Deep Learning : Transformer Model

राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम
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Limitations of RNN

RNN-Generated Poem

The sun is shining bright,
In the sky so high, it takes flight.
The birds are singing, the trees stand tall,
But something seems off, no sense at all.

The moon is rising, the stars do glow,
But the day is here, it doesn't show.
The grass is green, the water is blue,
Yet everything feels old, and somehow new.

RNN-Generated Output - Repetition

The cat is on the table. The cat is on the table. The cat sat on table.

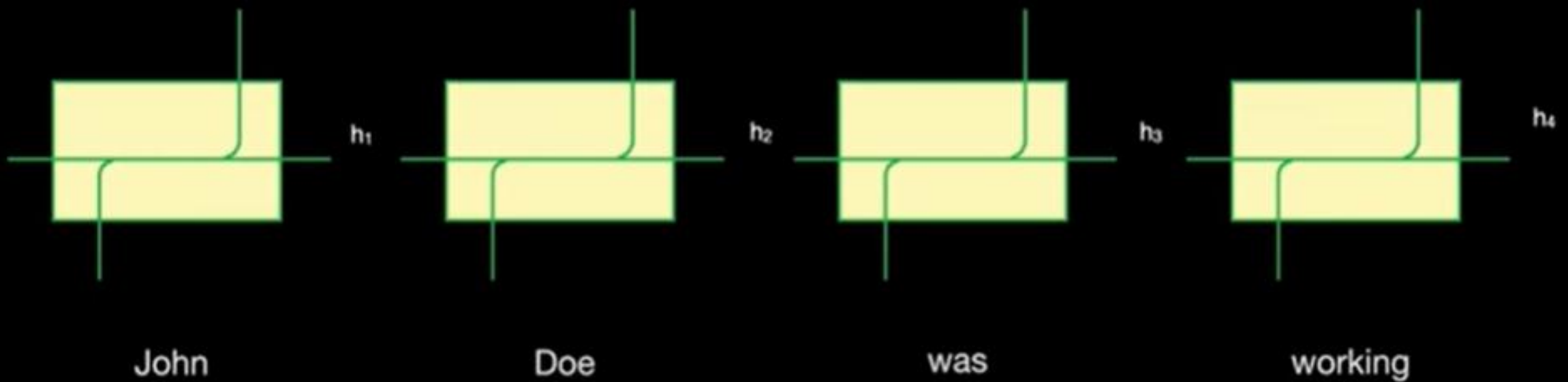
RNN-Generated Output - Inappropriate

The boy went to the store to buy some apples. He paid the cashier. The sun was shining brightly, and he ate the cake at the park.

RNN-Generated Output - Grammatically incorrect

he group of people is walking to the park. They was excited about the picnic.

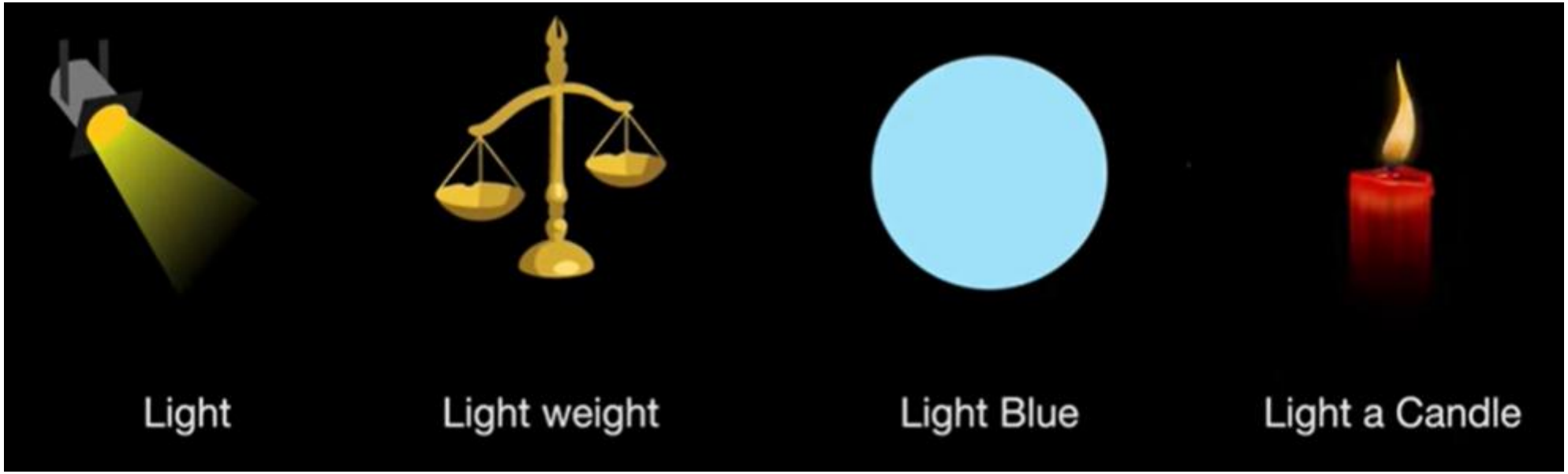
RNN Problems



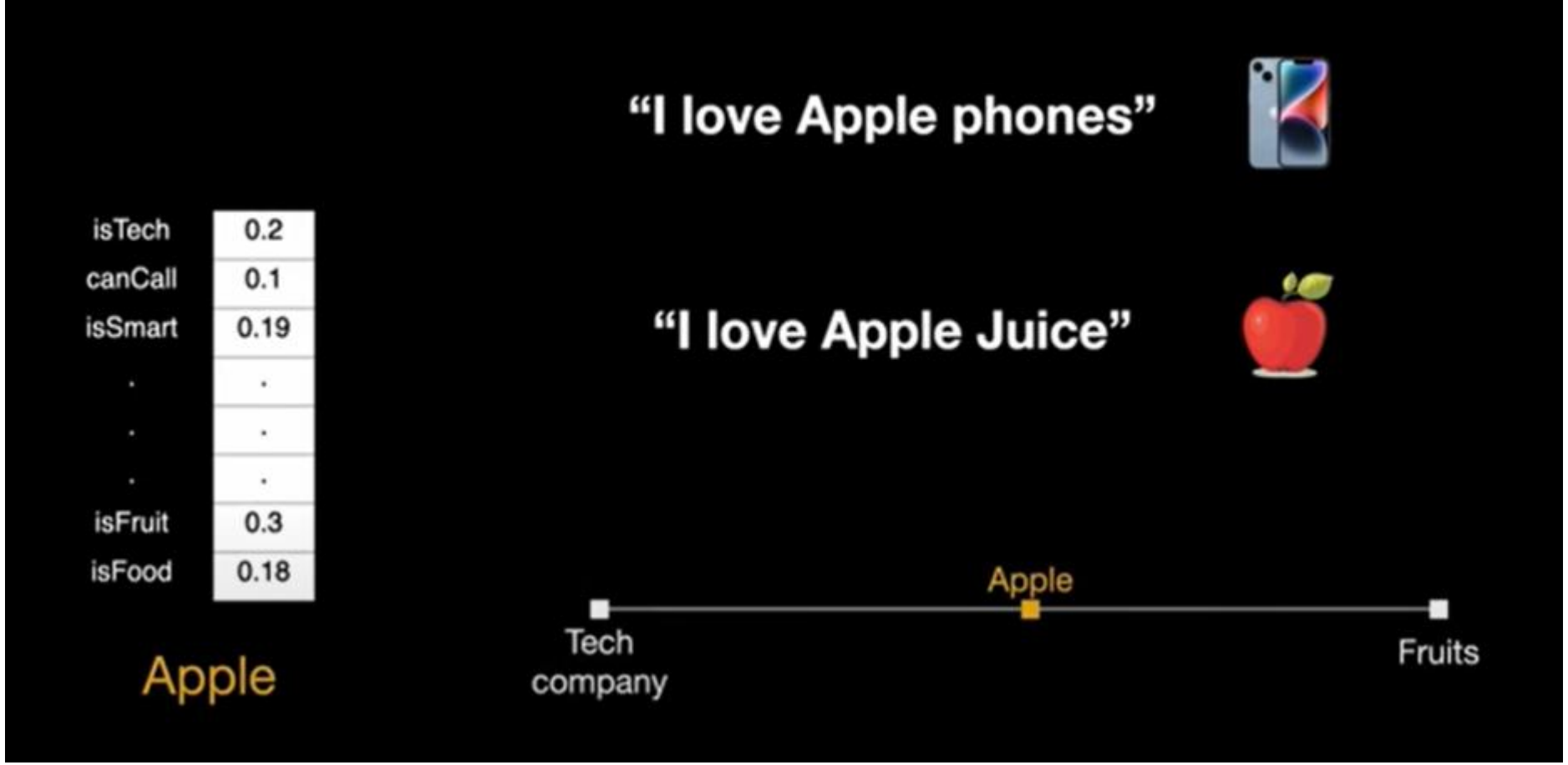
RNN Problems

When Jake first laid eyes on the Apple iPhone, he wasn't expecting much. It felt like holding the future. His old phone had served him well, and he wasn't one to chase the latest tech trends. But the moment he held the sleek, glassy device in his hand, there was something [illegible]ifferent about it.

He pressed the home button, and the phone lit up [illegible]rant, colorful display, unlike anything he had seen before. The icons were sharp, and the touchscreen was so fluid that he couldn't resist swiping through the screens just to watch them glide by. The polished metal edges and smooth, responsive screen drew him in.

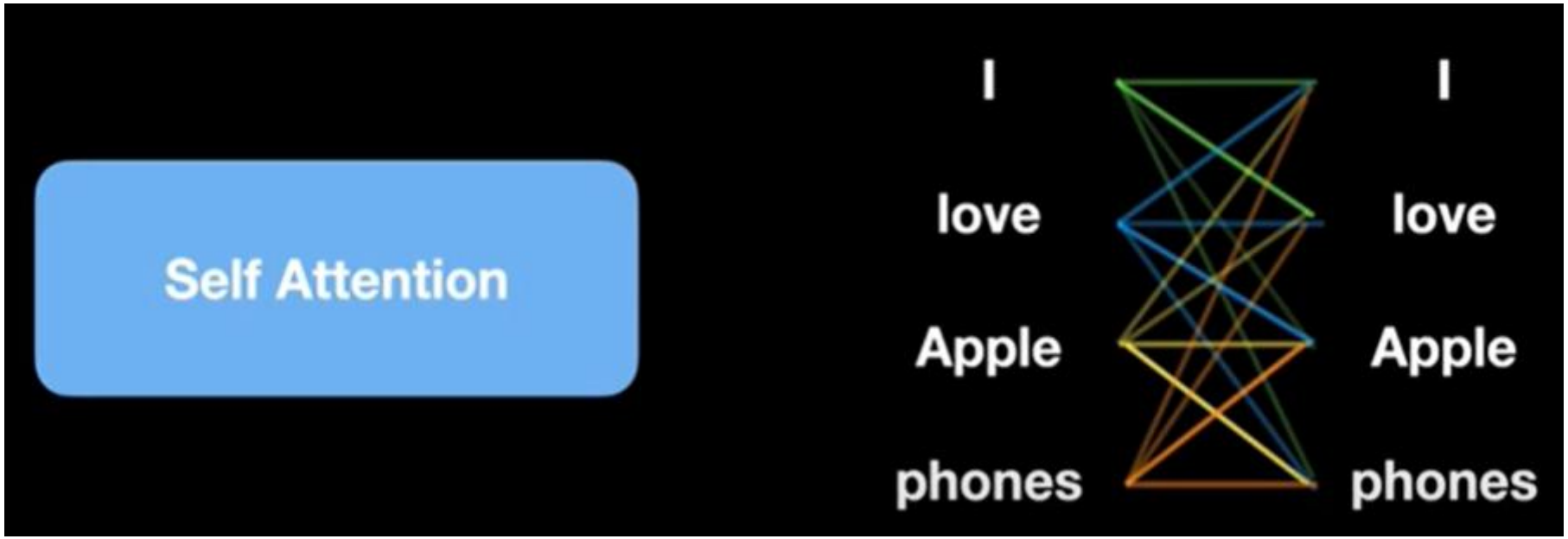


Different Context

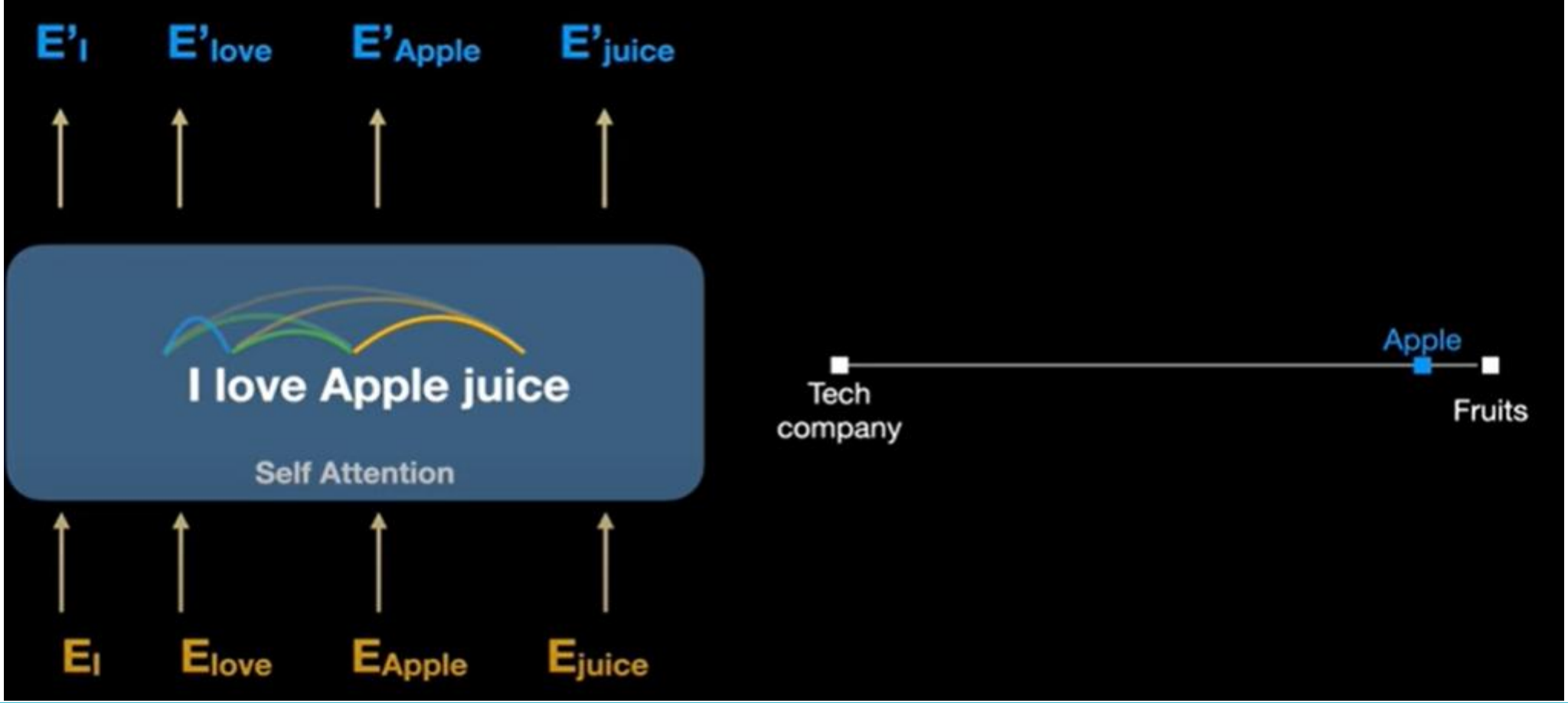


Word Embeddings

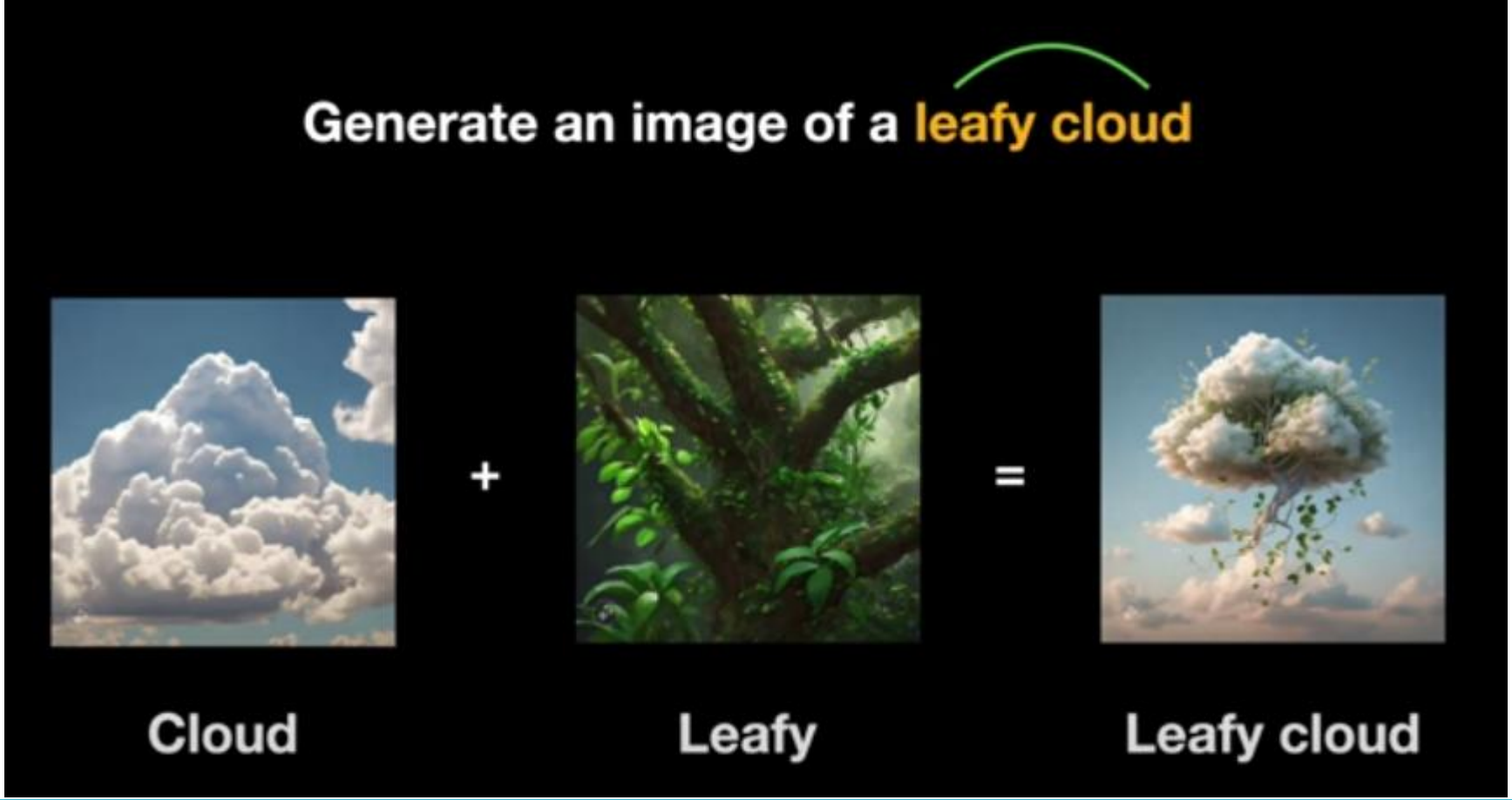
Dynamic Word Embeddings



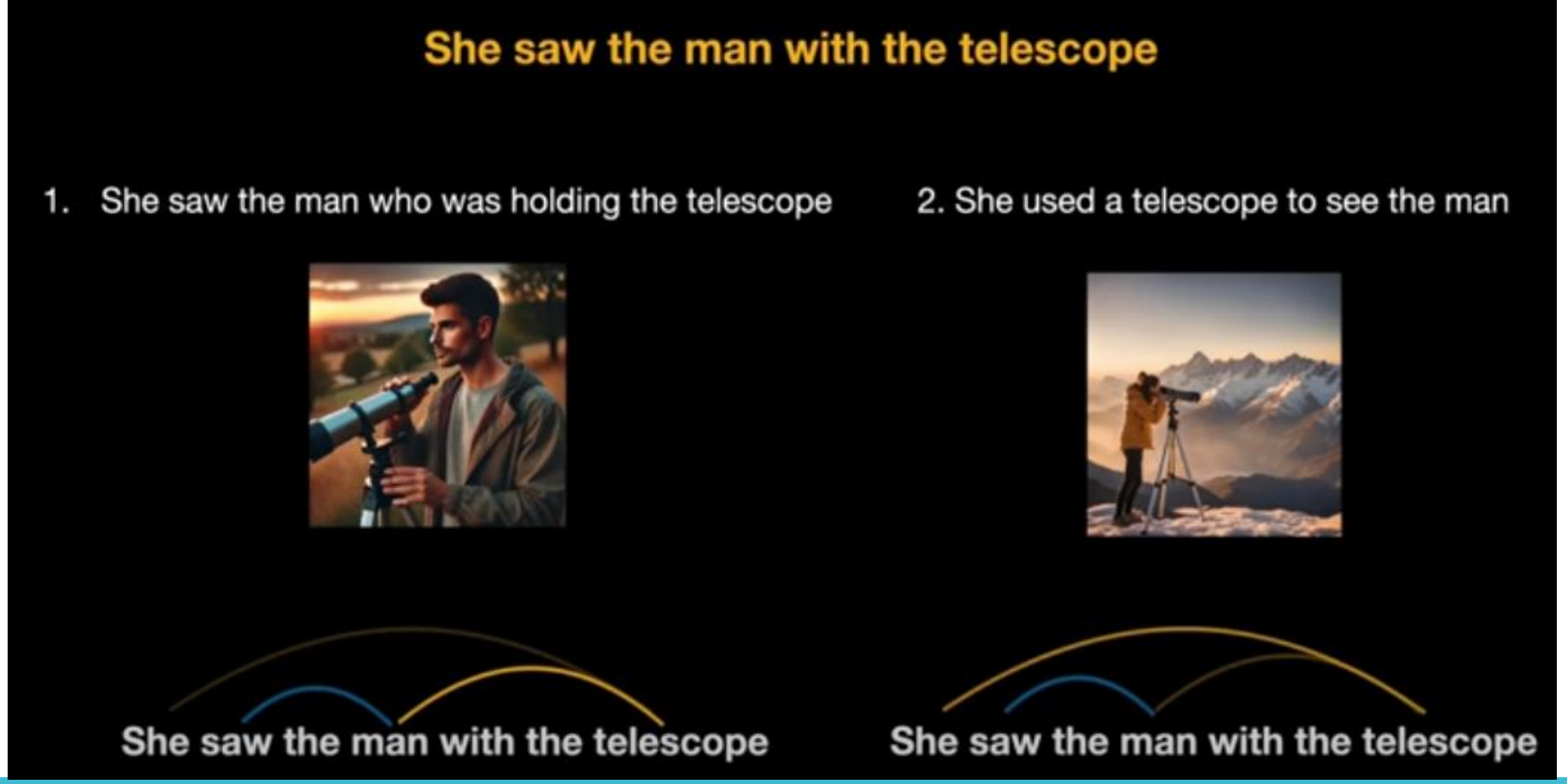
Self Attention



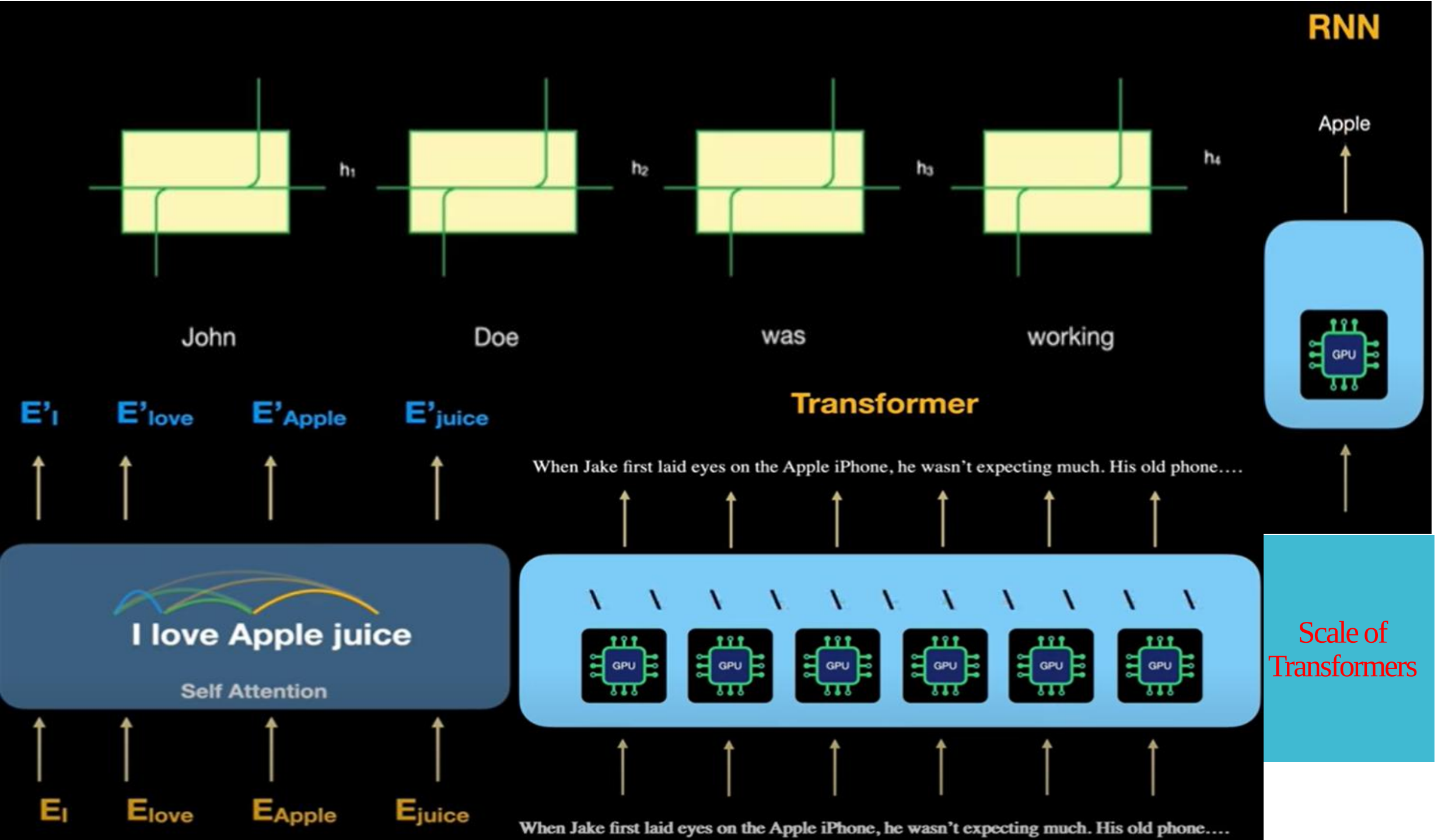
Self Attention



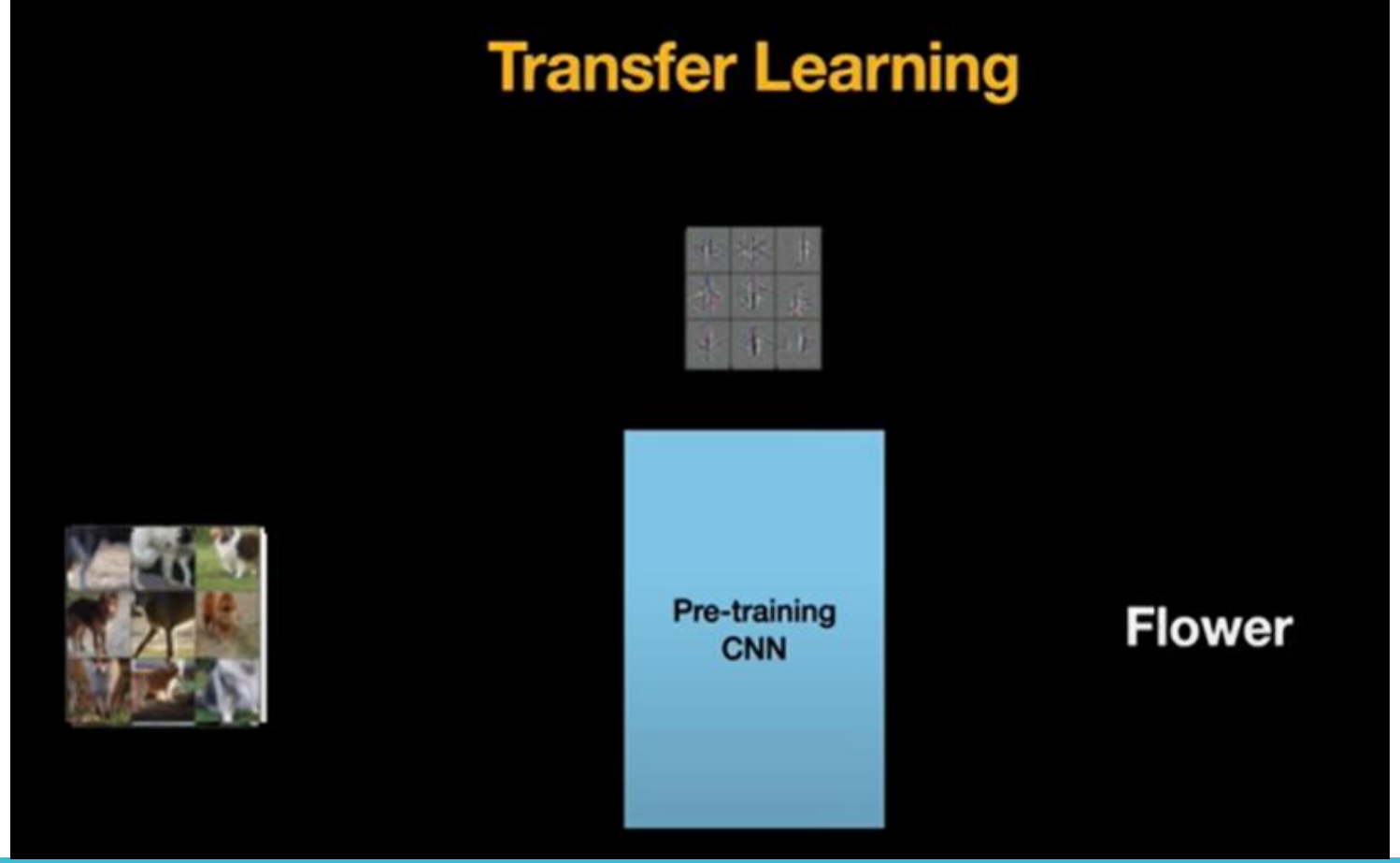
Power of Transformers

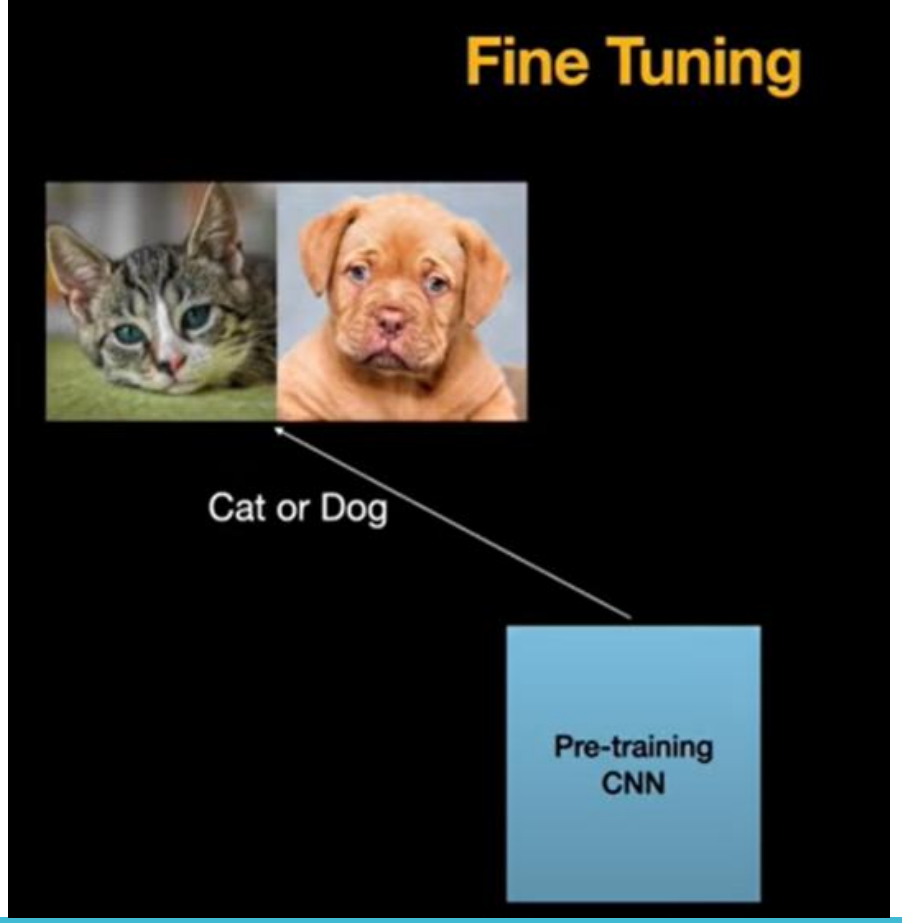


Power of Transformers (Multi-headed Attention)

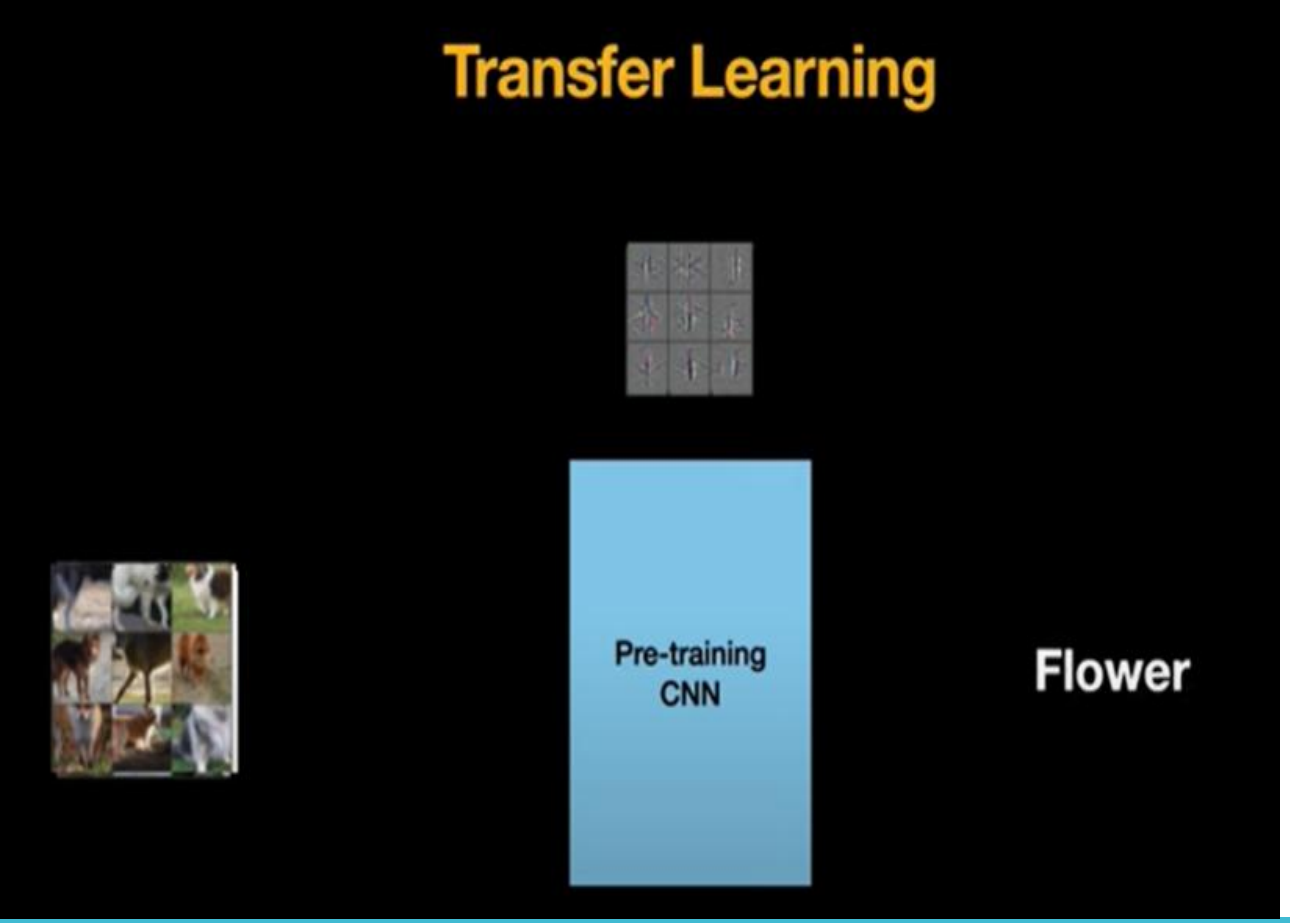


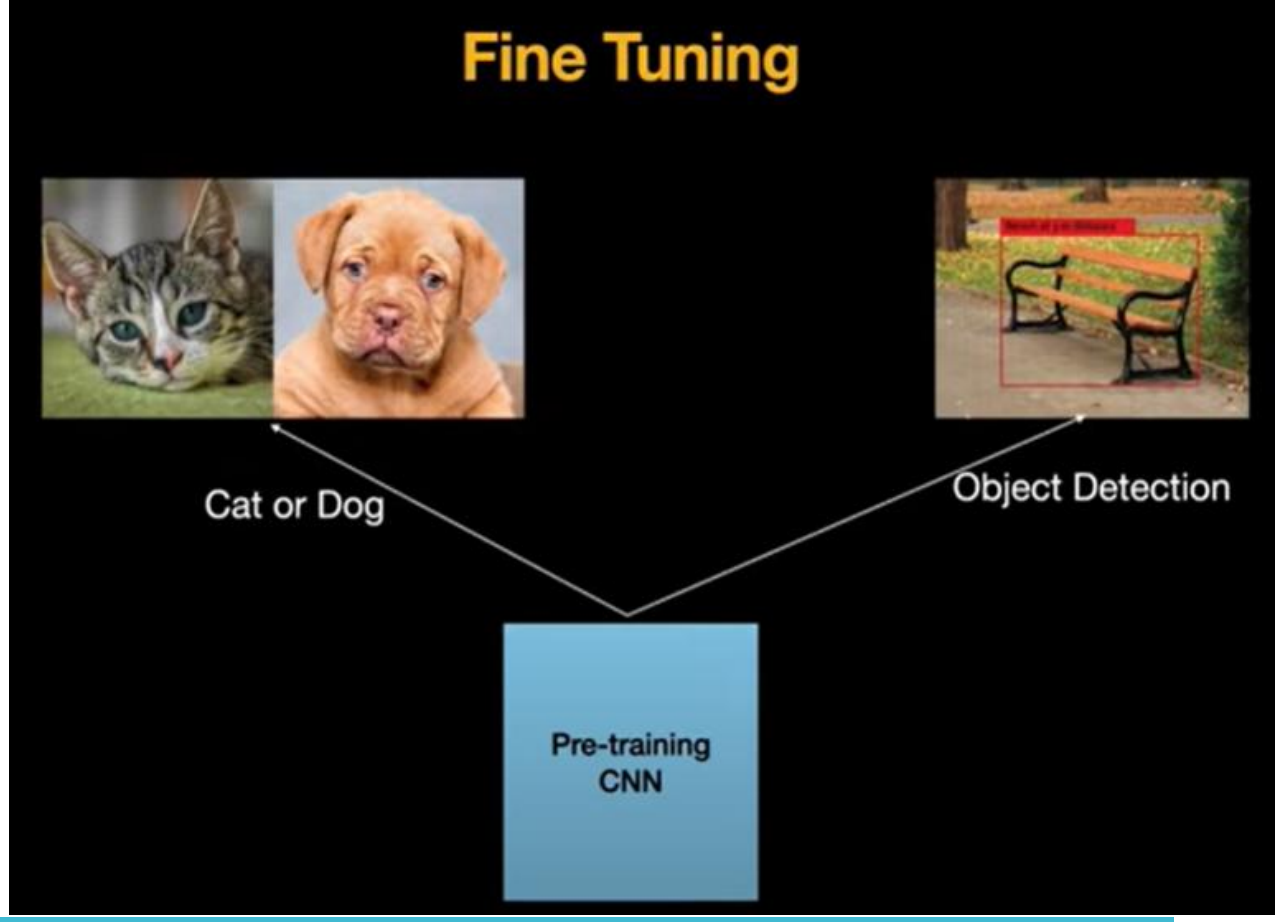
Scale of Transformers





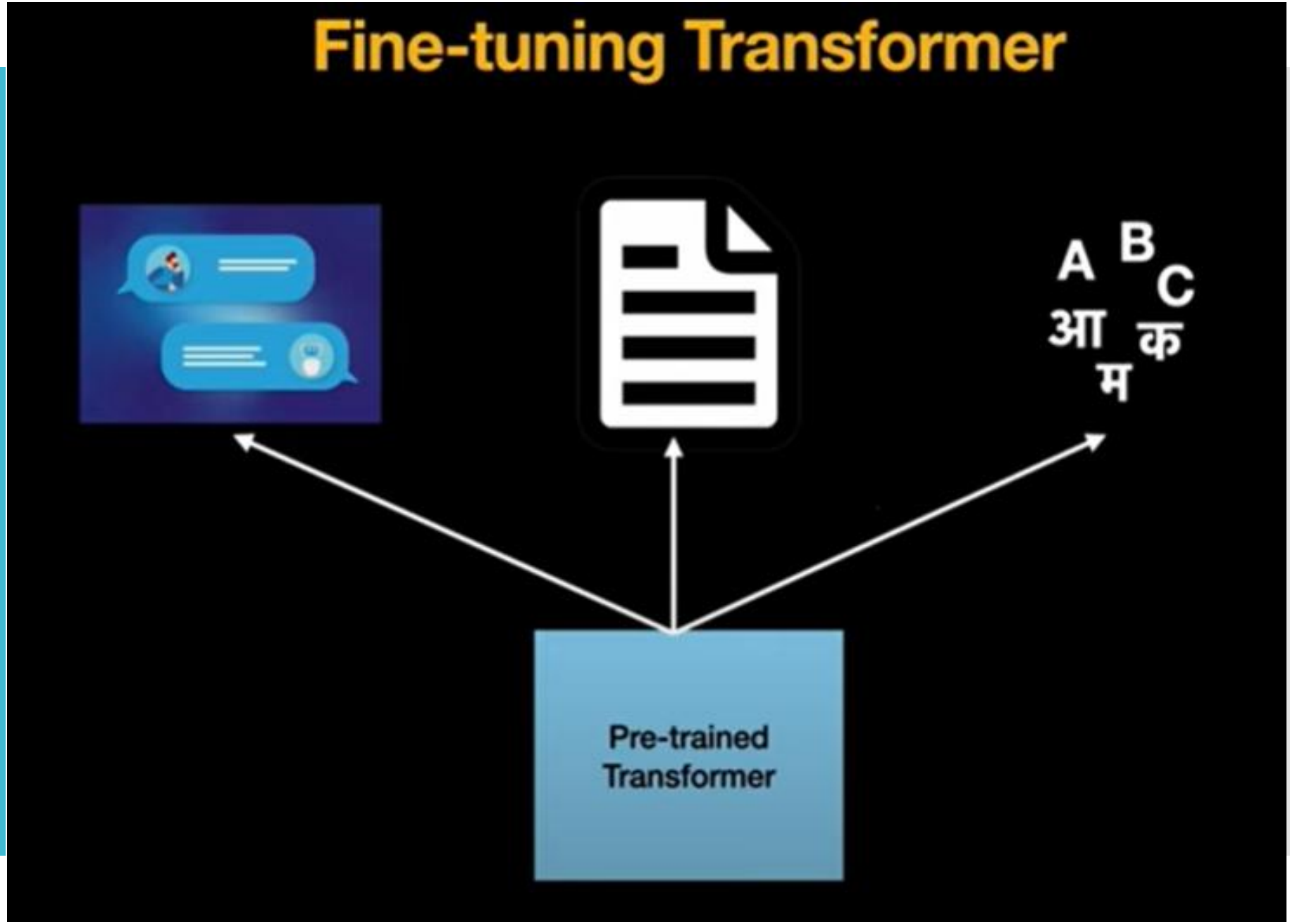
Transfer Learning

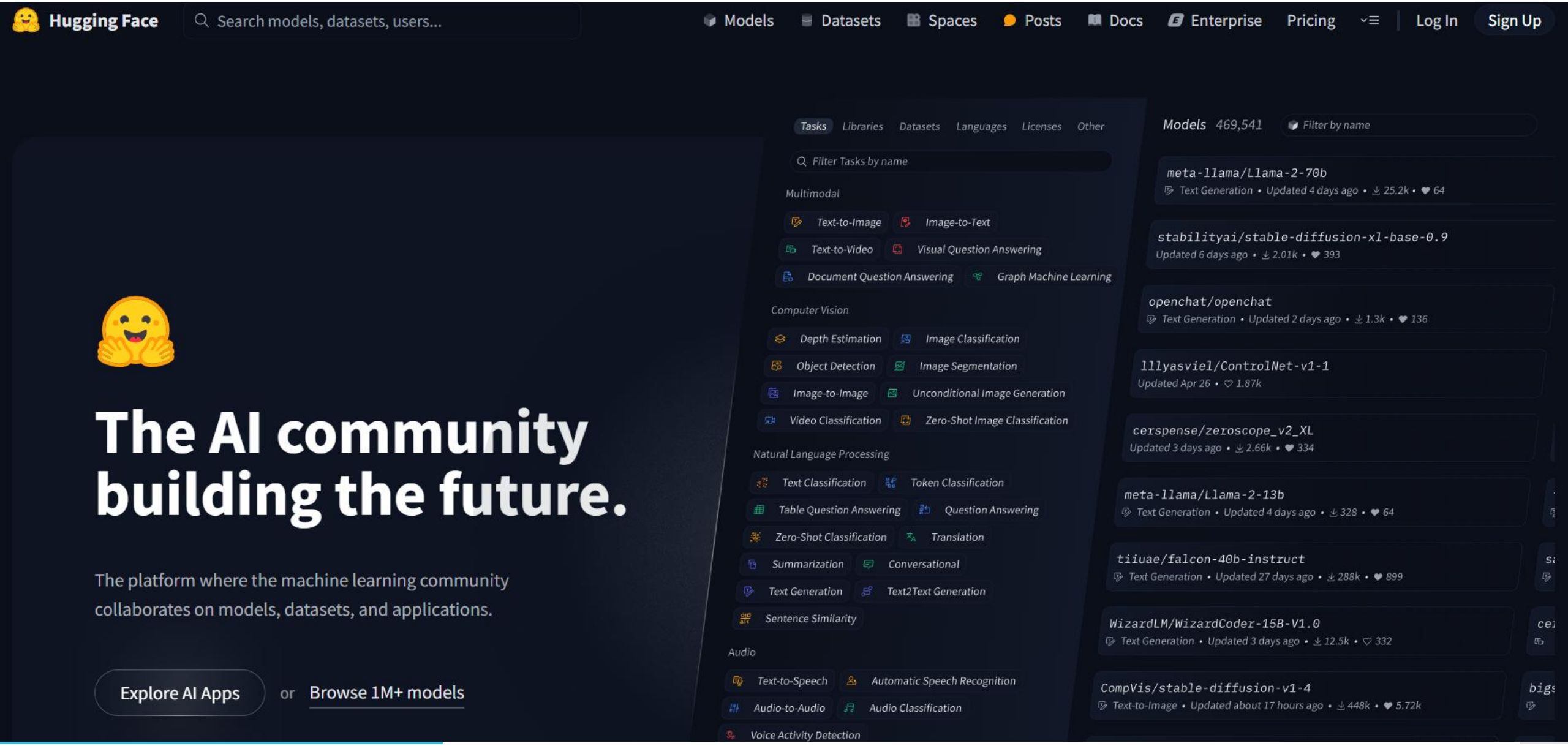




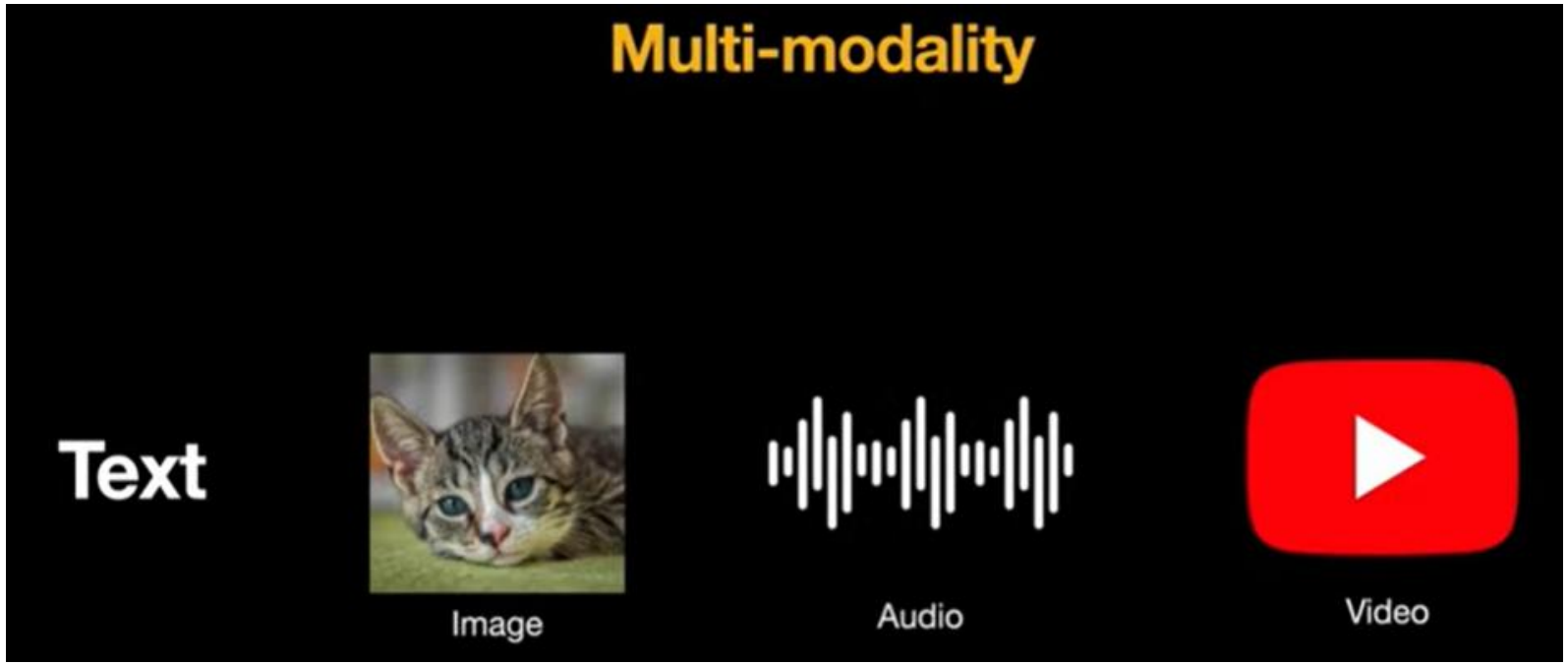
Transfer Learning

Pretrained transformer and Fine-Tuning

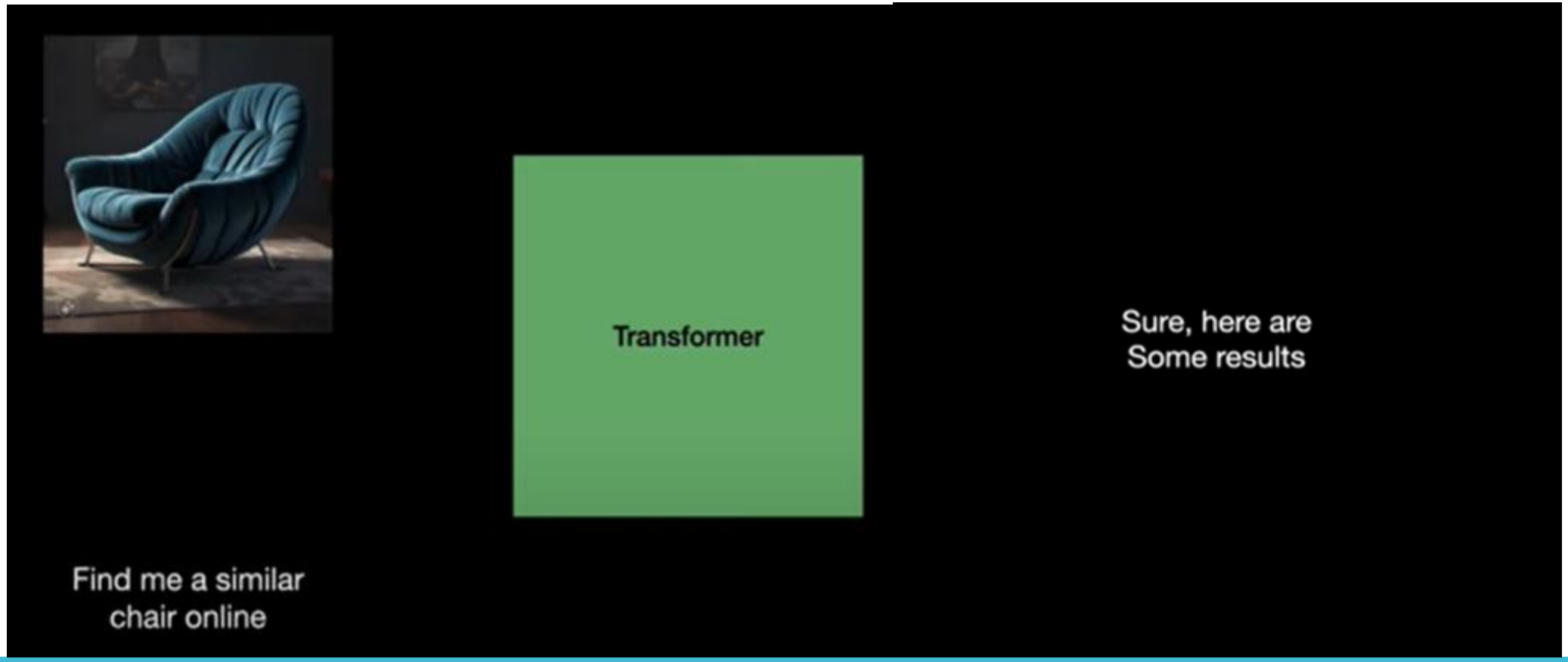




https://huggingface.co/



Multi-modality



VLM (Vision Language Models)

3D render of a cute tropical fish in an aquarium on a dark blue background, digital art

Open AI – DALL.E (https://labs.openai.com/)