1. AI Has Grown Up
   1. This is a follow-up to a **video** I created about 7 years back titled “What is AI in 5 minutes.” Since then, a lot has changed, so here’s a sequel with the additional information. The information in the original video is still all true. Think of this one as part two.
   2. When we last talked about AI, it was getting good at recognizing **images**, understanding **speech**, and analyzing data.
   3. Today, AI is **creating**, **reasoning**, making **decisions**, and even **interacting like a human**.
   4. Some of the biggest breakthroughs are: **Generative AI**, **Agentic AI**, **Autonomous AI**, and the journey toward **Artificial General Intelligence**.
2. Generative AI: AI That Creates Like a Human
   1. Let’s first start with Generative AI or ChatGPT kind of models, that most of us are familiar with by now. Generative AI has gone beyond just analyzing data to producing **new content** from scratch.
   2. Gen AI is built on Large Language Models (LLMs) like GPT to predict words, by analyzing massive amounts of text and learning their probabilities of occurring close together.
   3. They use deep neural networks, specifically transformer architectures, which are a type of neural network designed to handle sequential data efficiently.
   4. Transformers improve upon traditional neural networks by using **self-**, attention mechanisms, allowing the model to weigh the importance of different words in a sentence and understand context over long passages of text.
   5. **Diffusion Models** create images by starting with random noise and refining it step by step. They work by gradually reversing a process that initially adds noise to an image, training the model to **reconstruct** the original image from the noisy version.
   6. This is achieved through deep neural networks, typically using **U-Net** **architectures**, which learn to predict and remove noise at each step, ultimately generating high-quality and realistic images.
   7. Multimodal AI integrates text, images, and audio, allowing AI to understand and generate content in **multiple formats**. It achieves this by using specialized transformer-based models called **multi-modal transformer** **model**, that can process and align different types of data within a shared representation space.
   8. As you know from my previous machine learning video, AI’s main way to understand the world is to map concepts in some representation space. This is often a **vector space**. In here, by learning relationships between modalities, Multimodal AI can perform tasks like describing images in text, generating images from text prompts, or even creating videos with synchronized audio and captions.
3. The Rise of Agentic AI: AI That Acts on Its Own
   1. And then there is Agentic AI. Traditional AI follows instructions, but Agentic AI makes decisions and **executes tasks** independently. It uses **memory**, **planning**, and **reinforcement learning** to execute tasks without human intervention.
   2. It does so by breaking down complex goals into smaller steps, adapting when things go wrong, and **continuously improving**.
   3. One of the common use cases for Agentic AI is that it integrates LLMs with external tools like **databases**, **APIs**, and **reasoning** frameworks. This allows AI agents to go beyond simple text generation and interact dynamically with external systems, retrieving real-time information, performing calculations, or executing **automated** tasks.
   4. For example, when a customer asks, “Where’s my order?” Instead of just providing a generic response, the AI, can query the **order** database to retrieve the real-time status, call the **shipping** API to get the latest tracking update, analyze previous customer interactions to offer proactive support like offering a **discount** if the order is delayed, and automatically send an update to the **customer**, reducing the need for human intervention.
   5. Agentic AI relies on deep learning for **perception** and **language** understanding but also integrates symbolic **reasoning**, **memory**, and goal-oriented **planning**, which go beyond deep learning.
4. Autonomous AI: Machines That Can Think and Act in the Real World
   1. The AI we just discussed was all **digital**. But now AI can also interact in the **physical** world.
   2. For example, Robotic AI combines **sensors**, **reinforcement** **learning**, and **computer vision** to navigate real-world environments. We know about self-driving cars navigating **roads**. They use sensor fusion (LiDAR, radar, cameras) plus neural networks to detect objects and predict motion.
   3. Technology-wise, this type of AI uses deep learning, **control systems**, reinforcement learning, and symbolic reasoning.
5. AI That Thinks: The Next Step Toward AGI (Artificial General Intelligence)
   1. And then there is the end game, which is Artificial General Intelligence. Right now, AI is still narrow—it can master one task at a time. The dream is AGI, where AI can think, learn, and reason like a **human**.
   2. How would it work? Instead of just predicting outcomes, it would use **causal reasonin**g to understand why things happen. It would use **few-shot learning** to learn from a few examples, just like humans, unlike today’s AI, which requires huge datasets.
6. The Future: What’s Next for AI?
   1. Here are some optimistic examples of how the future could be shaped by AI. Personalized AI Assistants: AI **assistants** are evolving to predict what you need before you even ask, from **scheduling** meetings to reminding you about daily tasks. Over time, they learn your habits, preferences, and routines, making life smoother and more efficient.
   2. AI-Human Collaboration: AI acts as a powerful tool that helps humans think faster and work smarter, whether in business, art, or science. Instead of replacing jobs, it automates **repetitive tasks** and provides insights, allowing people to focus on **creativity** and **complex decision-making**.
   3. AI for Science & Medicine: Instead of slow trial-and-error testing, AI can **analyze** millions of potential **drug compounds** in a fraction of the time. This accelerates the discovery of new treatments, helping researchers find **cures** for diseases faster and more efficiently.
7. Staying ahead
   1. With all this going on, how can you stay ahead? The best thing you can do is continue **learning** how **AI** works, experiment with tools, and stay informed.
   2. AI can help you work smarter. AI literacy is as important as digital literacy—**understanding AI** will be a key skill for the future.
   3. If you enjoyed this video, like, share, and subscribe for more AI updates. For a one-page visual of this and all future videos, please sign up on my website. Thanks for watching.