Generative imagery: From autoencoders to Stable Diffusion and beyond

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Abstract (300 word limit)

Generative AI is a booming field, so many applications are getting solved using this technique of generation. Synthetic data, deep fakes, prompt based image generation - all use Generative AI. But where did it all start ? In this talk, we start from the basics of generative AI -right from variational autoencoders, boltzmann models, GANs and recent ideas such as stable diffusion and beyond such as 3D generative AI, NVIDIA NeRF.

The talk enables the listeners to learn about this booming field as a general audience - it doesn't require one to be an expert AI scientist, since the talk is designed at the popular level.

We will also see some fun demos from multiple eras of generative AI explaining these amazing ideas in an easy to understand manner.

Image

Recent Publications (minimum 5)

1. High-Resolution Image Synthesis with Latent Diffusion Models

   Robin Rombach, Andreas Blattmann, Dominik Lorenz, Patrick Esser, Björn Ommer
2. Hierarchical Text-Conditional Image Generation with CLIP Latents (DALL-E 2)
3. An Image is Worth One Word: Personalizing Text-to-Image Generation using Textual Inversion7.
4. DreamFusion: Text-to-3D using 2D Diffusion
5. DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation

Photograph



Biography (150 word limit)

Umang is a Senior Data scientist and Author with years of experience building Deep learning solutions in multiple areas of Computer vision, NLP, RL and few more. He has authored the book "Deep learning with TensorFlow JS Projects". He has developed some of the cutting edge AI solutions in multiple industries such as Finance, Power, Retail and currently works for a leading tech product firm. He has been National Science Academies' Summer Research fellow while aged 19 years old. Umang has also been a keynote speaker in multiple national and international conferences. With his talks/lectures he has imparted ML knowledge to 2000+ participants, most recently he was an invited speaker at Indian institute of Management. He is also one of the earlier contributors to Google colab (then called Google datalab). Umang is one of early adopters of TensorFlow JS and has spoken about it in various conferences including Google DevFest.

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Notes/Comments: