Insight
SFI RESEARCH CENTRE FOR DATA ANALYTICS

Women in AI Ireland

Generating Images from Text

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Have you seen these images?

https://www.newscientist.com/article/2366312-should-you-be-worried-that-an-ai-picture-of-the-pope-went-viral/

https://www.news18.com/buzz/ai-generated-pics-show-how-billionaires-would-look-if-they-were-poor-7511365.html

Introduction

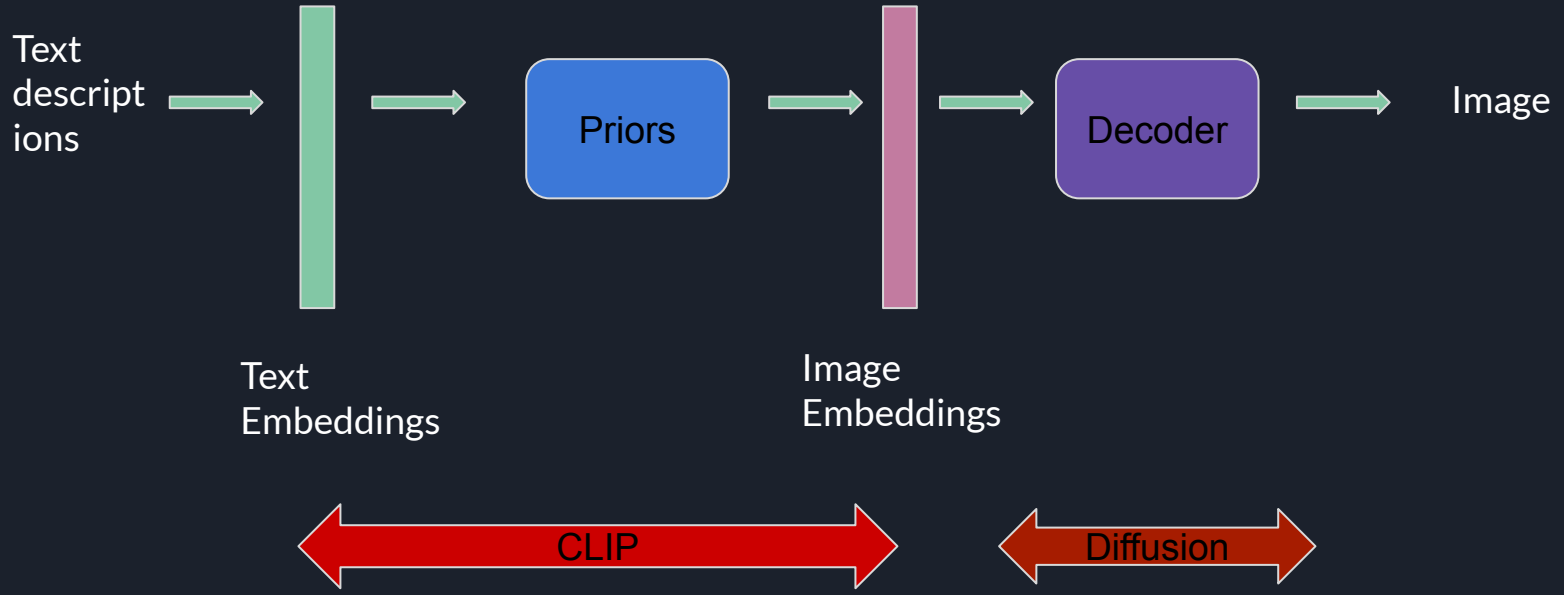
- A multimodal visual-linguistic model that generates images from text descriptions.

- DALL-E
- Stable Diffusion
- Midjourney

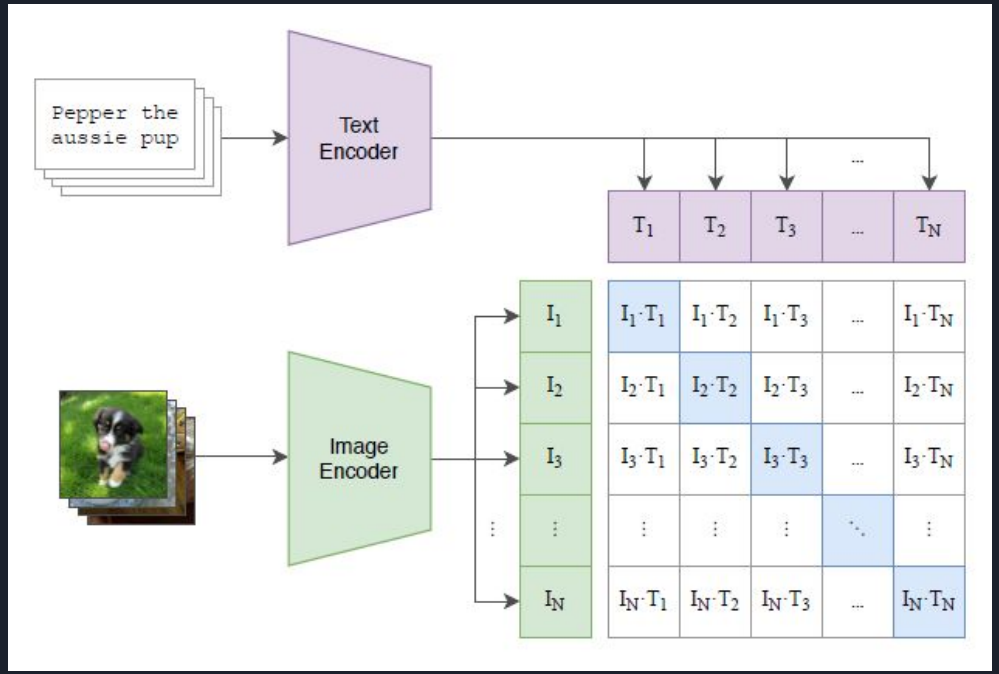
https://jrodthoughts.medium.com/inside-dall-e-2-openai-upgraded-supermodel-that-can-generate-artistic-images-from-text-4f3313d18f1c

Architecture

- Consists of two parts: CLIP and Diffusion

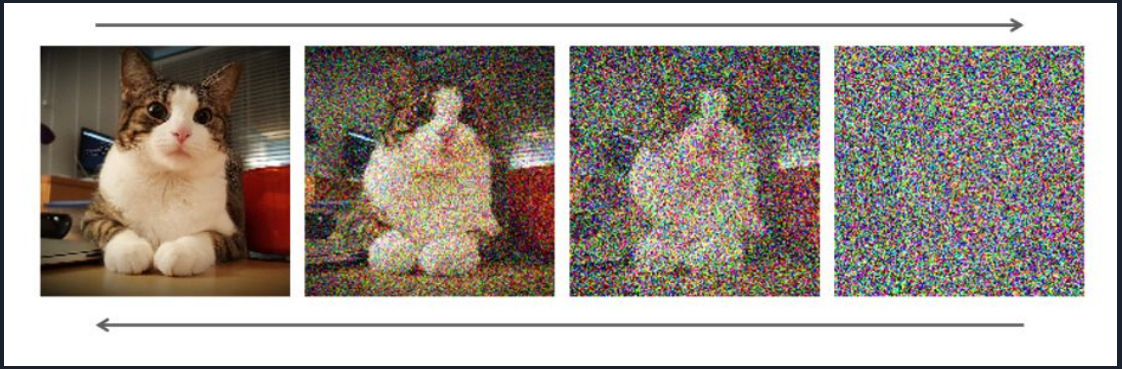


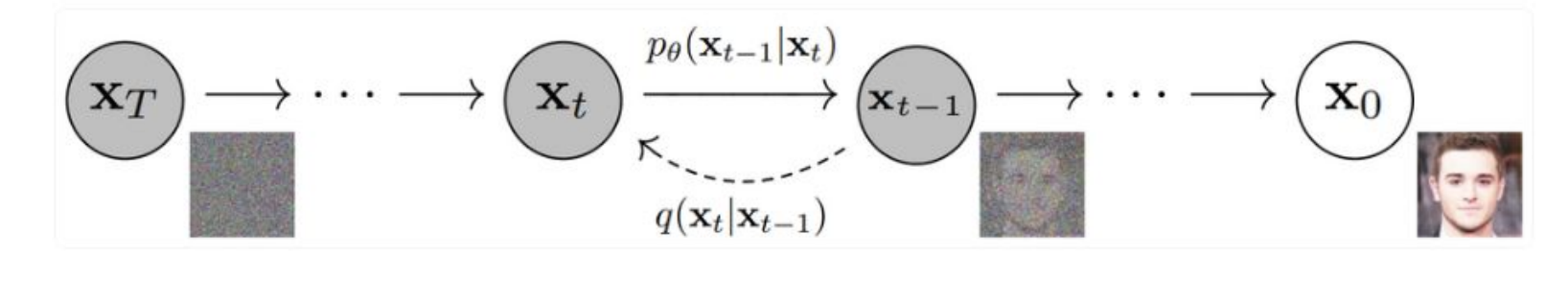
CLIP: Contrastive Language Image Pre-training



Radford, Alec, et al. "Learning transferable visual models from natural language supervision." International Conference on Machine Learning. PMLR, 2021.

Diffusion Models





Top: https://developer.nvidia.com/blog/improving-diffusion-models-as-an-alternative-to-gans-part-1/
Bottom: https://www.assemblyai.com/blog/how-dall-e-2-actually-works/

Prompt Engineering

Text to Image Models

Anatomy of a Prompt

subject placement context camera

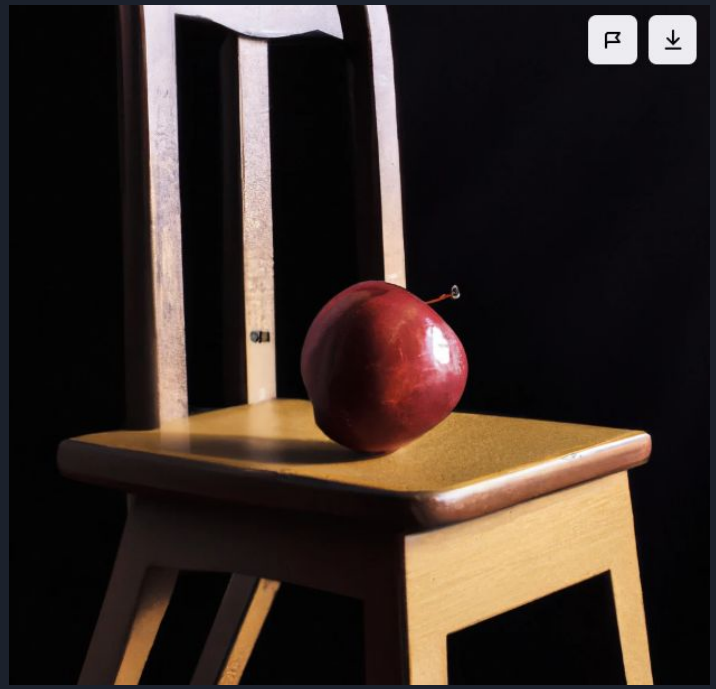
An apple on a sidewalk of Hong Kong, EOS 7D, 24mm f/8, bokeh effect

extra settings/style

Realistic Photography

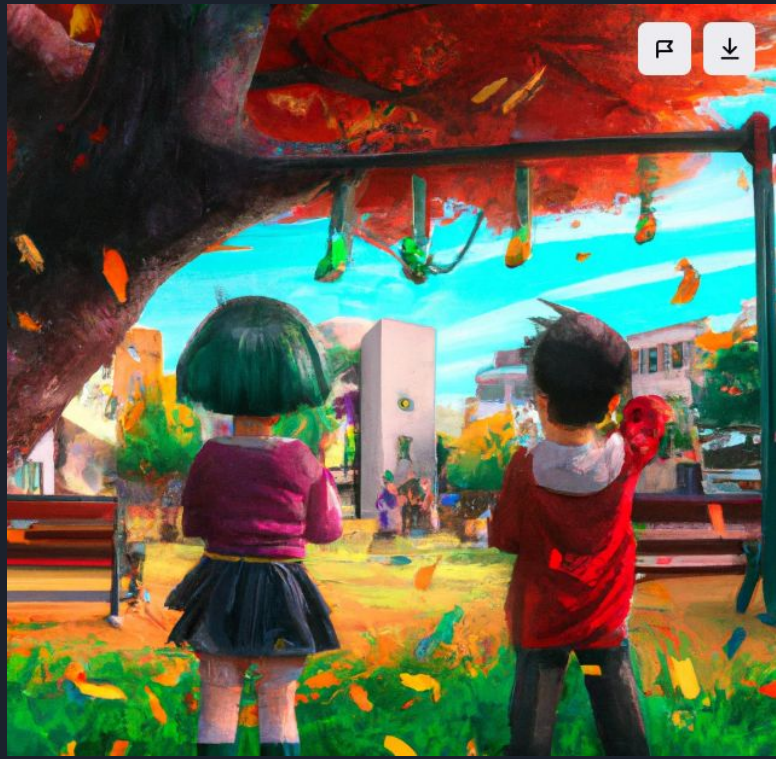
An apple on a sidewalk of Hong Kong, EOS 7D, 24mm f/8, fishbowl effect

An apple on a chair, EOS 7D, 24mm f/8, studio lighting



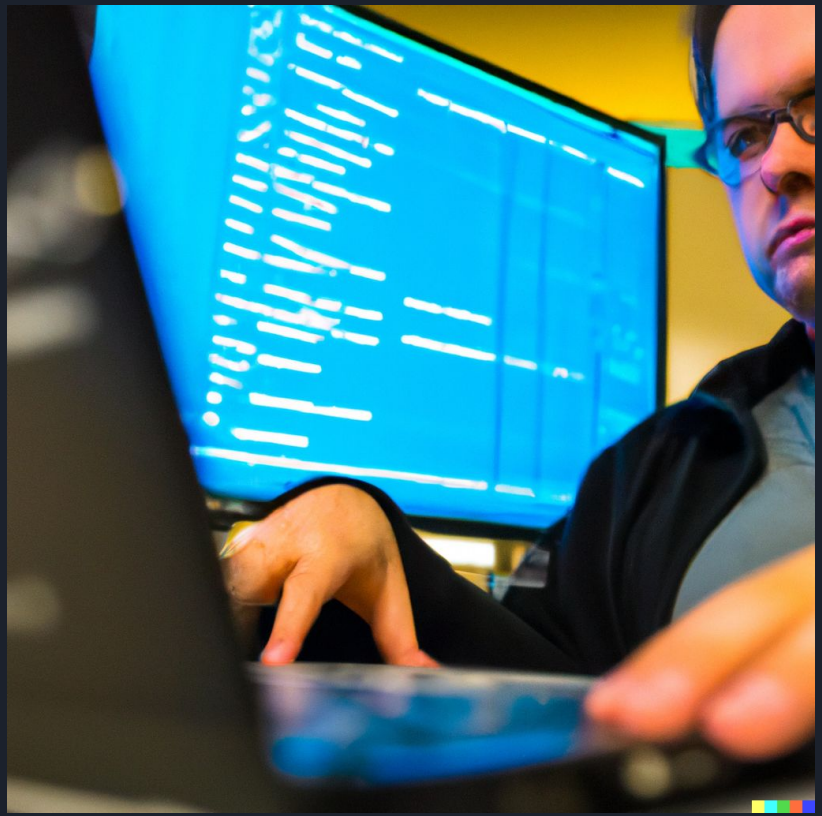
Children playing in spring in a village near the Swiss Alps, impressionist art, Claude Monet, high quality

Anime children playing in autumn in a city park in Tokyo, sharp, detailed, anime style, cinematic lighting



Bias in Generative AI

A photorealistic image of a data scientist working hard



An image of a parent cooking dinner for kids

An image of a parent teaching a child baseball

An image of a flight attendant smiling

An image of a feminist

ARMMIUN
LEMIAL
FIMINI

FIMENISM

Questions?

Thank You!