The Imitation Game (The Turing Test): If a machine can convince a human that it is also a human, then it has “passed” the Turing Test, and can be said to demonstrate intelligence.

Artificial Intelligence is a field of research with the goal of getting machines to perform tasks that require intelligence

Machine Learning: A computer program is said to learn from experience E, with respect to some class of tasks T and performance measure P if its performance at tasks in T, as measured by P, improves with experience E.

A model is a function that takes inputs and processes those inputs to product outputs. A model learns from experience and feedback to update how it produces these outputs, in order to perform better at a task.

A parameter is a number in a model that can be updated in order to improve the model’s performance at a task.

A neural network is a category of machine learning models that consists of neurons that are grouped together in layers. Neural networks are commonly referred to as “deep learning.”

Object localization: locate an object with a bounding box (a rectangle).

Image classification: identify the category (a text label) that an image belongs to.

Object detection: identify both the location and category of objects in an image.

Embeddings are lists of numbers that describe an image in a compact way. Embeddings can be created for images, but also other things like text, audio.

The distance between two embeddings is measure of how similar the two images are.

Similarity search creates an embedding for the search image, and compares it to embeddings of other images in a database. It identifies other images for which the embeddings are a shorter distance to the search image’s embedding, and returns those associated images as “similar” to the search image. This can be applied to other things like text and audio.

Image segmentation identifies all the pixels that are associated with a particular object in an image.

Optical Character Recognition extracts text from inside an image so that you can use the text in a word processor, email or text message.

Homonyms: same spelling, same pronunciation

Examples: wave, match, spring, lie, bark, bank, right, light, tire, park, can.

Homographs: same spelling, may or may not have same pronunciation.

Examples: wind, tear, bow, contract, content, lead