Thanks to enormous databases and computational power developed in the 2000s, The neural network have been marked by significant advances.

In 2006, Geoffrey Hinton (Simon Osindero, and Yee-Whye Teh) published an article on the "Layer-wise training of deep networks," contributing to the renewed interest in deep neural networks. Deep learning means the program can make decisions without humans. There are three categories: Unsupervised learning allows these networks to extract patterns from unlabeled data. Unlike supervised learning, where data is pre-categorized, here, networks attempt to classify data by examining neighboring values. The last one, reinforcement learning, we will see on the slide about AlphaGo.

In 2012, a new chapter unfolded with the victory of AlexNet (Geoffrey Hinton, Ilya Sutskever, and Alex Krizhevsky) in the ImageNet competition, marking the advent of convolutional neural networks (CNN). These networks, inspired by how the human brain visually processes information. CNN filter and extract specific features from an image. The layers assemble traits to form lines, subsequent layers assemble lines to form patterns, and so on. This innovative approach paves the way for a multitude of applications, from autonomous driving to medicine.

In 2016, AlphaGo, a product of DeepMind's efforts, captivated the world by demonstrating the nuances of reinforcement learning. Imagine AlphaGo as an unparalleled board game player, continuously learning and making decisions based on rewards. Thus, the neural network aims to maximize cumulative reward.

In 2020, OpenAI released GPT-3 (Generative Pre-trained Transformer), an LLM, a tool that could automatically analyze unlabeled text in large language models (LLM). The LLM is a model capable of generating text. This technology is based on various approaches, including generative neural networks. Two artificial intelligences compete: : one to create content as good as that of a human, and the other to evaluate the coherence response.

In conclusion, AI is pushing the boundaries of imaginations years after years, it cold be transform key sector like the relationship between health and AI, security, finance, robotics, and even quantum computing.