

Large Language Models: A Machine Learning Overview

Professor Tambe

tambe@wharton.upenn.edu

Why do they work so well NOW?

What changed?

What are the risks?

And which are likely to go away?

An AI typology



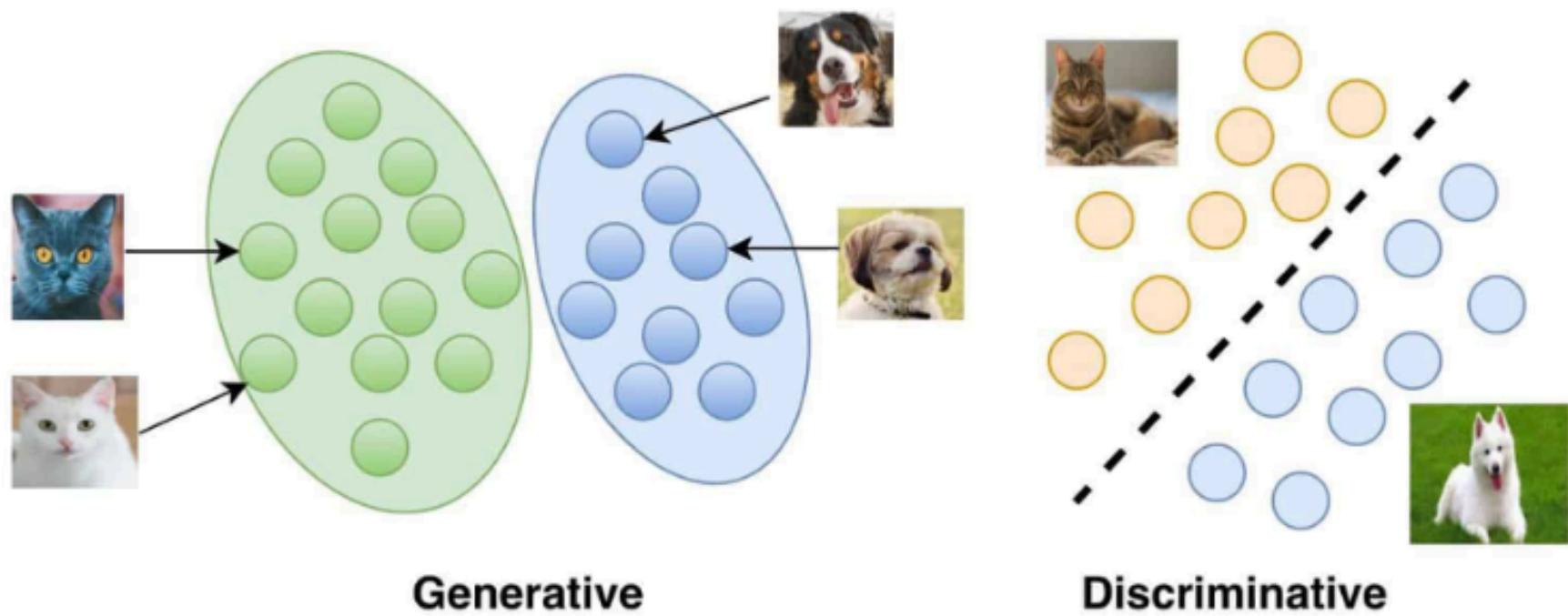
PREDICTIVE/DISCRIMINATIVE

Models that forecast outcomes based on historical data



GENERATIVE

Models that create new content and responses







Cat



Dog



Dog



Dog



Cat



Dog



Dog



Cat



Cat



Cat



Dog



Cat



Dog



Cat



Cat



Dog



Cat



Dog



BMID

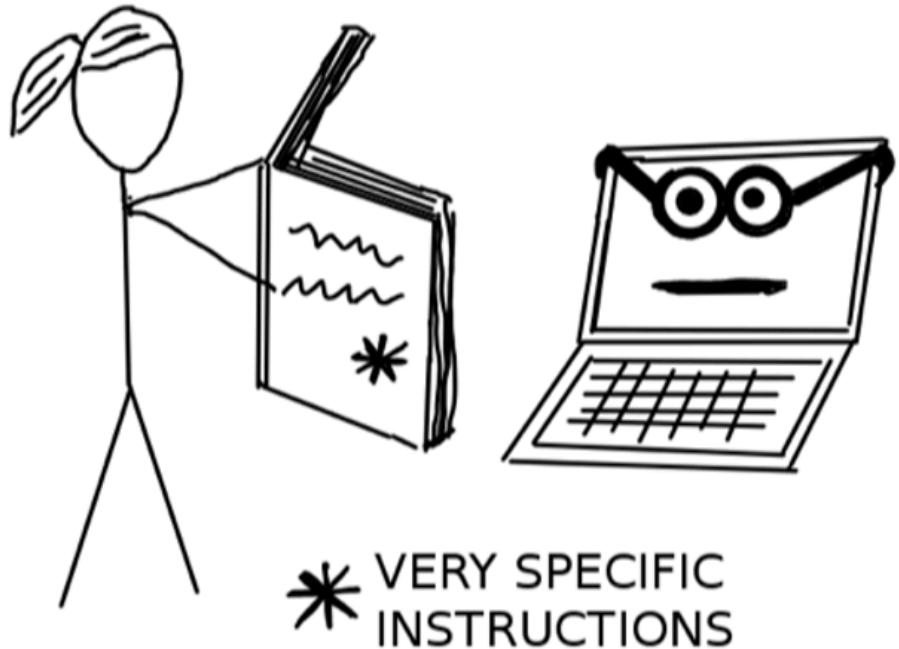




The BIG idea behind ML: Build effective representations of unstructured data



Without Machine Learning



With Machine Learning



Teachable Machine Demo



teachablemachine.withgoogle.com

► Get Started > Image Project > Standard Image Model

Step 2: Upload images

Upload Training Images

Class 1

Using your webcam, take several photos of Person A

Class 2

Using your webcam, take several photos of Person B

Step 3: Model training

Train the Model

Step 4: Test the Model

Testing Instructions

In the preview pane, point your webcam at either Person A or Person B to verify that the model correctly identifies them. The confidence score should be high when the correct person is in view.

Key questions about machine learning models

Understanding:

Does the model truly understand concepts like "cat", or is it just pattern matching?

Concerns:

What ethical and practical considerations should we keep in mind?

Process:

How does machine learning fundamentally change our approach to algorithm development?

Gen AI asks a different question

Traditional ML vs. Gen AI

Instead of asking "Can we detect if this image contains a cat?", Gen AI asks "Can we create a realistic image of a cat?"

See examples at ThisPersonDoesNotExist.com - every face is AI-generated!

How good will it get?





LLM Overview