Generative Adversarial Networks (GANs)

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Overview

Generative Adversarial Networks (GANs):

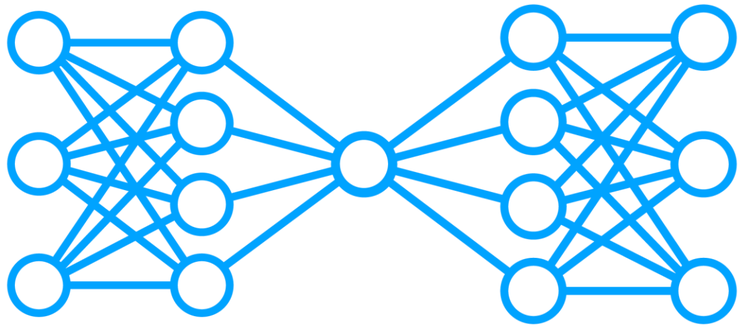
- Challenging, but rewarding
- Machine learning technique
- Generate synthetic, but realistic data
- Indistinguishable from real data
- Difficult to train
- Unstable sometimes
- Architecture of GANs
- Challenges

Generative Adversarial Networks (GANs)

Type of neural network

Creates realistic images, text

GANs Architecture



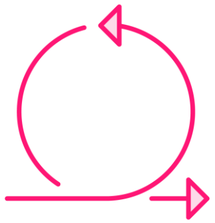
Two Networks

Generator and discriminator

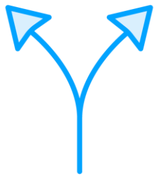
Creates Realistic

Images, text, etc.

GANs Training Process



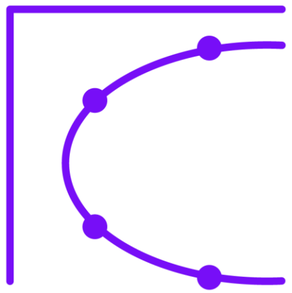
Generator improves its creations



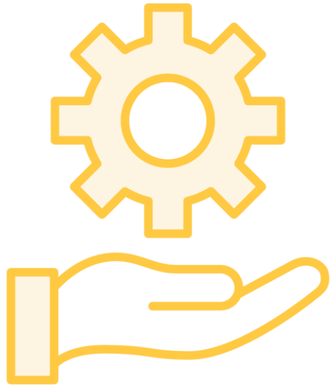
Discriminator gets better at distinguishing

Generator produces indistinguishable data

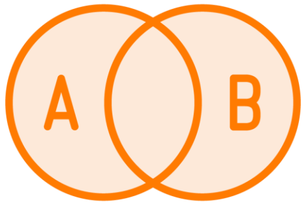
GANs Challenges



Tricky to train



Sensitive to settings

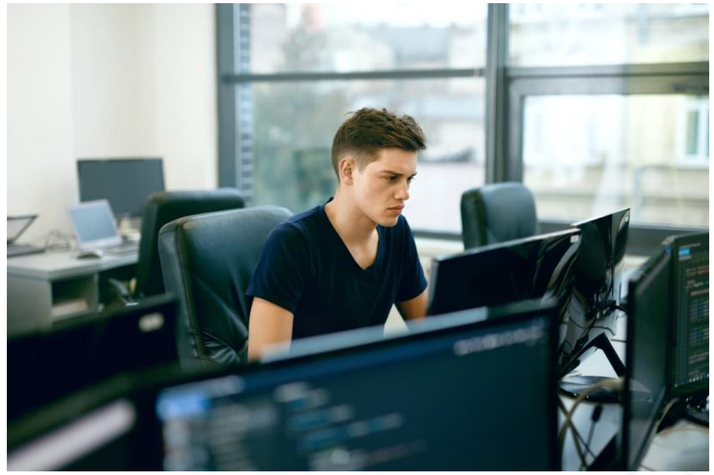


Use adversarial loss

GANs Application

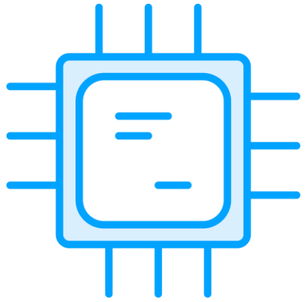
Fashion industry: Automate outfit designs

Compelling product descriptions



Personalized recommendations

GANs Application

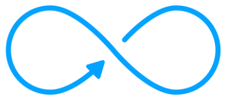


Nvidia

Insilico Medicine

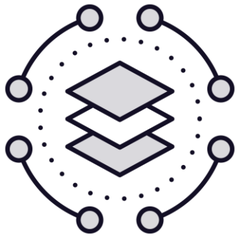
Nike, Diesel, Fashion++

GANs Application



Continuously evolving

Diverse applications



Creates content based on patterns

Demo

Review of successful GANs use cases

Summary

Generative Adversarial Networks (GANs):

- Powerful data generation
- Architecture
- Generator and discriminator
- Challenging to train
- Sensitive
- Potential-rich
- Fashion industry
- Medical industry
- Careful handling
- Adversarial nature