Lesson 7: Post-Training Procedures for Diffusion Models

7.1 Methods and Metrics for Evaluating Generative AI

7.2 Manual Evaluation of Stable Diffusion with DrawBench

7.3 Quantitative Evaluation of Diffusion Models with Human Preference Predictors

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7.10 Conceptual Overview of Textual Inversion

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7.1

Methods and Metrics for Evaluation Generative AI

Live Coding

7.2

Manual Evaluation of Stable Diffusion with Drawbench

Live Coding

7.3

Quantitative Evaluation of Diffusion Models with Human Preference Predictors

Live Coding

7.4

Overview of Methods for Fine-Tuning Diffusion Models

Live Coding

7.5

Sourcing and Preparing Image Datasets for Fine-Tuning

Live Coding

7.6

Generating Automatic Captions with BLIP-2

Live Coding

7.7

Parameter Efficient Fine-Tuning with LoRA

Live Coding

7.8

Inspecting the Results of Fine-Tuning

Live Coding

7.9

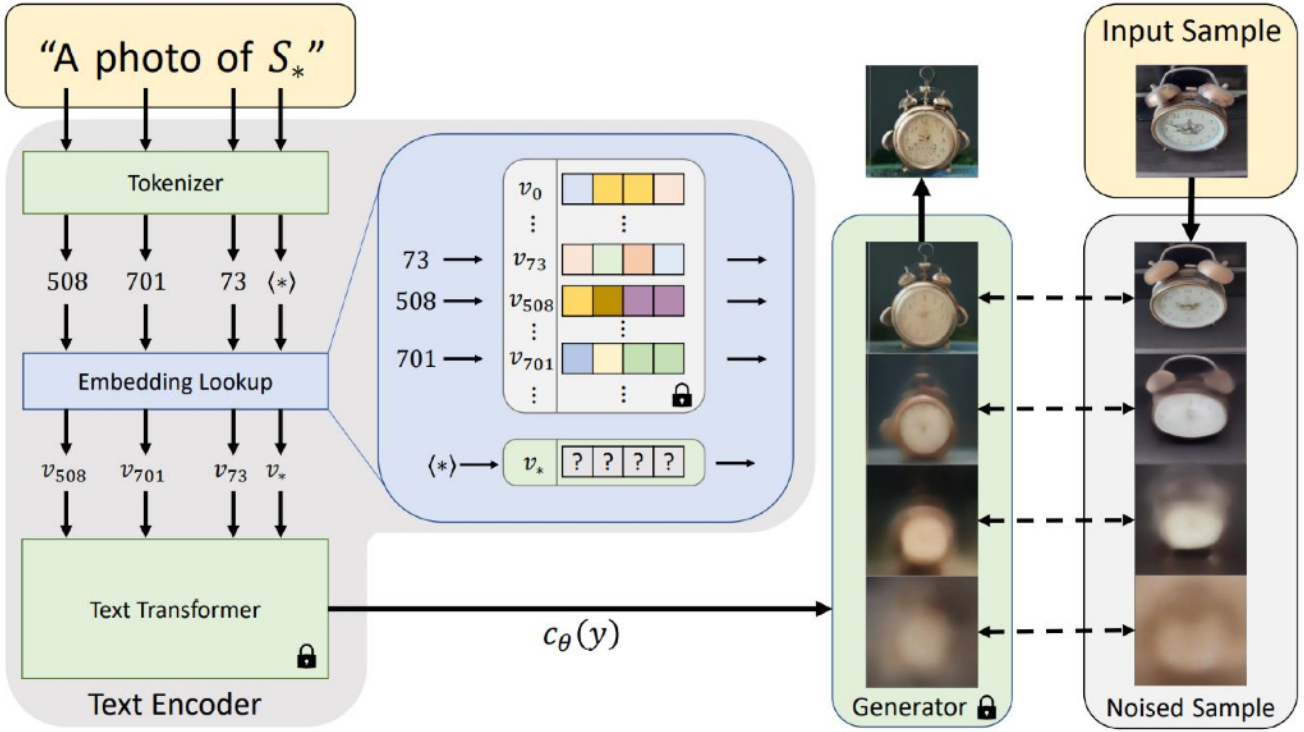
Inference with LoRAs for Style-Specific Generation

Live Coding

7.10

Conceptual Overview of Textual Inversion

Textual Inversion



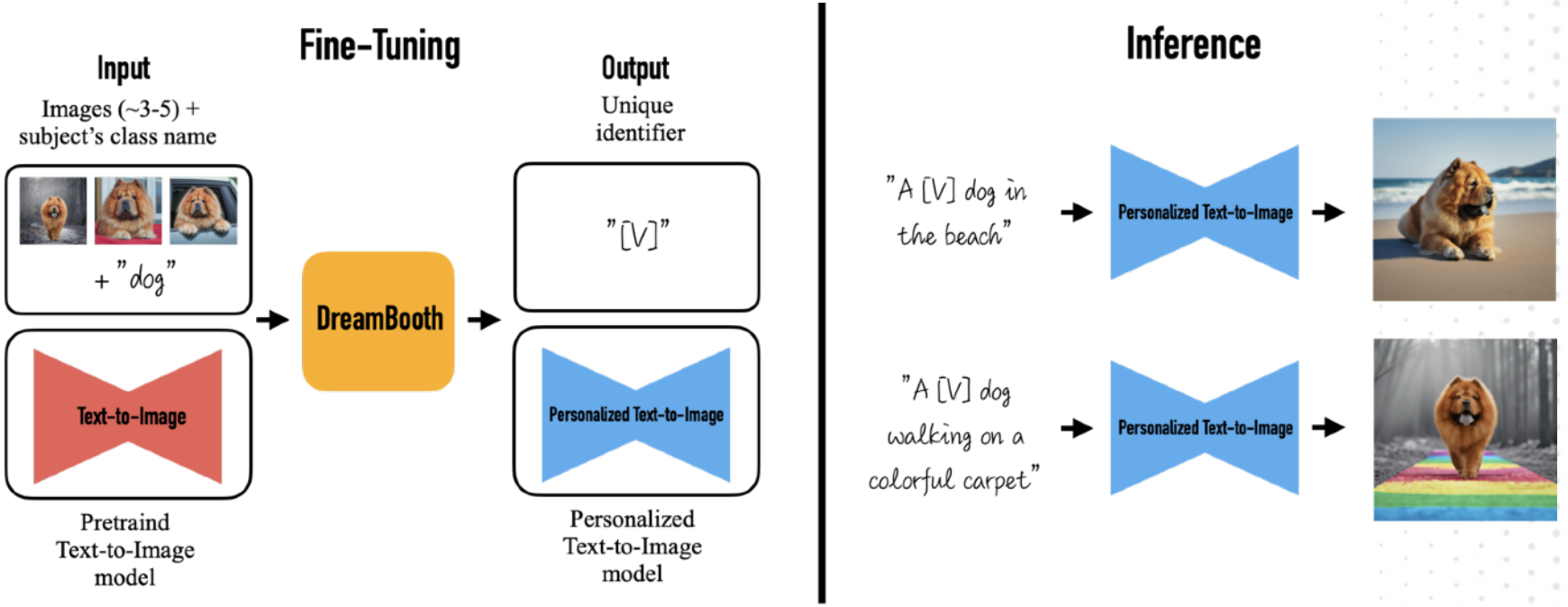
Source: An Image is Worth One Word: Personalizing Text-to-Image Generation using Textual Inversion (2022)

Live Lecture

7.11

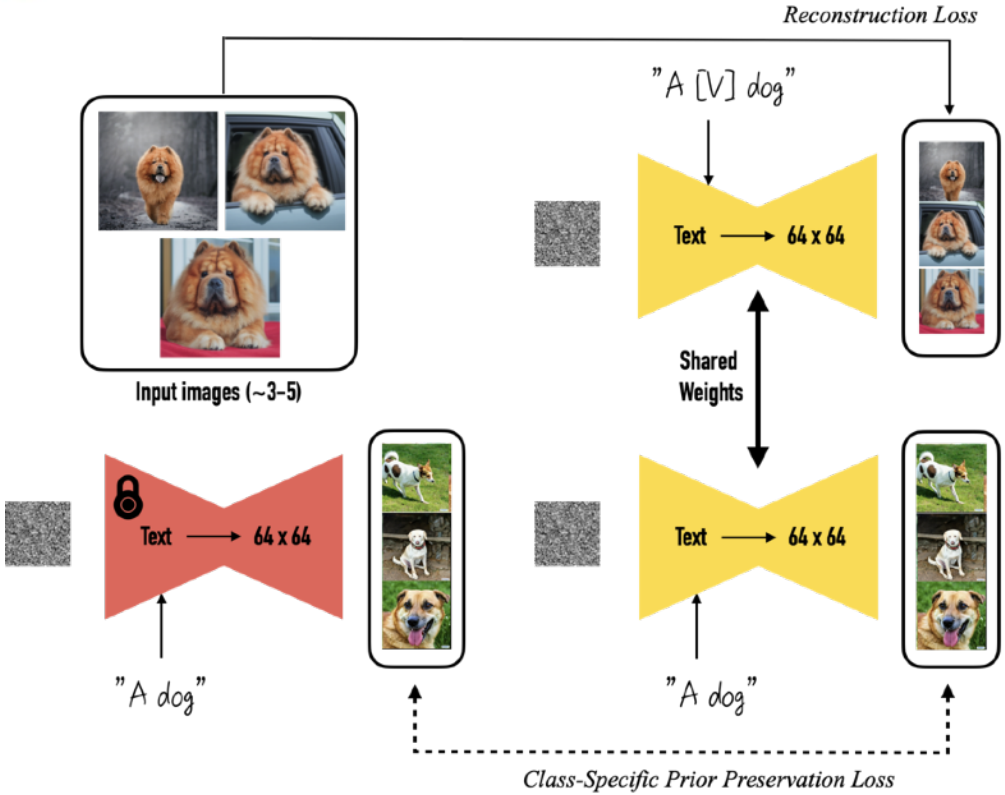
Subject Specific Personalization with Dreambooth

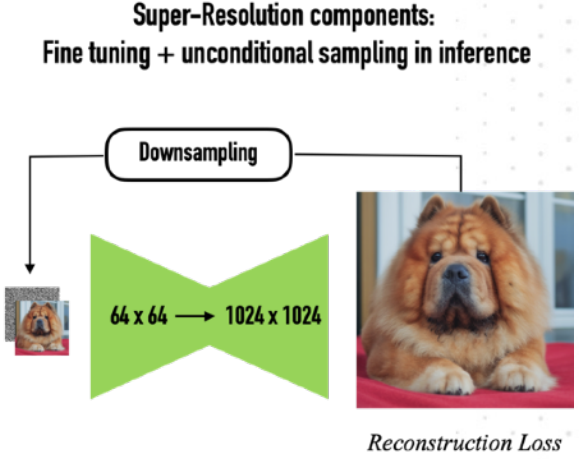
Dreambooth



Source: DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation (2022)

Dreambooth





Source: DreamBooth: Fine Tuning Text-to-Image Diffusion Models for Subject-Driven Generation (2022)

Live Lecture

7.12

Dreambooth vs. LoRA Fine-Tuning

Live Coding

7.13

Dreambooth Fine-Tuning with Hugging Face

Live Coding

7.14

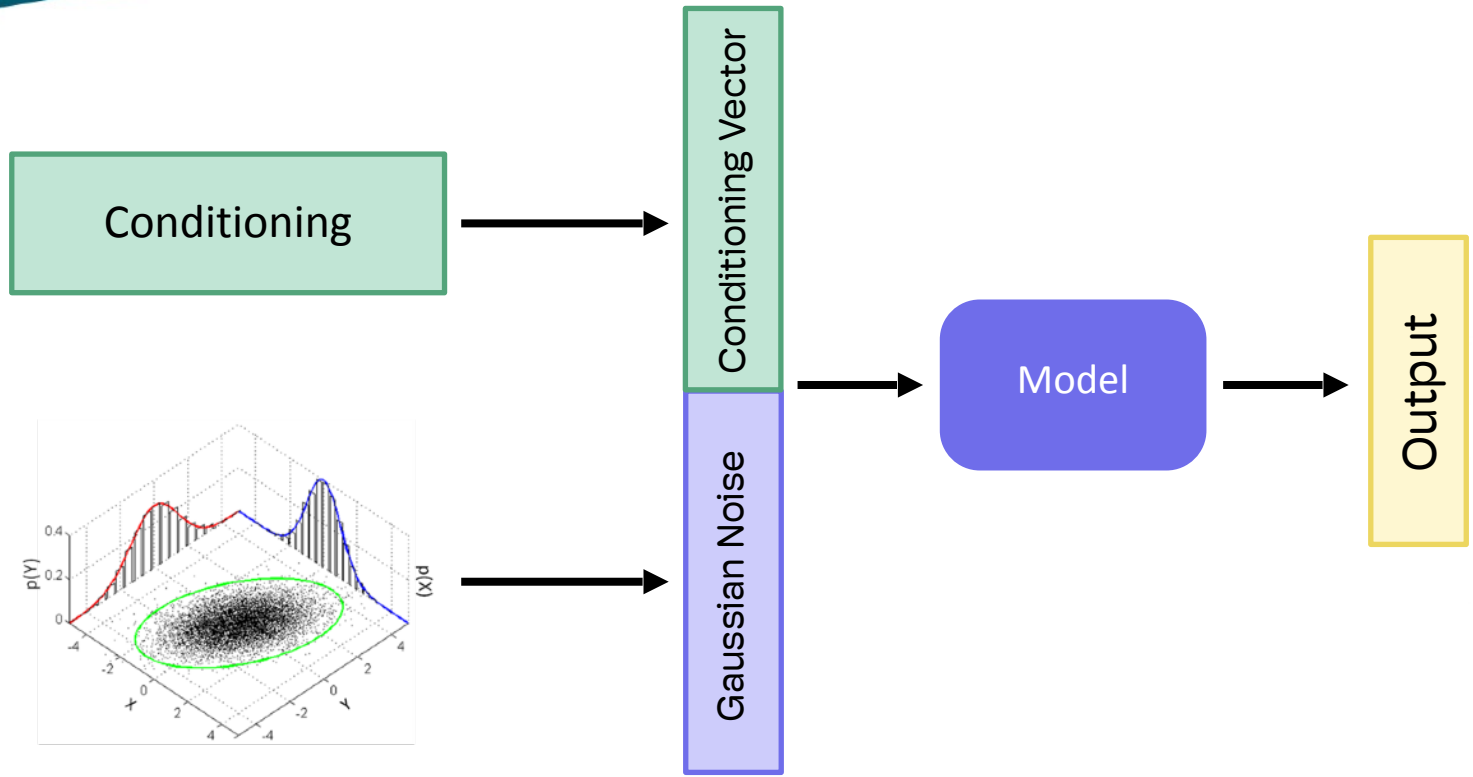
Inference with Dreambooth to Create Personalized AI Avatars

Live Coding

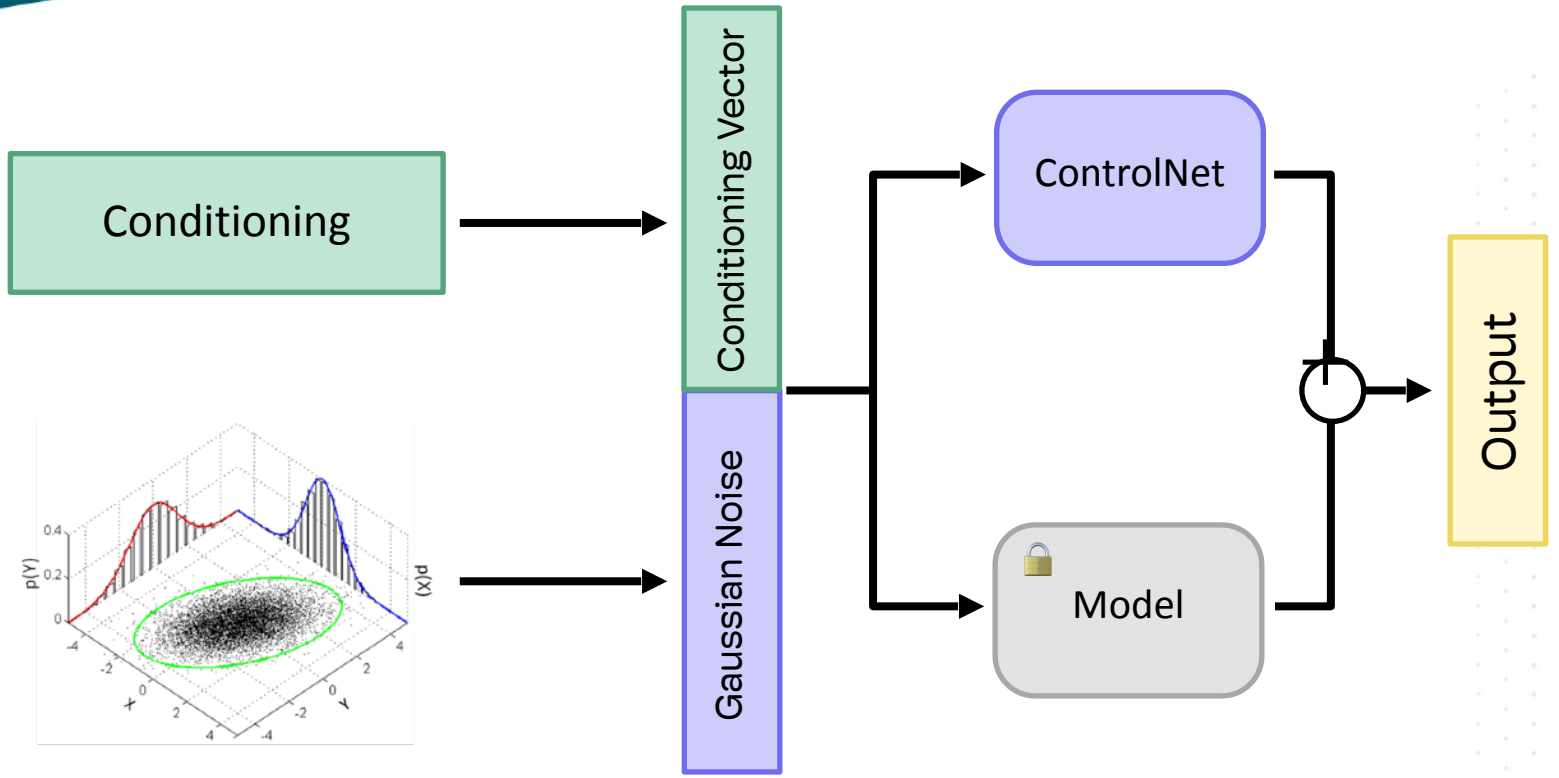
7.15

Adding Conditional Control to Text-to-Image Diffusion Models

Conditional Generative Model

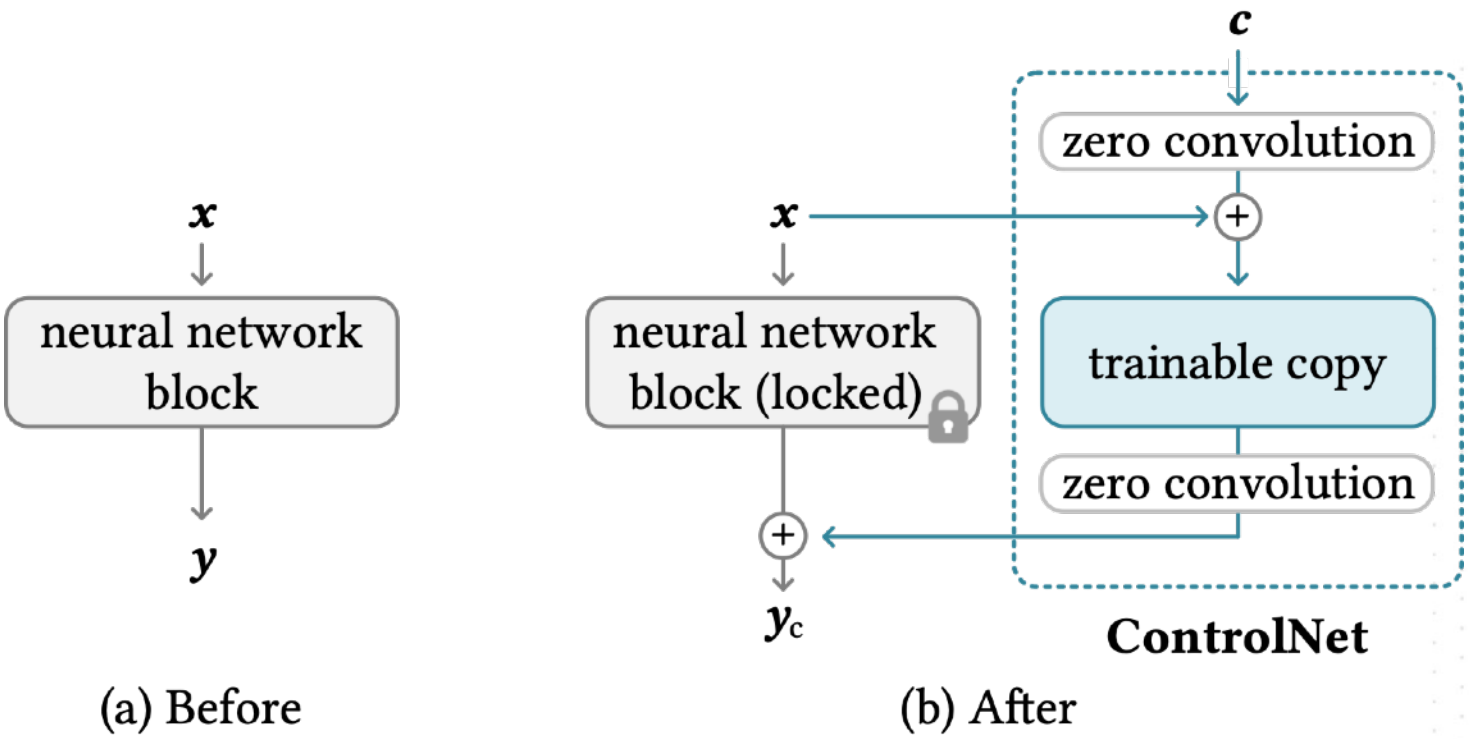


ControlNet



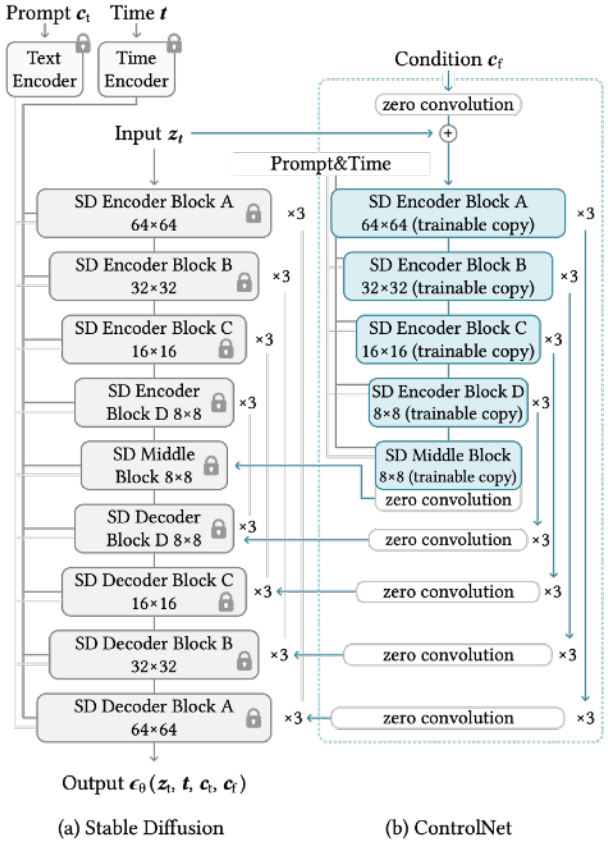
Pearson

ControlNet



Source: Adding Conditional Control to Text-to-Image Diffusion Models (2022)

ControlNet



Source: [Adding Conditional Control to Text-to-Image Diffusion Models](#) (2022)

7.16

Creating Edge and Depth Maps for Conditioning

Live Coding

7.17

Depth and Edge Guided Stable Diffusion with ControlNet

Live Coding

7.18

Understanding and Experimenting with ControlNet Parameters

Live Coding

7.19

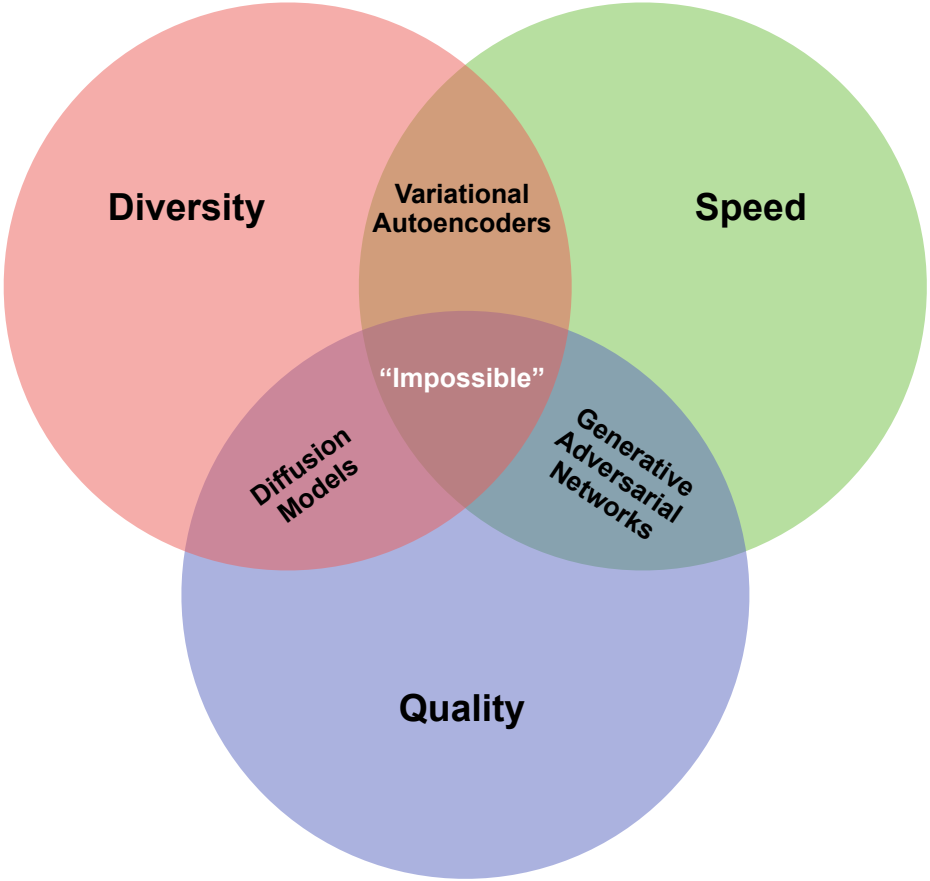
Generative Text Effects with Font Depth Maps

Live Coding

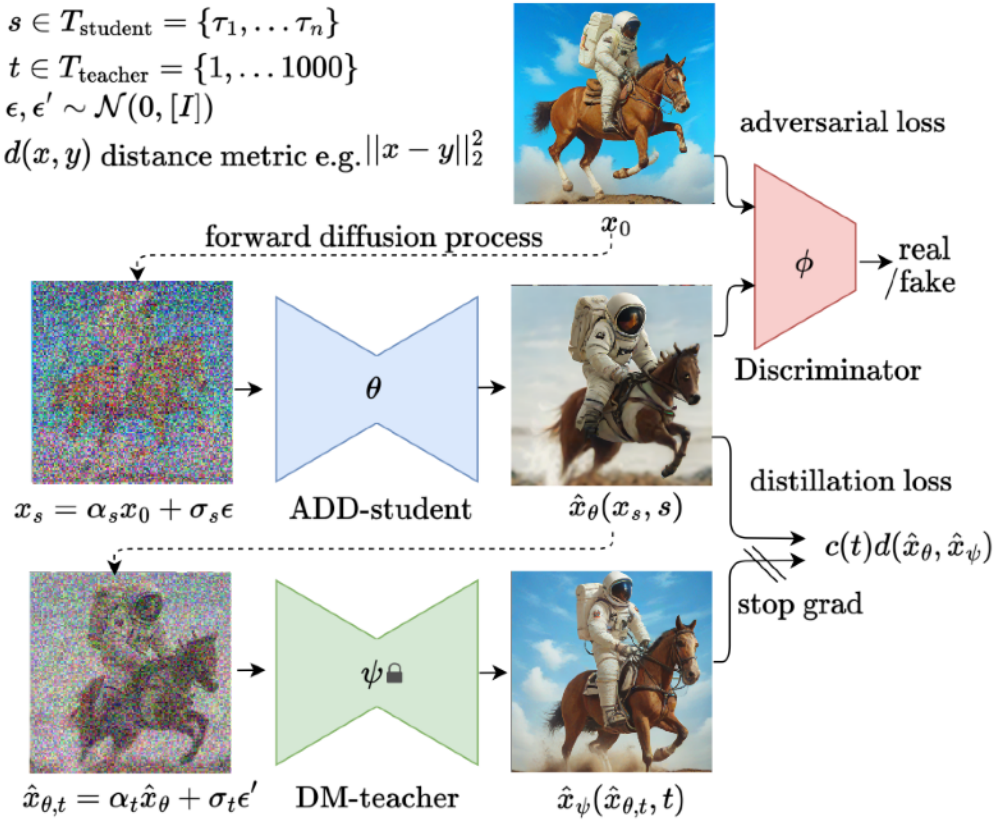
7.20

Few Step Generation with Adversarial Diffusion Distillation (ADD)

Generative Modeling Trilemma



Adversarial Diffusion Distillation



Source: Adversarial Diffusion Distillation (2023)

Live Lecture

7.21

Reasons to Distill

Live Coding

7.22

Comparing SDXL and SDXL Turbo

Live Coding

7.23

Text-Guided Image-to-Image Translation

Live Coding

7.24

Video-Driven Frame-by-Frame Generation with SDXL Turbo

Live Coding

7.25

Near Realtime Inference with PyTorch Performance Optimizations

Live Coding