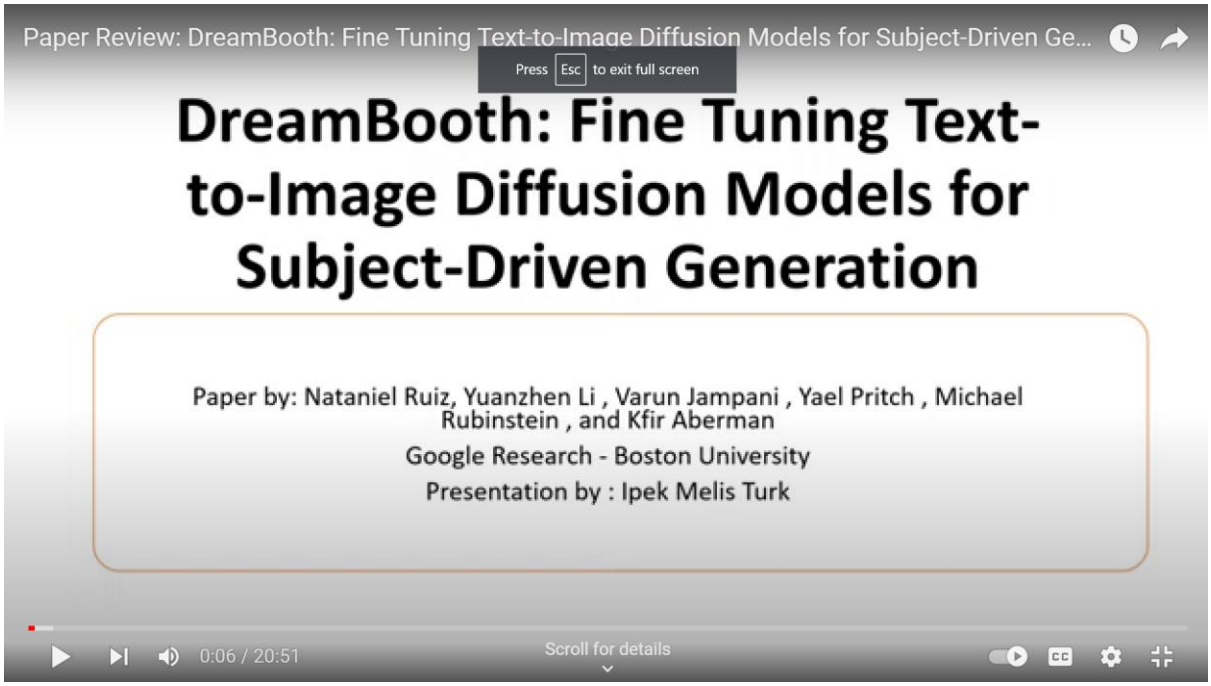
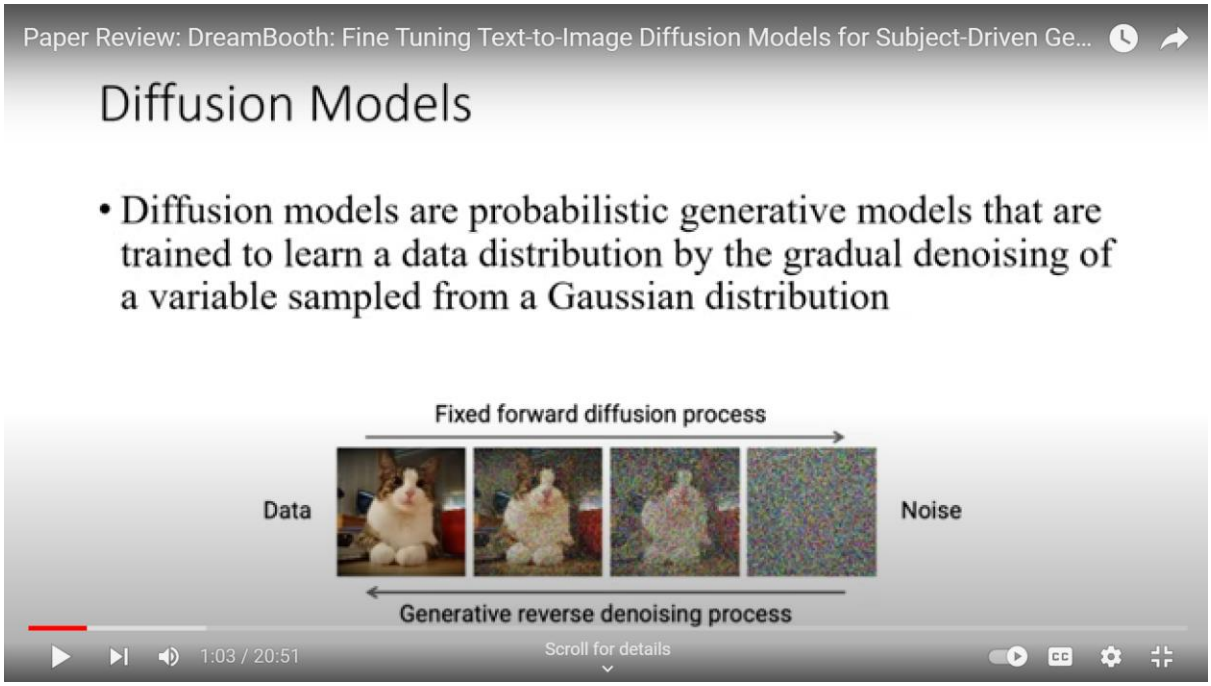
# Paper Review: DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation




Quality Tuning: we have the original img – just enhance it

But Quality Tuning using diffusion models is a whole new story. There is nothing original abt diffusion models unlike quality tuning where you're basically just making slight modifications to the original img.



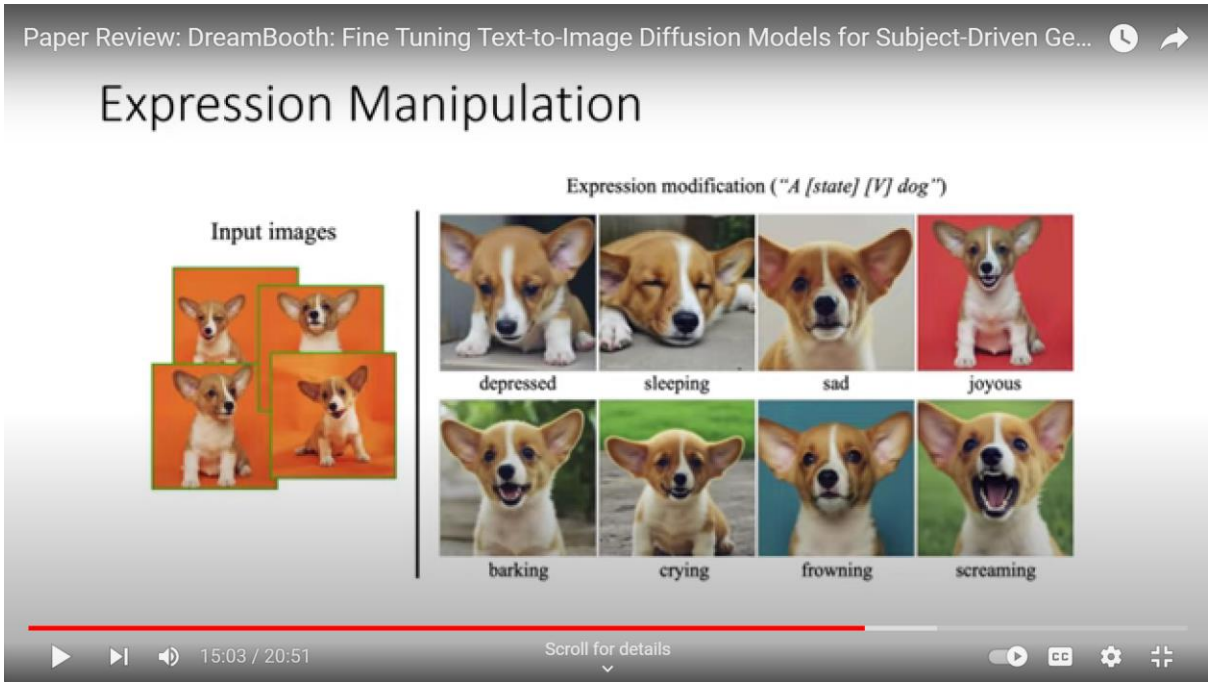

Now quality tuning using diffusion model is the clubbing of both these stand alone concepts. Whatever low quality img/ product we acquire at the end of the denoising process, we apply quality tuning to that end product and make it high resolution, more aesthetically pleasing.

What are we exactly doing?

- A few images of a subject (the more you input, the better)
- Represent a given subject with rare token identifiers
- generating a low-resolution image from text
- subsequently applying super-resolution (SR) diffusion models

Now there are many models which can do this but I have chosen DreamBooth for one main reason and that is RECONTEXTUALIZATION…

Let me give u an example by talking about expression manipulation.

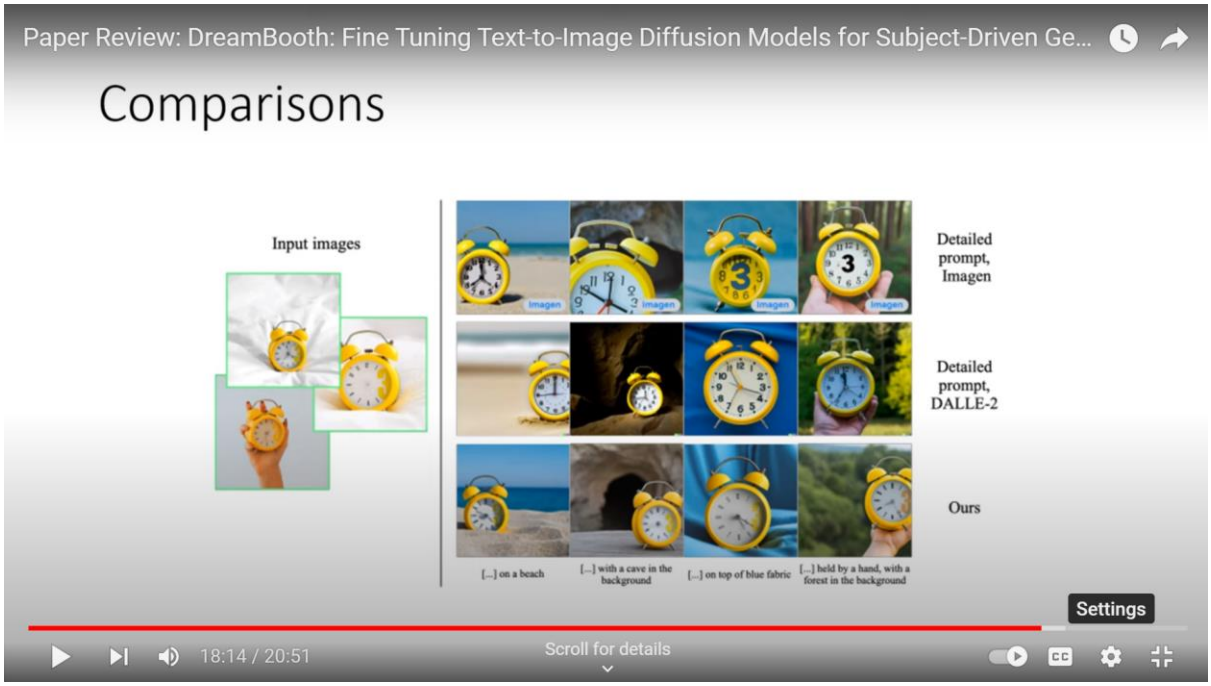



The new images generated are completely made from scratch. For eg. Look at the screaming img. You will not find anything like that or perhaps even close to that in the input images but thanks to Dreambooth we have successfully managed to generate a whole new image without changing the context.

Same goes to property modification


The input image is of a white car but we can generate the same car with the same hardware features only with diff colours without degrading any of its other features.

One thing we must keep in mind is that fine tuning using images of subjects without prior preservation loss results in language drift which basically means the new generated image is completely different from our input image.




In imagen and dalle2 there is no fidelity (similarity to original img) but there is new context (change in background) What we are planning to make is something which has both fidelity and new context.