LLMs and ChatGPT || Text2Image, Image2Text, Segmentation and more!!

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Today

Focus

We will focus a lot on the interactions between text and images in the lecture today and the associated Foundation models and APIs You will also get to play around with these in the In-class coding exercise today!

Today

1. **Image2Text** API for generation Text from Image

Today

Image Captioning

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2. **Text2Image** API for generating an Image from Text

Today

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3. **Stable Diffusion** Pre-Trained Model for **Text2Image**

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5. Image Embeddings and Image-Image search

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3. **Stable Diffusion** Pre-Trained Model for **Text2Image**
4. **Segmenting Images** and tagging them
5. Image Embeddings and Image-Image search
6. Foundation Models for Images - **CNNs and ViTransformers**

Foundation Models for Images

Types

CNNs (e.g. Inception, AlexNet, etc) and Visual Transformers or ViTransformer

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Building Blocks

Like legos can be used to build a whole factory - Foundation models can be put together across modes (multi-modal) to create interesting and beautiful applications. Text2Image is one such example that combines multiple foundation models - Transformers, ViTransformers, CNNs and also AutoEncoders.

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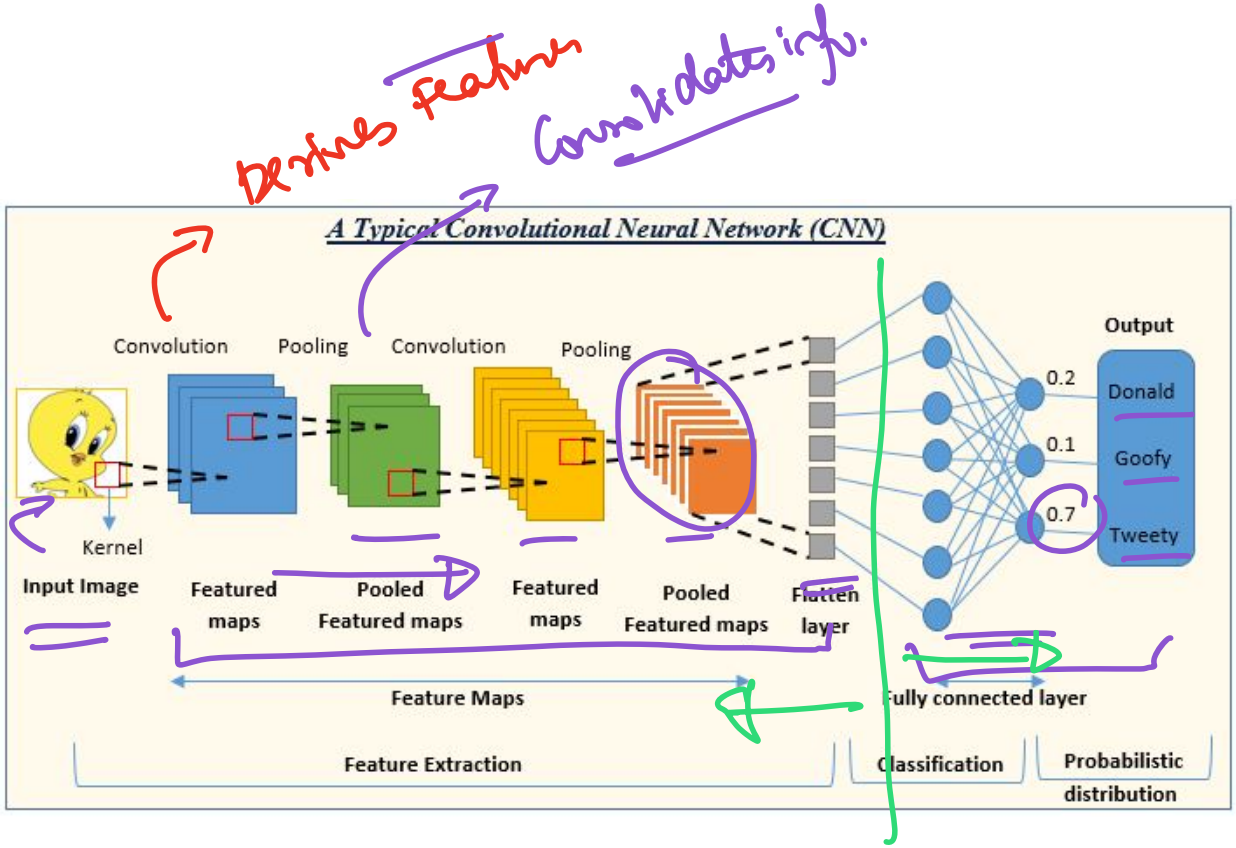
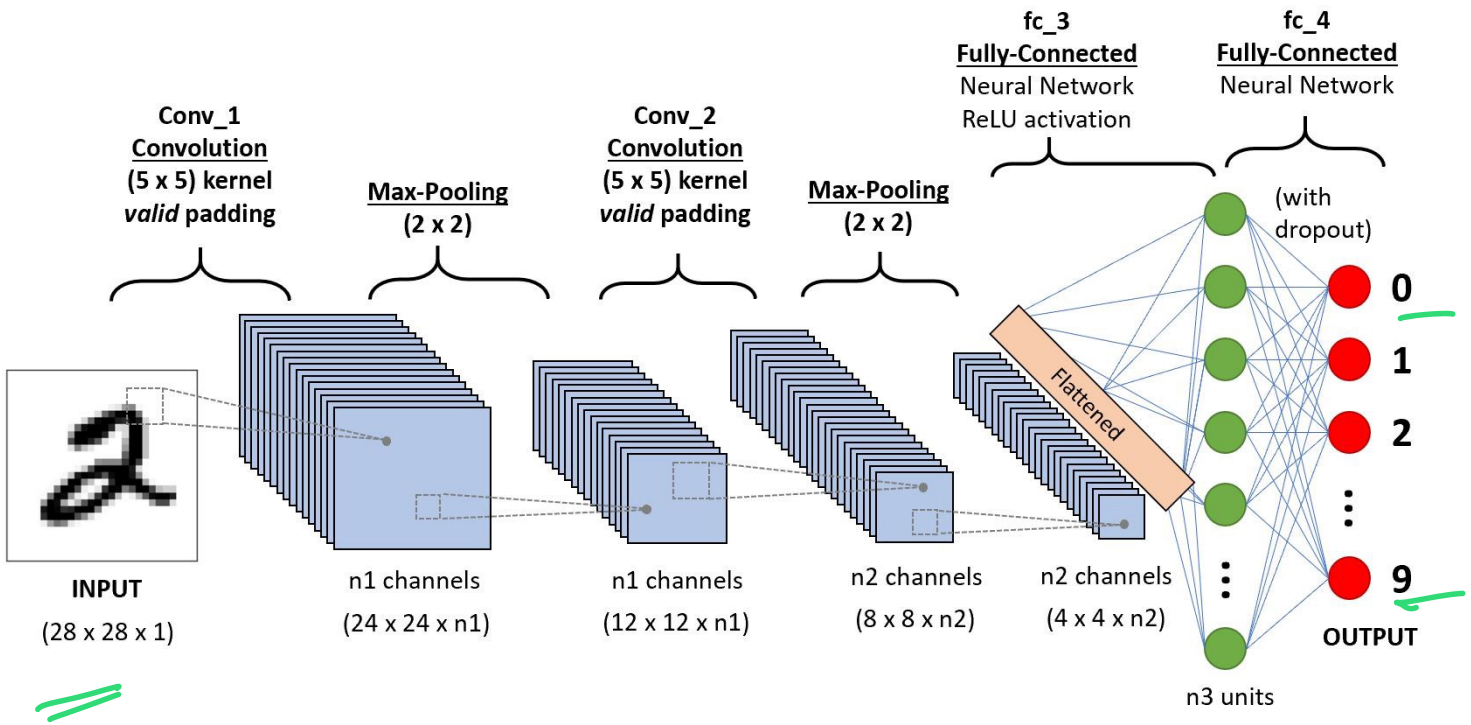
Applications

Classification (cat or dog?), Image2Text, Text2Image, Image Embeddings, Object Detection, Image Segmentation, etc

Foundation Model - CNN (Convolutional Neural Network)



Foundation Model - CNN (Convolutional Neural Network)



(MNIST digits classification)

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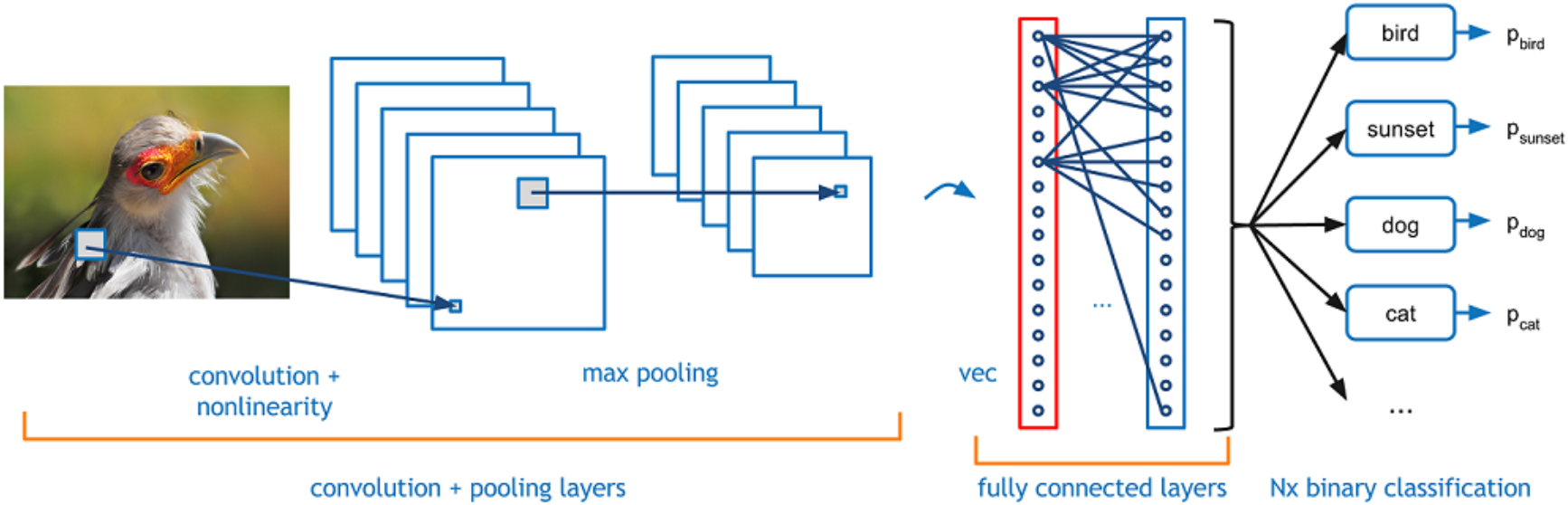

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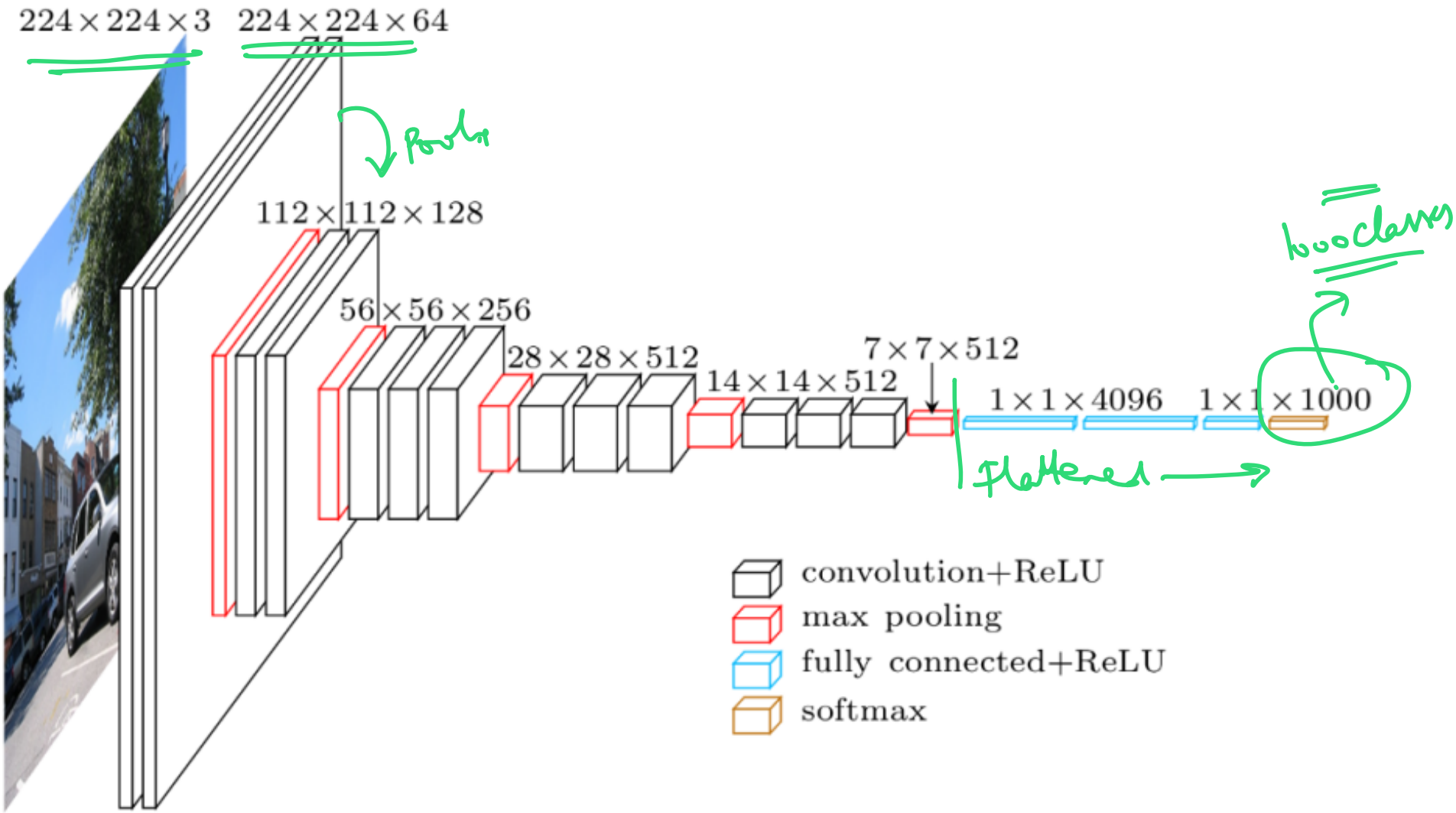
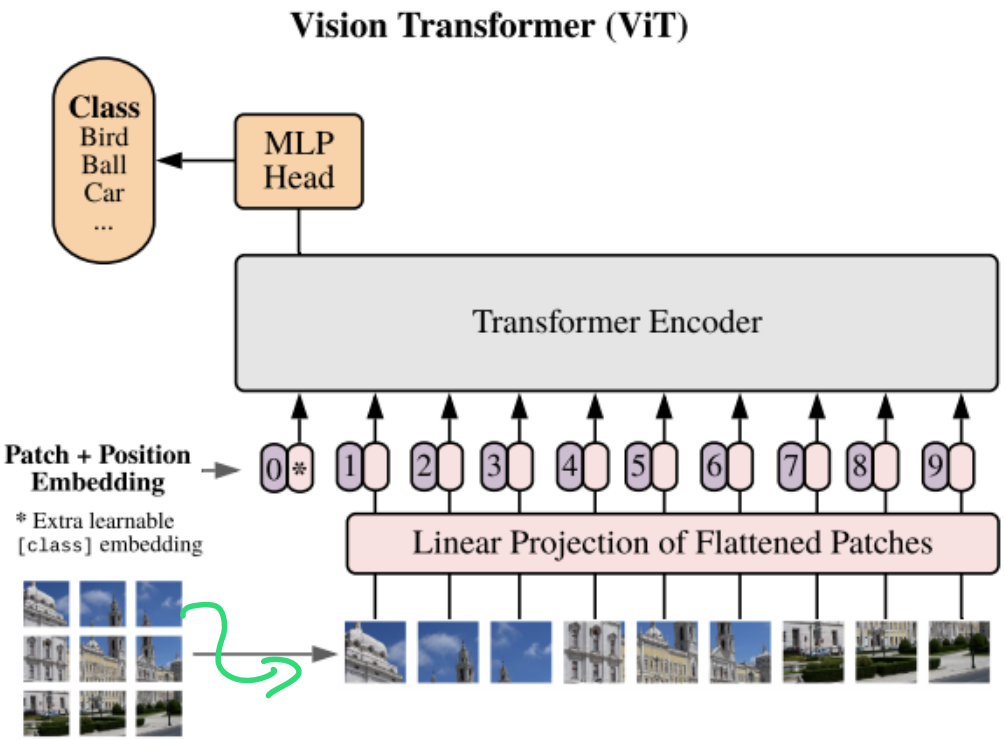


Foundation Model - Visual Transformers (ViT)



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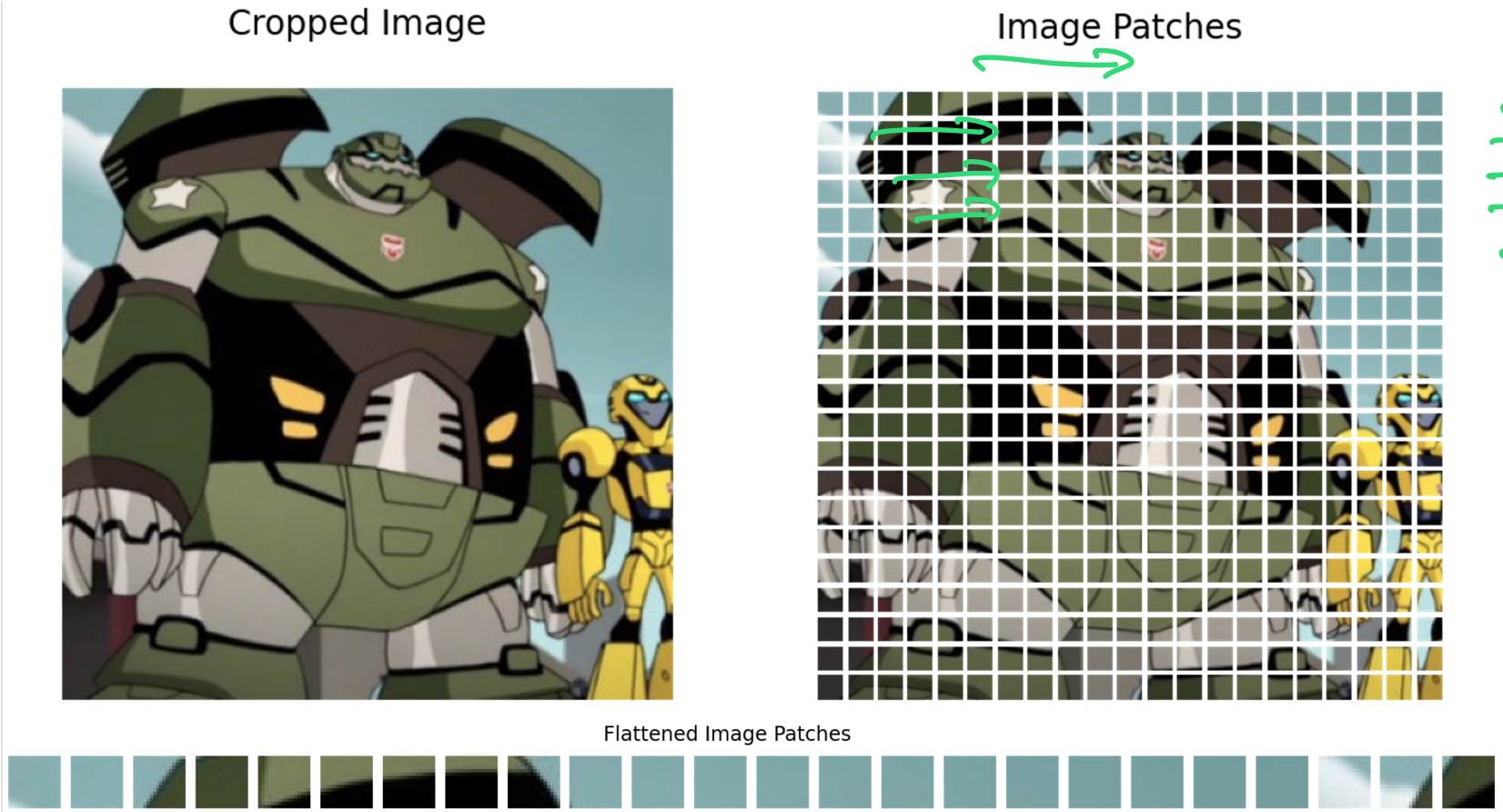

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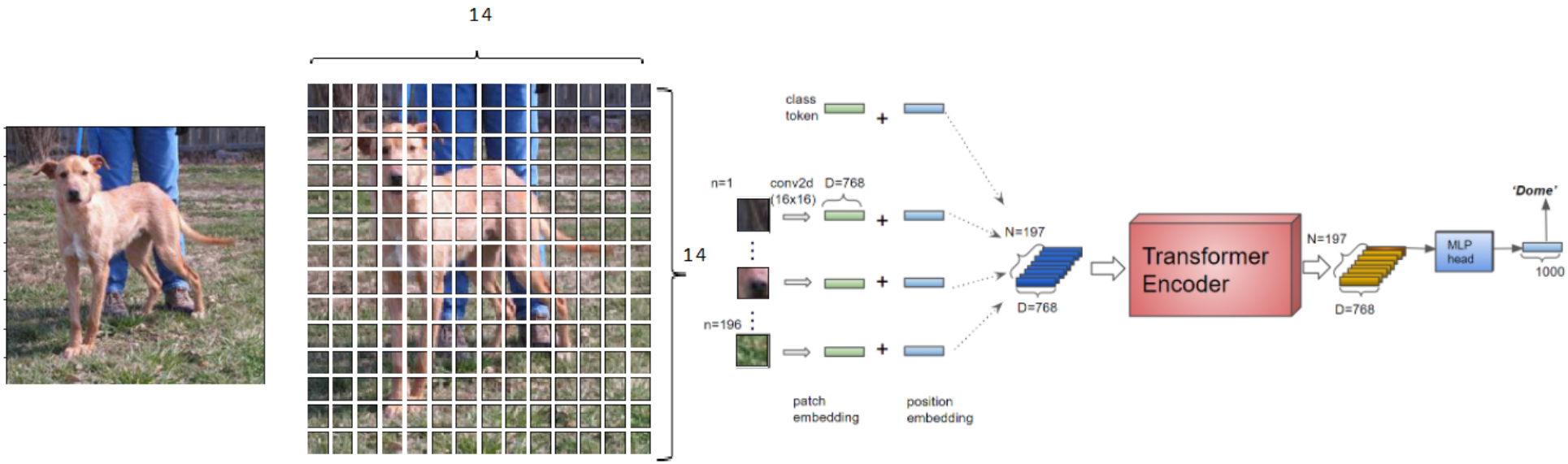
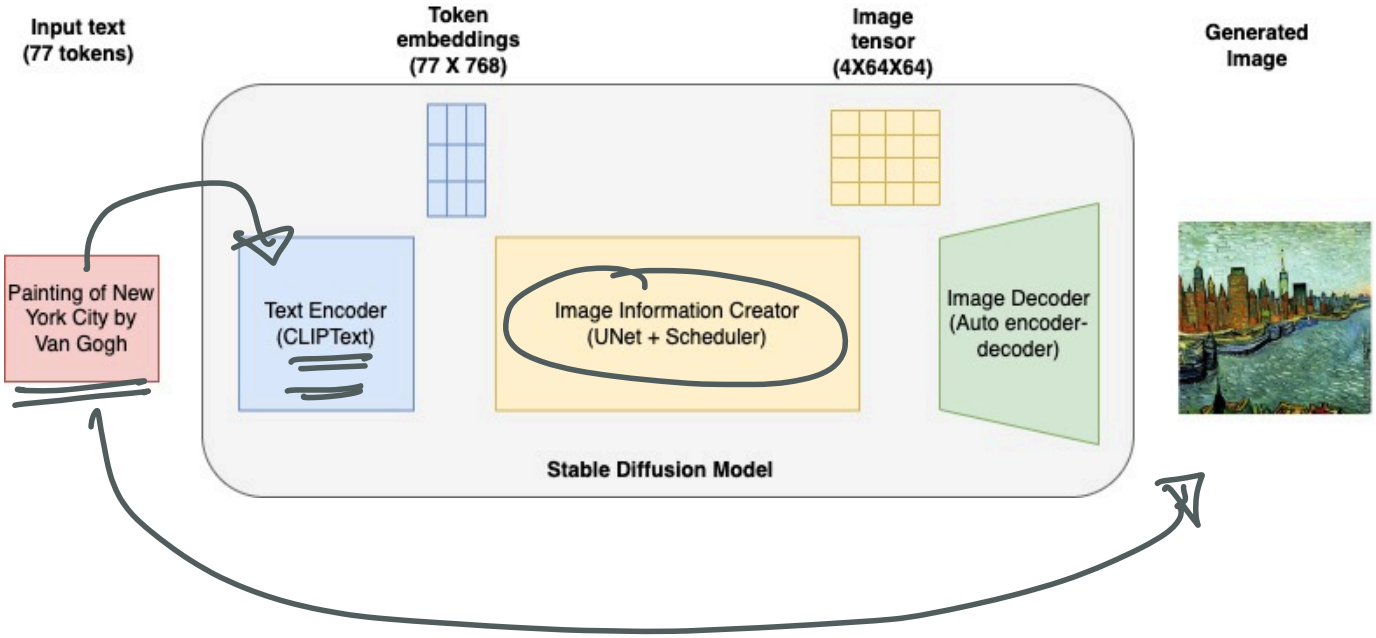


Foundation Model - Stable Diffusion (Text2Image)



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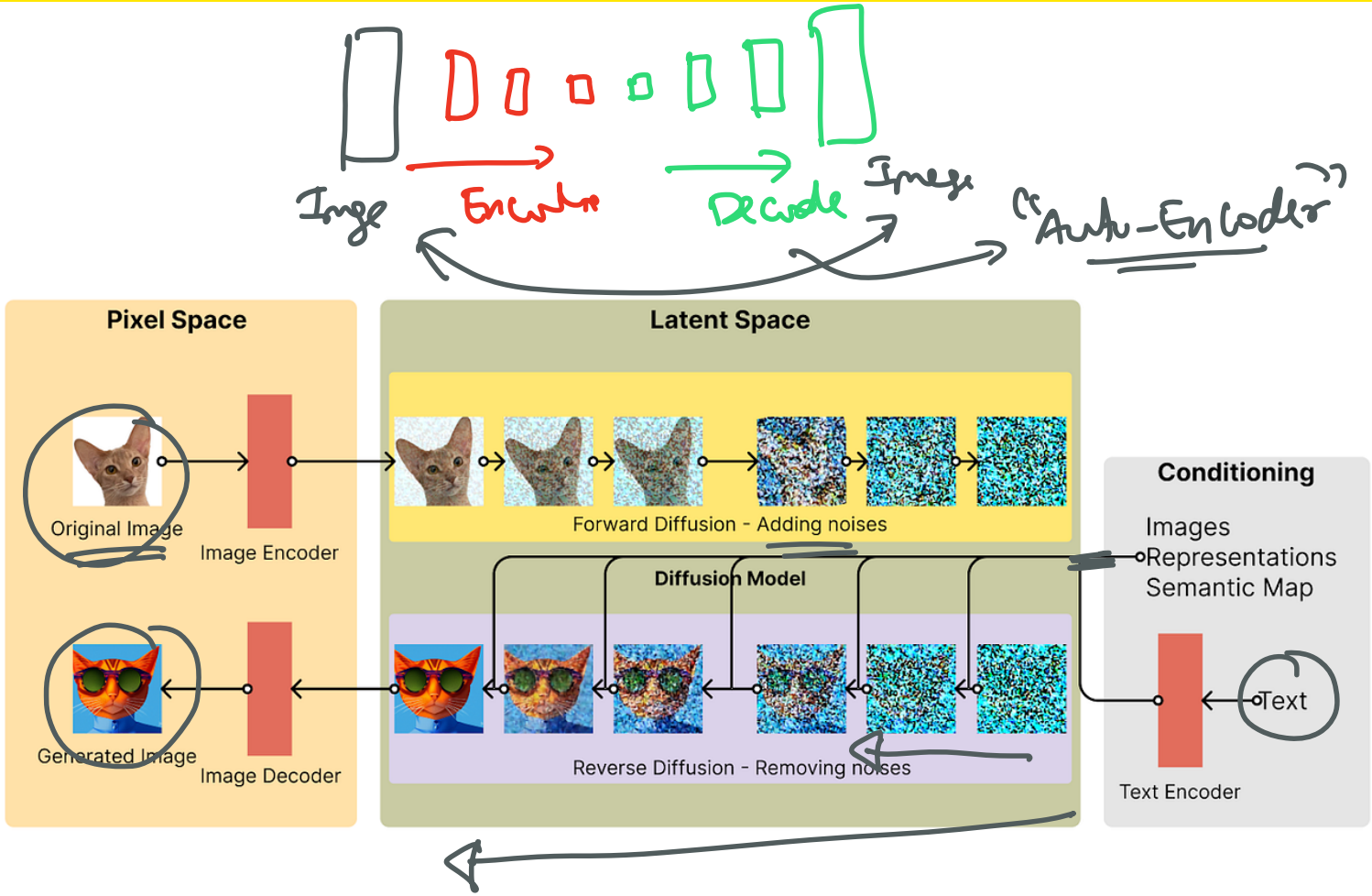

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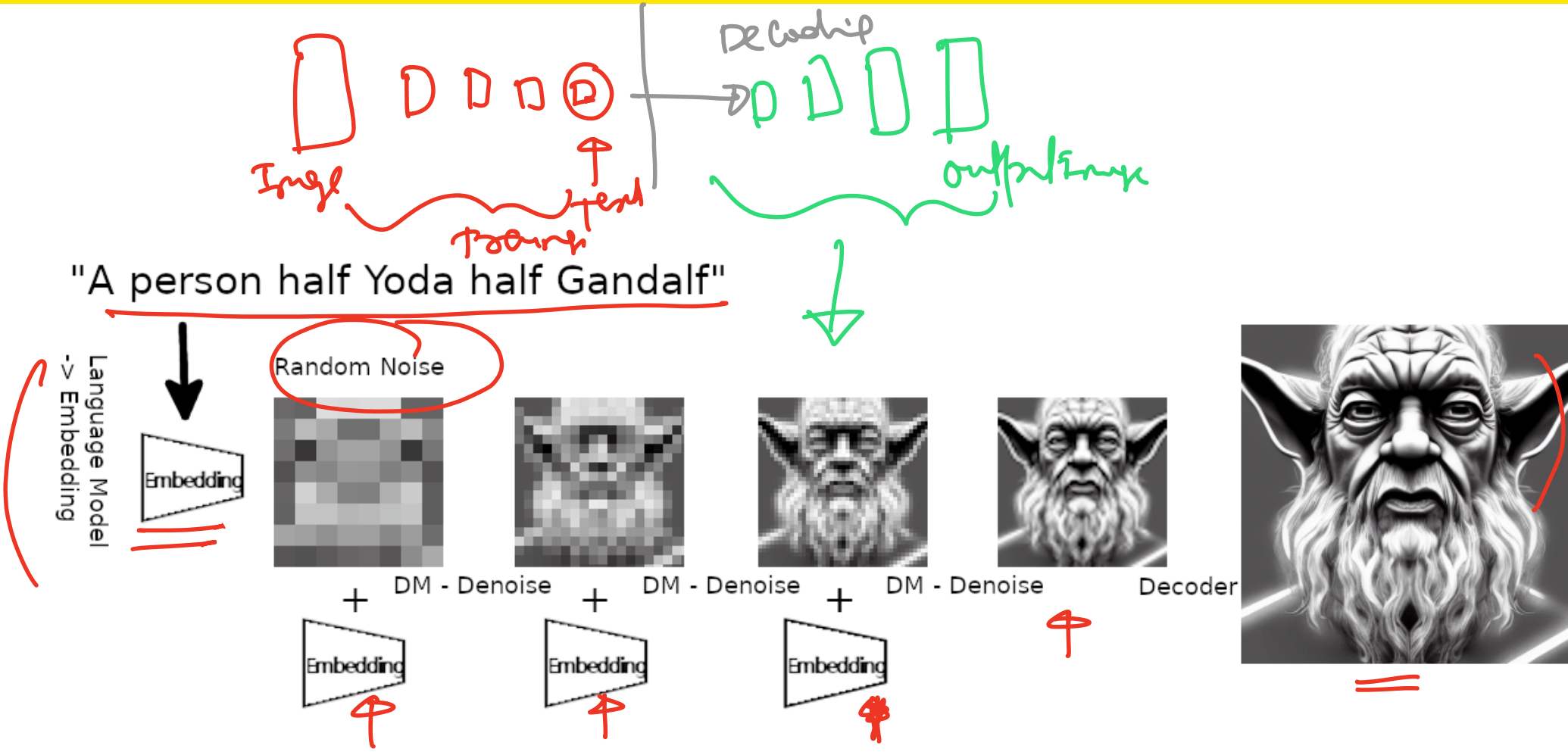

Reference