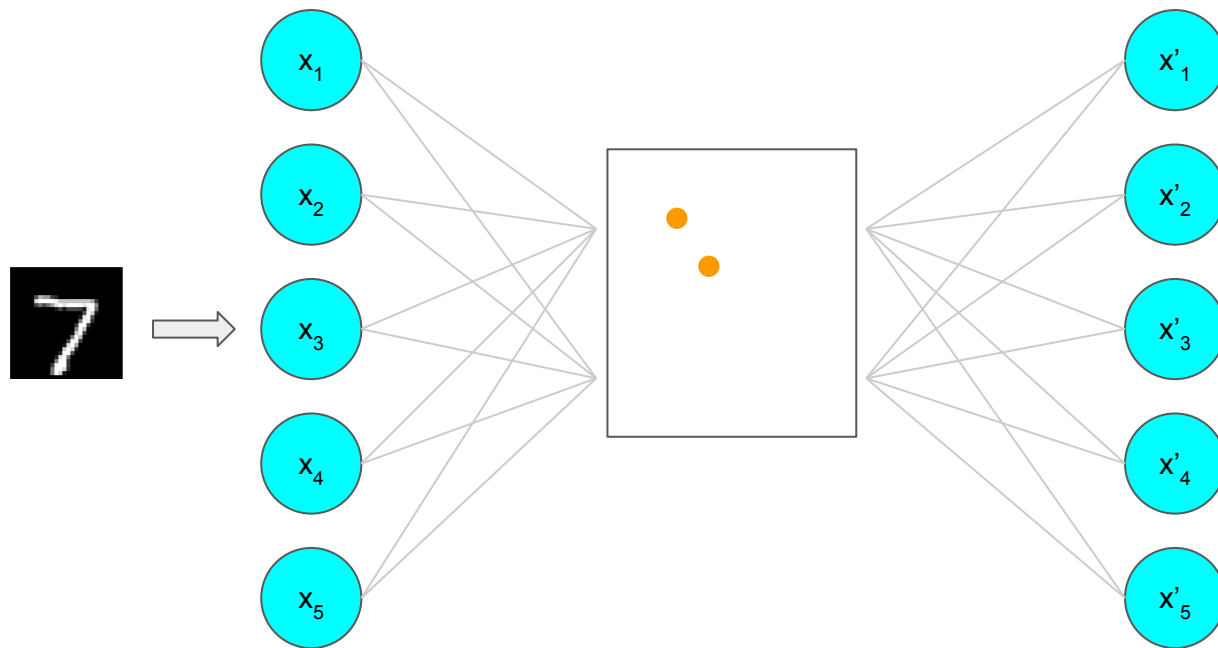
# Generation with AEs

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# Generation with AEs

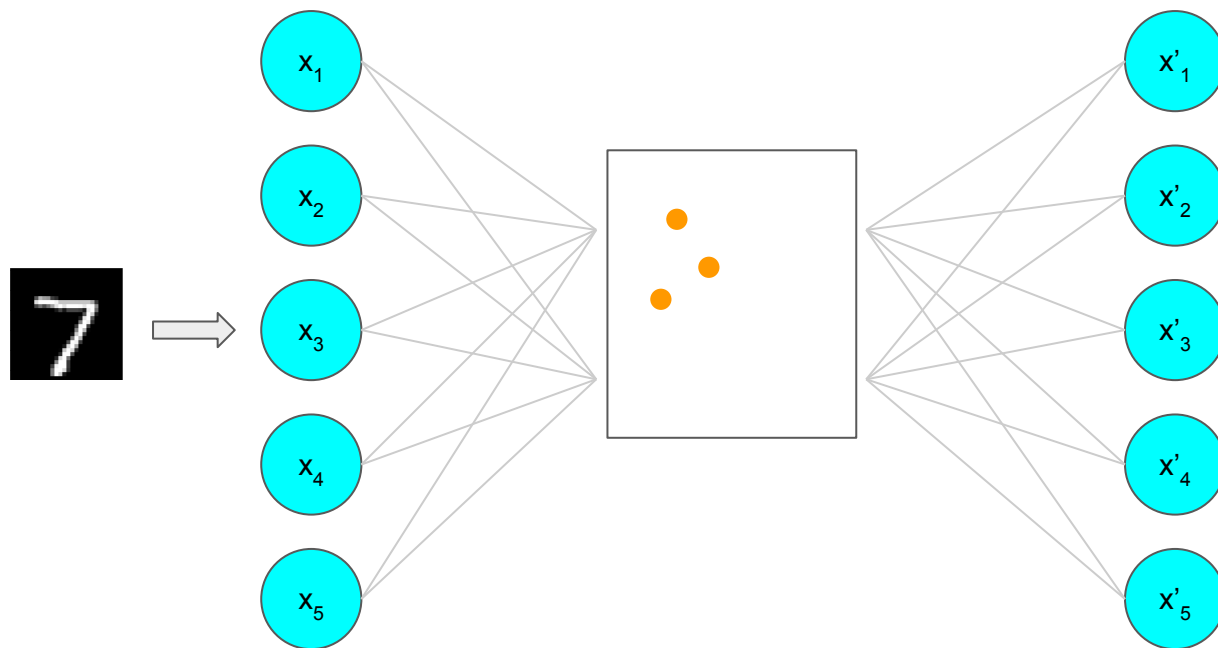
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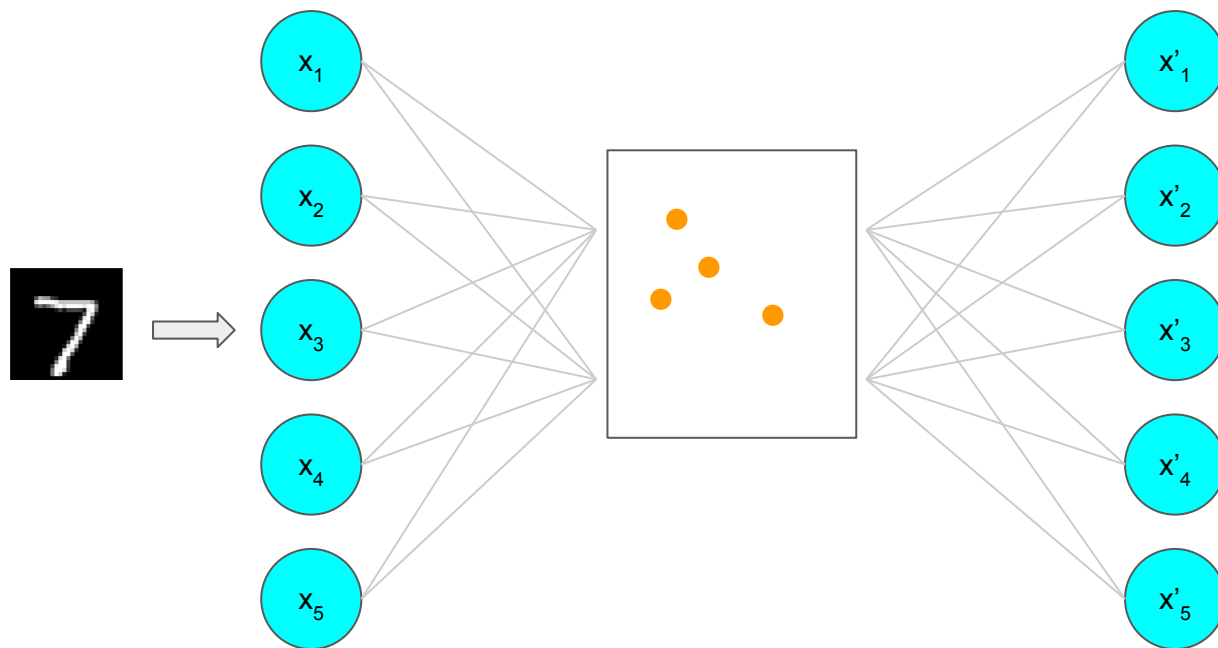
# Generation with AEs

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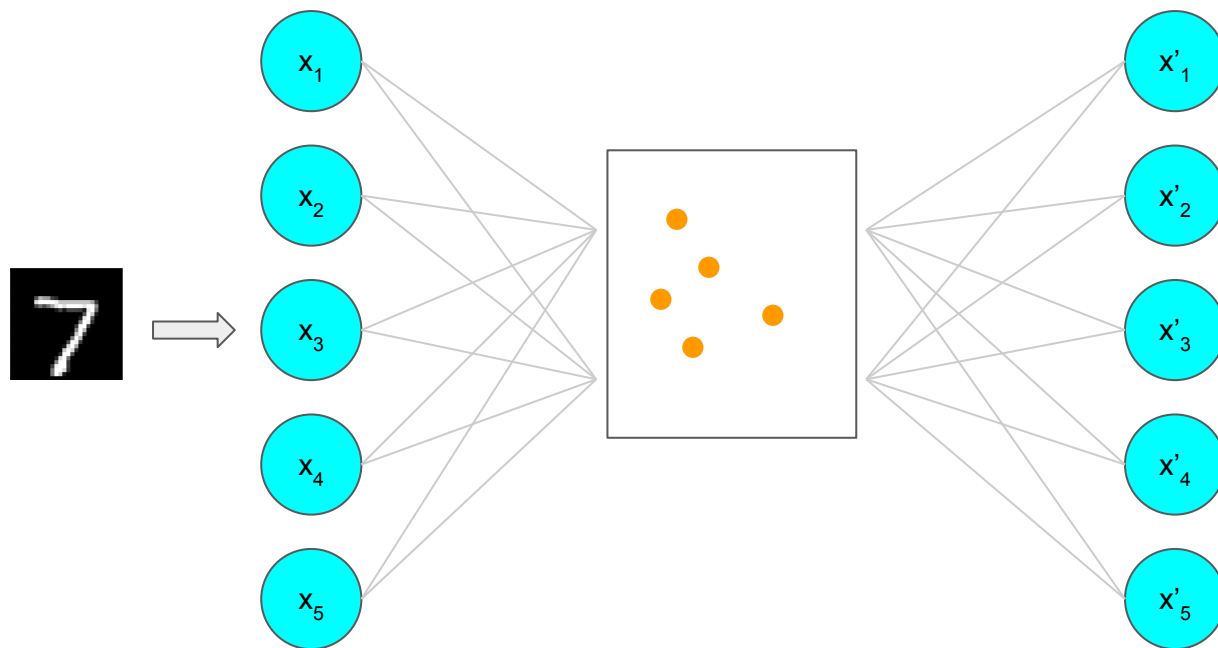
# Generation with AEs

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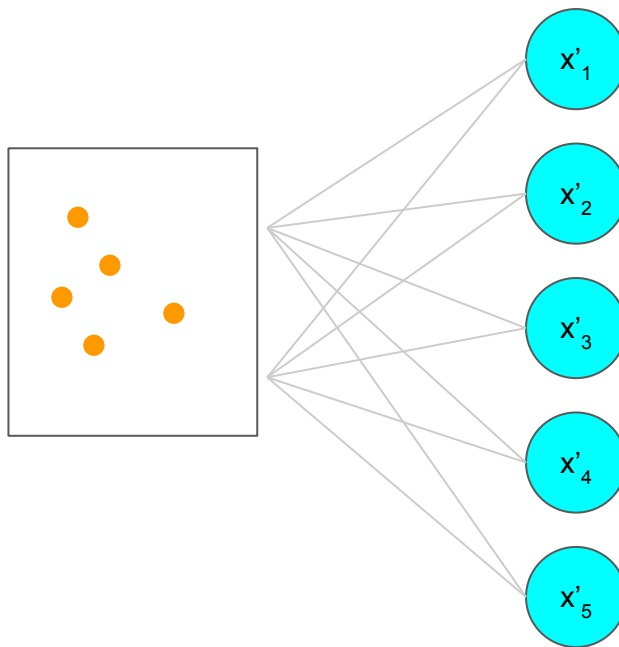
# Generation with AEs

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# Generation with AEs

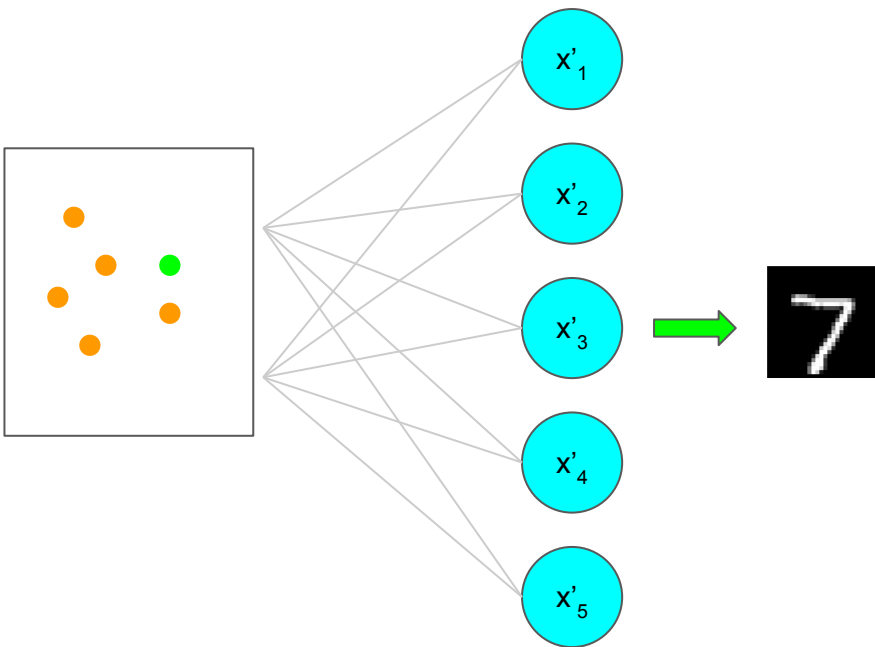
---



# Generation with AEs

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



# Problems with AEs for generation

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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?

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- Introducing Variational Autoencoders