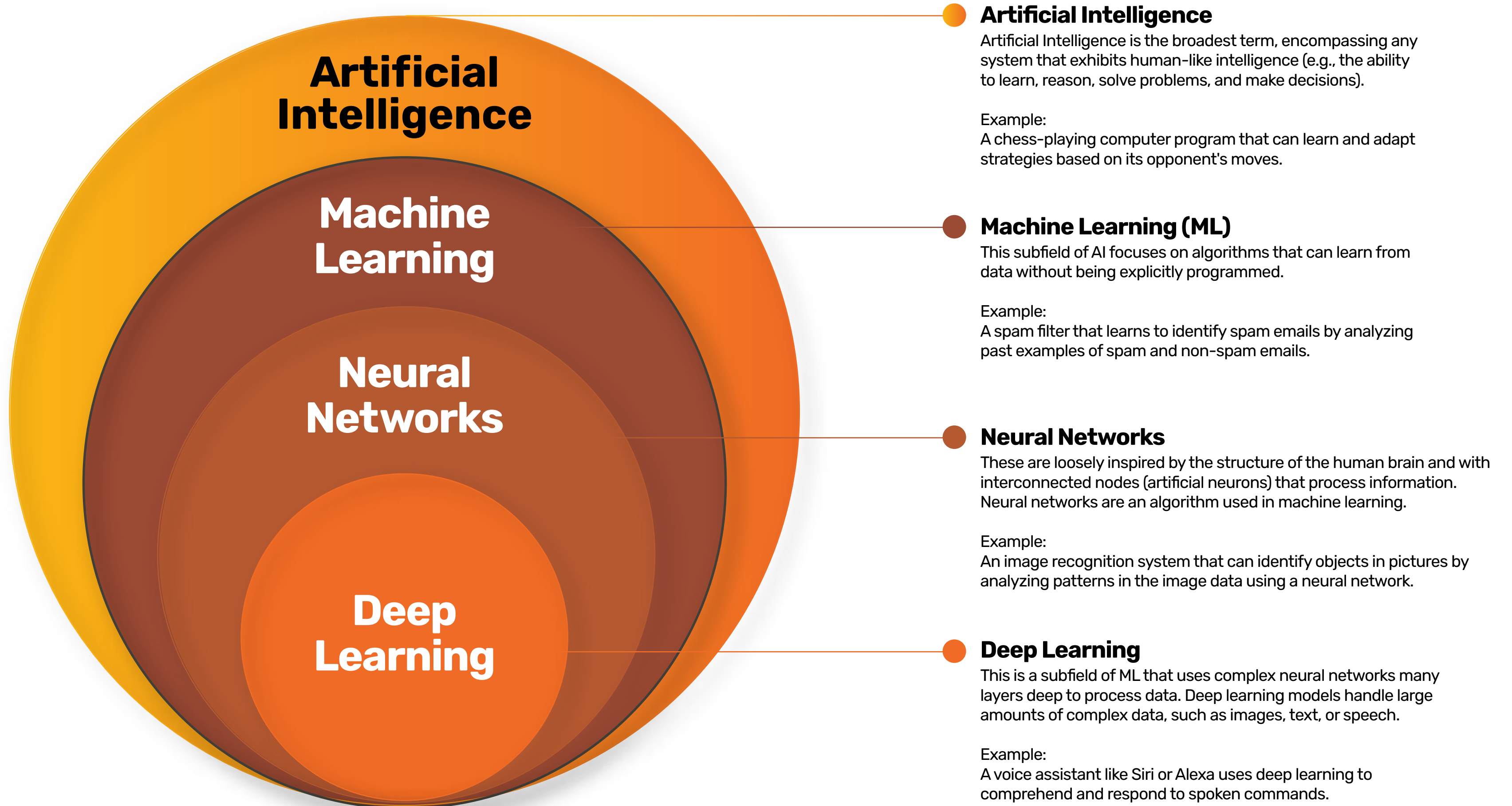# AI, Machine Learning, Neural Networks, and Deep Learning

Artificial Intelligence (AI) is a broad field that includes different techniques for helping machines mimic human-like intelligence. Let's break down these techniques from the most general (AI) to the most specific (deep learning).

Artificial Intelligence

Machine Learning

Neural Networks

Deep Learning

Artificial Intelligence

Artificial Intelligence is the broadest term, encompassing any system that exhibits human-like intelligence (e.g., the ability to learn, reason, solve problems, and make decisions).

Example:
A chess-playing computer program that can learn and adapt strategies based on its opponent's moves.

Machine Learning (ML)

This subfield of AI focuses on algorithms that can learn from data without being explicitly programmed.

Example:
A spam filter that learns to identify spam emails by analyzing past examples of spam and non-spam emails.

Neural Networks

These are loosely inspired by the structure of the human brain and with interconnected nodes (artificial neurons) that process information. Neural networks are an algorithm used in machine learning.

Example:
An image recognition system that can identify objects in pictures by analyzing patterns in the image data using a neural network.

Deep Learning

This is a subfield of ML that uses complex neural networks many layers deep to process data. Deep learning models handle large amounts of complex data, such as images, text, or speech.

Example:
A voice assistant like Siri or Alexa uses deep learning to comprehend and respond to spoken commands.

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