



FINETUNING SDXL

For your own images

Introduction to Generative AI Workshop 2024



Devnith Wijesinghe

3rd year engineering undergraduate

Department of Electronic and Telecommunications Engineering
University of Moratuwa

Deep Learning

Signal Processing

Embedded AI

1. Background
2. Finetuning models
3. Dreambooth
4. AutoTrain

I want to train my own model from scratch

BACKGROUND



DALL·E 3

PAID



Midjourney v5

PAID

stability.ai

Stable Diffusion

OPEN-SOURCE

**“THE PROCESS
COST OVER
\$ 100 MILLION”***

Sam Altman
CEO, OpenAI



*<https://www.wired.com/story/openai-ceo-sam-altman-the-age-of-giant-ai-models-is-already-over/>

Okay it's too expensive! What can I do?

FINETUNING MODELS



Studio Ghibli Style LoRA

Source: <https://huggingface.co/ntc-ai/SDXL-LoRA-slider.Studio-Ghibli-style>



Isometric World Style LoRA

Source: <https://civitai.com/models/28531/minature-world-style>

When to Finetune?

Specific face

Specific style/pattern

Reduce mistakes

Should I finetune?

YOUR DOG



Yes

Should I finetune?

PIZZA



No Need

DreamBooth

dreambooth.github.io

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

[Nataniel Ruiz](#) [Yuanzhen Li](#) [Varun Jampani](#) [Yael Pritch](#) [Michael Rubinstein](#) [Kfir Aberman](#)

Google Research



Input images



in the Acropolis



swimming
sleeping
in a doghouse
in a bucket

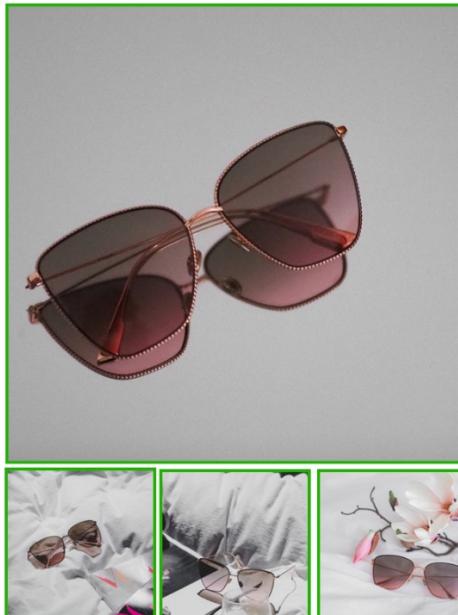


getting a haircut

It's like a photo booth, but once the subject is captured, it can be synthesized wherever your dreams take you...

How can this help me?

Input images



A [V] sunglasses in
the jungle



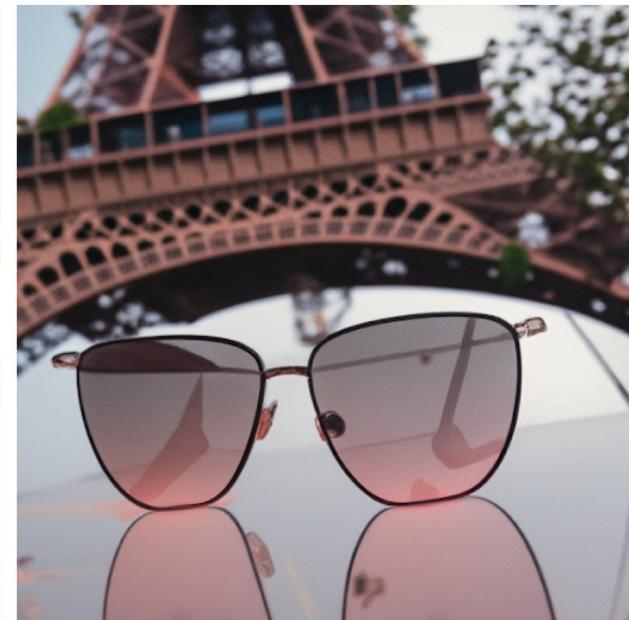
A [V] sunglasses
worn by a bear



A [V] sunglasses at
Mt. Fuji



A [V] sunglasses
on top of snow

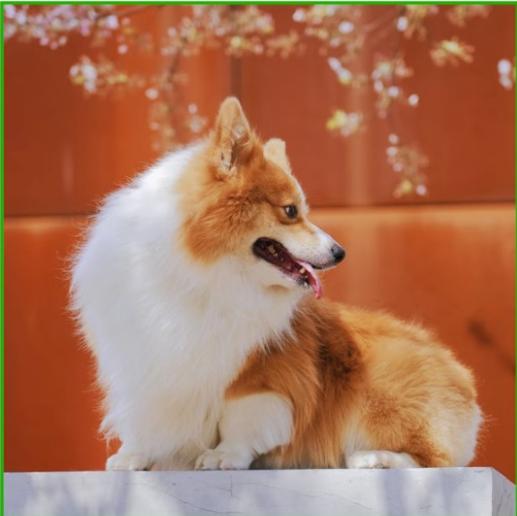


A [V] sunglasses with Eiffel
Tower in the background

Generate content for your product

How can this help me?

Input images



A [V] dog in the
Versailles hall of mirrors



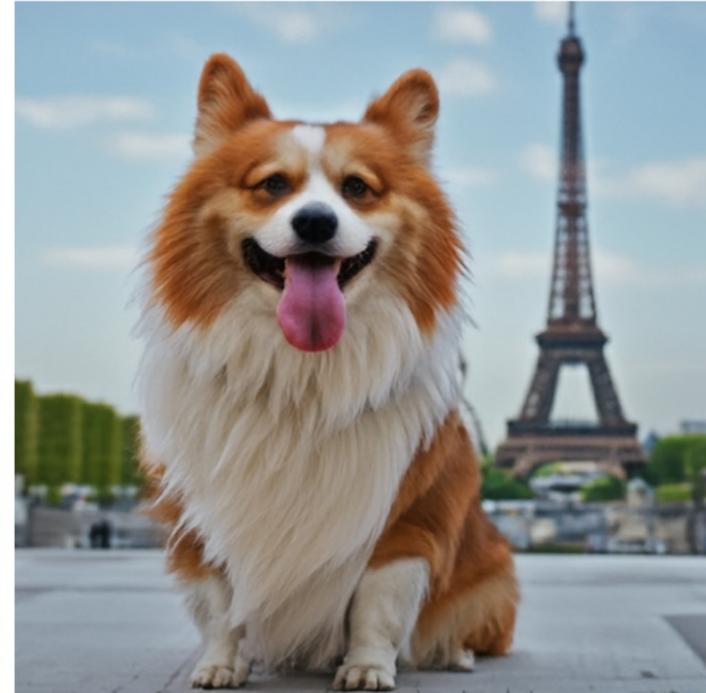
A [V] dog in the
gardens of Versailles



A [V] dog in Coachella



A [V] dog in
mountain Fuji



A [V] dog with Eiffel Tower in
the background

Do a travel photoshoot for your pet

Okay, let's start finetuning

AUTOTRAIN

By HuggingFace



auto **TRAIN**

Create powerful AI models without code

A new way to automatically train, evaluate and deploy state-of-the-art Machine Learning models.

[Create new project](#)

Machine Learning made simple

Train custom machine learning models by simply uploading data.

Automatic training

AutoTrain will find the best models for your data automatically.

Fast deployment

Your models are available on the [Hugging Face Hub](#), and ready to serve.



DEMO (GOOGLE COLAB)

https://skillsurf.github.io/introduction_genAI





“dog”



“white dog”

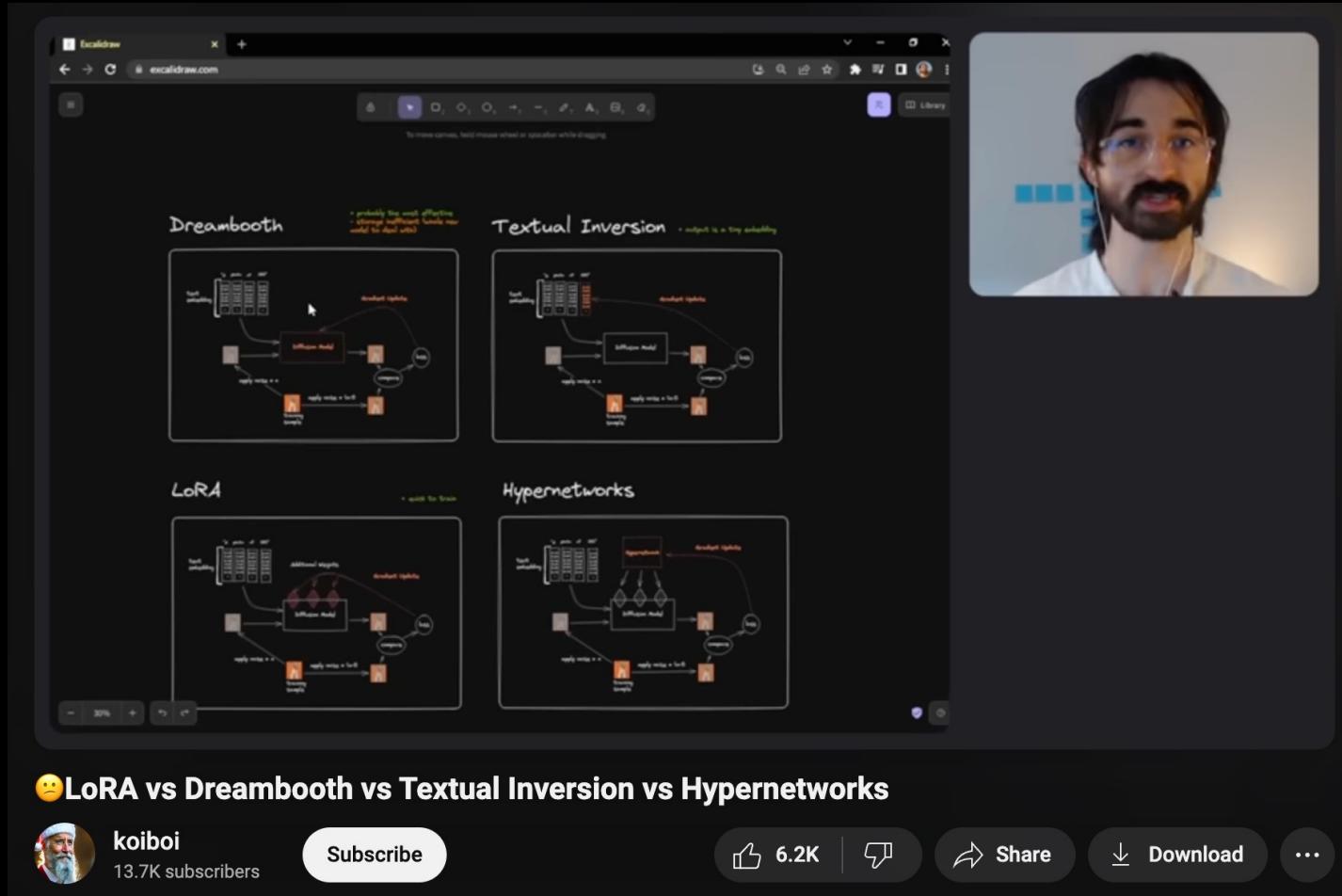


“sks dog”

prompt: a cartoon of a sks dog as a Jedi holding a lightsaber, Star Wars, hyper detailed background, character concept, full body, dynamic pose, intricate, highly detailed, digital painting, artstation, concept art, smooth, sharp focus, illustration, square thumbnail, 4k, uhd, art by artgerm and greg rutkowski and alphonse mucha



More on finetuning



<https://www.youtube.com/watch?v=dVjMiJsuR5o>

Thank you

ANY QUESTIONS?