

# Artificial Intelligence (AI) and Your Child's Future

 **by Niall Boyle**

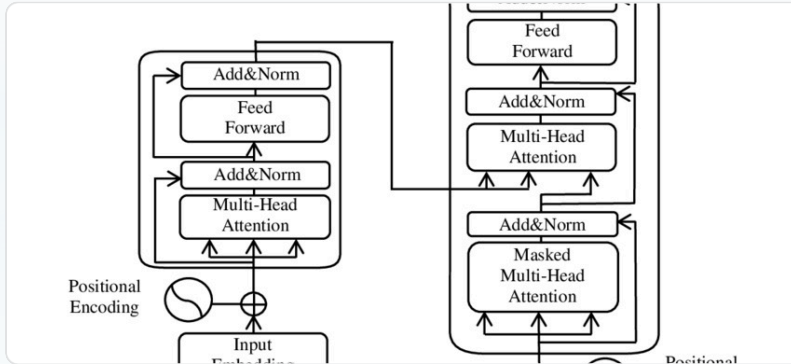
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**Table 1. AI competency framework for students**

| Competency aspects               | Progression levels |                            |                                |
|----------------------------------|--------------------|----------------------------|--------------------------------|
|                                  | Understand         | Apply                      | Create                         |
| • Human-centred mindset          | • Human agency     | • Human accountability     | • Citizenship in the era of AI |
| • Ethics of AI                   | • Embodied ethics  | • Safe and responsible use | • Ethics by design             |
| • AI techniques and applications | • AI foundations   | • Application skills       | • Creating AI tools            |
| • AI system design               | • Problem scoping  | • Architecture design      | • Iteration and feedback loops |

# What is ChatGPT and how does it work?

- Generative: Creates new content based on data
- Pre-trained: The models learned from massive datasets
- Transformer: A specific form of neural network, Voice-to-text , text-to-image, text-to-text



 Wikipedia

**Attention Is All You Need**

"Attention Is All You Need" is a 2017 landmark research paper in machine learning authored by eight scientists working at Google. The paper introduced a new deep...

[\[Link\]](#)

- Predictive Transformer: Predicts patterns but doesn't "think". A specific form of neural network.

| Model   | Release Date | Parameter Count | Training Data Size | Key Capabilities                                                                                                                                                                                                                                  |
|---------|--------------|-----------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GPT-1   | 2018         | 117 million     | 4.5 GB             | Demonstrated the potential of unsupervised pre-training, laying the groundwork for subsequent models.                                                                                                                                             |
| GPT-2   | 2019         | 1.5 billion     | 40 GB              | Capable of generating coherent paragraphs of text, performing tasks like translation and summarization without task-specific training.                                                                                                            |
| GPT-3   | 2020         | 175 billion     | 570 GB             | Exhibited advanced language understanding, capable of tasks such as coding assistance, complex question answering, and creative writing.                                                                                                          |
| GPT-3.5 | 2022         | 175 billion     | ?                  | Improved upon GPT-3 with better instruction-following and reduced generation of incorrect or nonsensical answers.                                                                                                                                 |
| GPT-4   | 2023         | ?               | ?                  | Introduced multimodal capabilities, processing both text and images, with enhanced reasoning and understanding.                                                                                                                                   |
| GPT-4o  | 2024         | ?               | ?                  | Advanced multimodal features, including real-time processing of text, audio, and images, with rapid response times and improved performance across languages.                                                                                     |
| o1      | 2024         | ?               | ?                  | Emphasized human-like reasoning, capable of breaking down complex problems into smaller steps, enhancing performance in tasks such as mathematics, coding, and scientific inquiries.<br>( <a href="https://theatlantic.com">theatlantic.com</a> ) |

*Note: Specific details about parameter counts and training data sizes for GPT-4, GPT-4o, and o1 have not been publicly disclosed.*



# Chain of thought Reasoning

Do something to delight me in exactly 7 words. Make it not cheesy. This is important

Thought for 8 seconds

Okay, the user wants something delightful in exactly seven words, not cheesy. Let me start by understanding the key points here. Delight can come from surprise, cleverness, or a unique perspective. The challenge is the seven-word constraint, which means every word has to count.

First, I should avoid anything overly sentimental or cliché. Words like "love," "heart," or "forever" might come off as cheesy. Instead, think about elements that evoke wonder or curiosity. Maybe nature, science, or everyday magic.

Consider phrases that create a vivid image. For example, combining unexpected elements or using a twist. Words like "moonlight," "origami," or "fireflies" could work. Let me brainstorm a few combinations.

"Fireflies map constellations in silent conversation." Hmm, seven words. Fireflies creating constellations through their lights, implying a natural, quiet interaction. It's visual and a bit poetic without being too sweet.

Wait, "map" as a verb here? Fireflies mapping constellations. That personifies them slightly, giving them intention. "Silent conversation" adds a layer of depth, suggesting communication without words. It's not cheesy; it's more about nature's beauty and subtle interactions.

Is there a better word than "conversation"? Maybe "dialogue," but that's longer. "Silent exchange"? No, "conversation" fits better. Let me check the word count: Fireflies (1) map (2) constellations (3) in (4) silent (5) conversation (6) – wait, that's six words. Oops, need seven.

Let me adjust. Maybe "Fireflies sketching constellations in silent night dialogue." Now, "sketching" instead of "map," and "night dialogue." But "night" adds a time element. Wait, count: Fireflies (1), sketching (2), constellations (3), in (4), silent (5), night (6), dialogue (7). That works. But does "night dialogue" make sense? Maybe a bit forced.

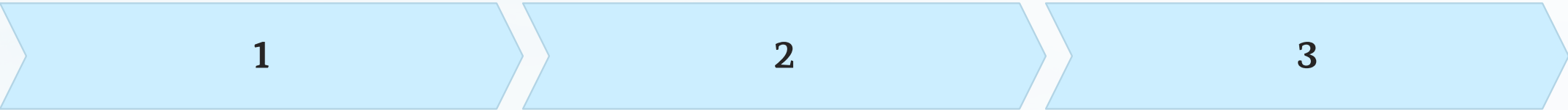
Original idea was six words. Let me rework. "Fireflies trace constellations in quiet night conversation." Now: Fireflies (1), trace (2), constellations (3), in (4), quiet (5), night (6), conversation (7). Seven words. "Quiet night conversation" flows better. It keeps the imagery of fireflies creating patterns like constellations, implying a natural, serene scene. The word "trace" suggests movement and creation, which is active but gentle. "Quiet night conversation" personifies the fireflies' light patterns as a form of communication, which is subtle and not cheesy. It's more about the beauty of nature and the interconnectedness of things. Yeah, this might work. Let me check again for cheese factor. No romantic or overly emotional terms. Focus on natural phenomena with a touch of metaphor. Seems safe. Alright, this should meet the user's request.

**Fireflies trace constellations in quiet night conversation.**

## Problem Input

The AI model receives a question or problem statement

credit: Ethan Mollick



## Step-by-Step Reasoning

Instead of immediately producing a final answer, the model generates a series of coherent thoughts or steps leading to the solution.

## Intermediate Outputs

Each step in the reasoning process is explicitly stated, allowing for transparency in the model's decision-making.

## Final Answer

After working through the intermediate steps, the model provides its conclusion or solution.

# Personal use cases



Tell me about this

This is a commemorative plaque honoring Percy Edwin Ludgate (1883–1922), an Irish pioneer in the field of computing. It mentions that he invented the world's second computer. Ludgate is renowned for designing an Analytical Engine in the early 20th century, independently of Charles Babbage's work, which was the first attempt to create a programmable mechanical computer.

Ludgate's machine was innovative for its time, featuring a unique logarithmic computing method and a design for automated punched card programming. Despite its significance, Ludgate's work received limited attention during his lifetime and was never physically constructed.

The plaque likely signifies a site related to Ludgate's life or work, commemorating his contributions to the history of computing in Ireland and the world. The website mentioned ([www.irishscientists.ie](http://www.irishscientists.ie)) would provide further information about his contributions and other notable Irish scientists.

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Message ChatGPT

+ 🔍 Search ...



How can we tell if jewellery is gold?



There are several ways to determine if jewelry is made of real gold, ranging from simple visual checks to more advanced tests:

## 1. Look for Hallmarks

- **Markings:** Check for a hallmark or stamp on the jewelry, typically found on the clasp, inside of a ring, or on the back of a pendant. Common markings include:
  - "K" or "Kt" (e.g., 24K, 18K): Indicates the purity of gold.
  - "750," "585," or "417": Numeric indicators of gold content (e.g., 750 = 18K).
  - "GF" or "GP": Means gold-filled or gold-plated, not solid gold.

## 2. Magnet Test

- **Gold is not magnetic.** Hold a strong magnet (like a neodymium magnet) near the piece. If the jewelry is attracted to the magnet, it likely contains metals other than gold.

## 3. Float Test

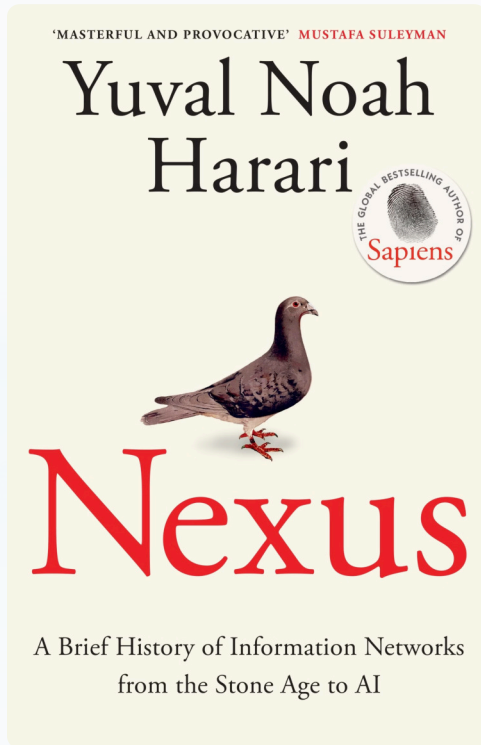
- **Density Test:** Drop the item into a container of water. Real gold is dense and will sink quickly. Fake or gold-plated items may float or sink slowly.

## 4. Skin Test

- **Skin Reaction:** Wear the jewelry for a day. If your skin turns green or black, it's likely not pure gold but a lower-quality alloy.

## 5. Nitric Acid Test

# Nexus by Yuval Noah Harari



**The profound impact of artificial intelligence on society.**

**Have humans developed technology or has technology developed human**

**ethical and philosophical implications of AI and its potential consequences on humanity.**

**Nexus offers a deep exploration of the intersection between technology and human progress.**

# Evolution of Information Generation

|                      |                      |                                                                                       |
|----------------------|----------------------|---------------------------------------------------------------------------------------|
| Prehistoric          | Cave Paintings       | Visual storytelling, limited reproduction, localized communication                    |
| Ancient Civilization | Writing Systems      | Symbolic representation, scrolls, preservation of knowledge                           |
| Gutenberg Era        | Printing Press       | Mass reproduction, standardized information, wider knowledge distribution             |
| Digital Age          | Internet & Computers | Global instant communication, unlimited digital reproduction, collaborative knowledge |
| AI Era               | Generative AI        | Adaptive content generation, multilingual processing, context-aware communication     |

# Biases in AI

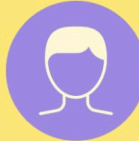
**Did you know?**

## Bad AI encourages gender bias



**Women often downplay** their skills on their applications.

+



While **men often exaggerate** and include phrases tailored to the position

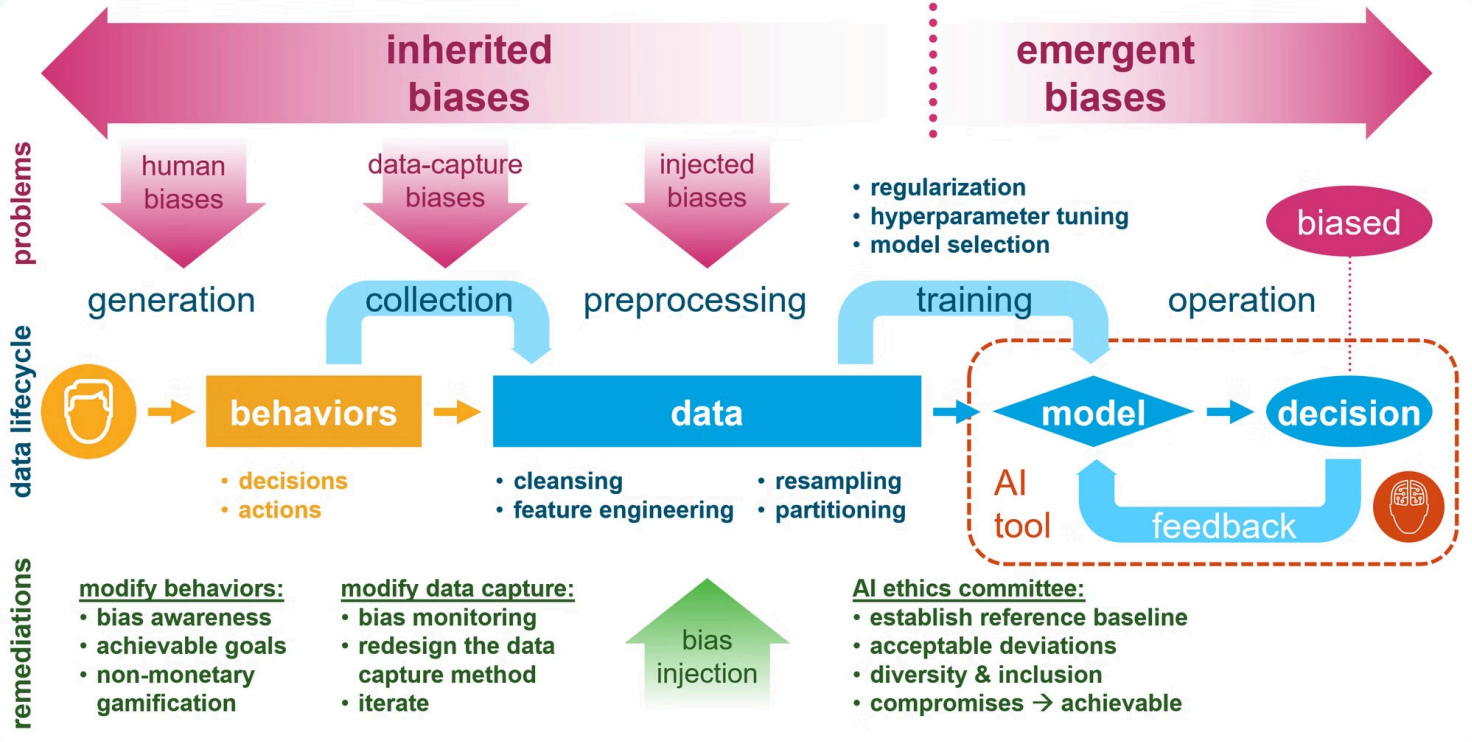
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Making them **stand out for the wrong reasons** to a standard AI hiring algorithm that screens resumes.

Source: Journal of Personality and Social Psychology





# EU AI Regulation Act

**Effective Date:** First phase began on February 2, prior to the Paris AI Summit.

- **Prohibited Applications:**

- Social rating systems
- Predictive policing for individual profiling
- Emotion recognition in workplaces/schools
- Exploitation of vulnerabilities and subliminal manipulation
- Real-time facial recognition in public spaces (with law enforcement exemptions)

- **Implementation Timeline:**

- **From August 1:** General-purpose AI models must ensure transparency in technical documentation and training data; major models require security audits.
- **Future Regulations:** Will extend to high-risk AI applications in sectors like infrastructure, education, employment, and banking.

- **Enforcement:** Managed by the new AI Office and national authorities.

- **Penalties:** Fines up to 7% of global sales for prohibited practices; 3% for other violations.



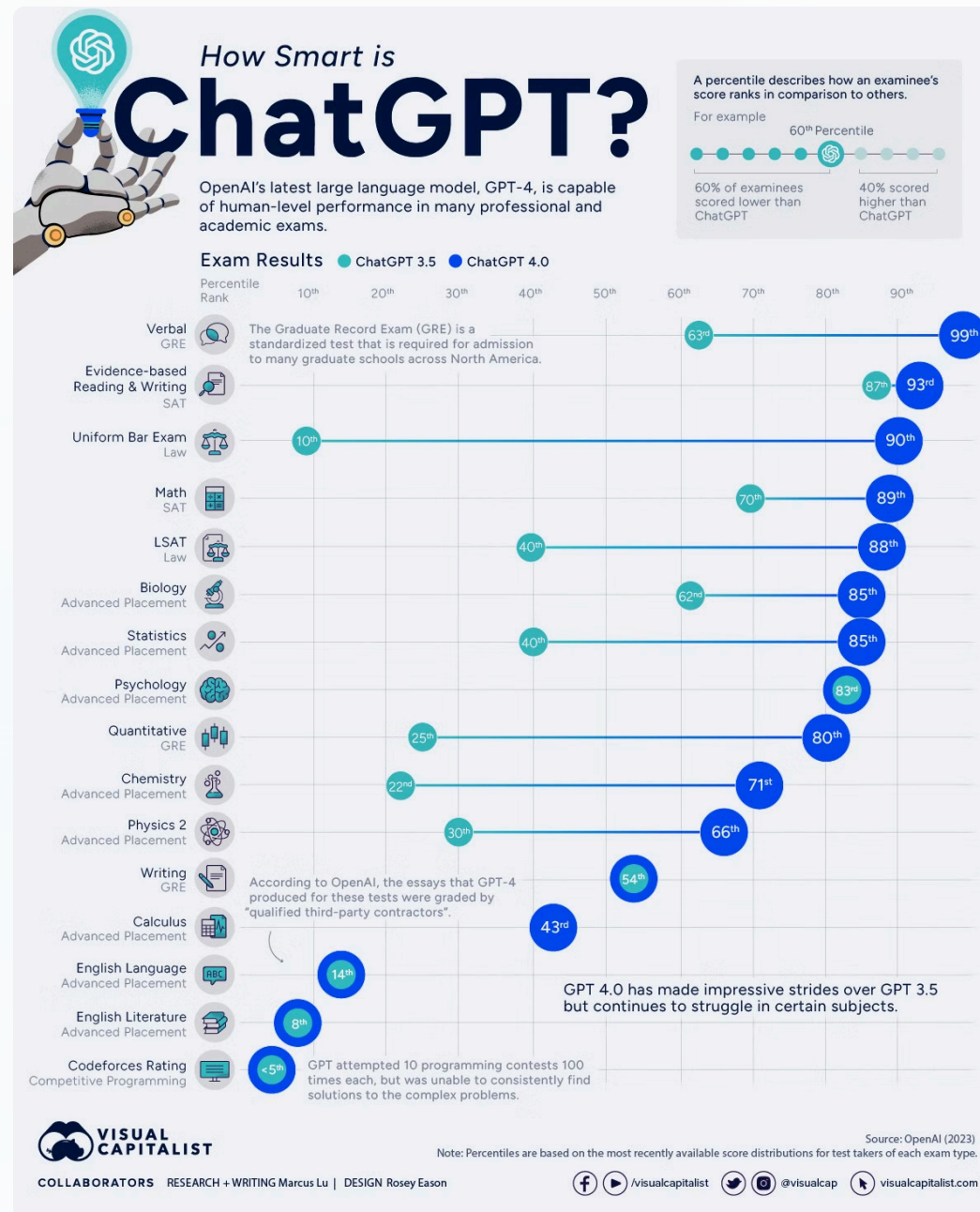
# AI NAK OIL

What Artificial Intelligence  
Can Do, What It Can't,  
and How to Tell the Difference



VIND NARAYAN  
SAYASH KAPOOR

## Hype vs Reality



# AI and the Beatles

Machine learning algorithms enhance audio mixing, mastering, and help artists refine their sound with unprecedented precision.



 BBC News



**Sir Paul McCartney: Don't let AI rip o...**

The Beatle calls on the government to reconsider proposed changes to copyrigh...





# Artificial Video and Content Generation



 YouTube 

**Introducing Sora — OpenAI's text-to-vi...**

Introducing Sora, our text-to-video model. Sora can create videos of up to 60 seconds...



Everyone: AI art will make designers obsolete

AI accepting the job:



# AI can make us better at developing strategy



 YouTube



## How I Became the First Human to Defeat Stockfish 12

Score one for humanity in the battle to prevent the evil robot overlords from rising up and destroying us all! I was hoping for a Nakhmanson Gambit but Stockfish 12...



 Scientific American



## AI's Victories in Go Inspire Better Human Game Playing

Famed AI wins in Go let human players rethink their moves in a whole new way



# Potential Benefits of AI in Education

## Personalized Learning

AI can tailor learning experiences to individual needs and pace.

## Accessibility

AI can provide support for students with disabilities, ensuring inclusivity.

## Enhanced Teaching

AI tools can help teachers identify students' strengths and weaknesses.

## Lesson Generation and Differentiation

Teachers will be able to think outside of the textbook and be able to develop detailed, structured lesson plans, linking student interests, cross-curricular topics, local based and outdoor and seasonal learning. Catch up material for absent students

## Socratic Dialogue

Act like a socratic tutor and test me on the concept of standard deviation in mathematics. Ask me questions to evaluate my knowledge for honours level Irish Leaving Certificate Mathematics.

## Multi level Explanation

Give me a description of a quadratic equation first at the level of a child, then at the level of a secondary school student, and an academic explanation.

# AI: Empowering Human Potential at Work



## Enhanced Productivity

AI handles repetitive tasks, freeing humans for creative and strategic work



## Continuous Learning

More time for professional development and skill acquisition



## Intelligent Collaboration

AI provides insights and recommendations, supporting human decision-making



## Work-Life Balance

Reduced administrative burden leads to more meaningful and flexible work

# Navigating the AI Landscape as a Parent



By being aware of the potential benefits and risks, we can guide our children towards a future where AI empowers them while respecting their rights and well-being.

# NotebookLM: Grounding AI



## What is NotebookLM?

AI-powered notebook that grounds a chatbot's knowledge in selected sources



## Key Features

Prevents AI hallucinations by keeping it within reliable material



## Origin

Google-developed tool for research and structured learning



# Understanding Agentic AI



## **Autonomous Decision Making**

AI systems that can independently set goals, plan, and execute complex tasks with minimal human intervention



## **Adaptive Problem Solving**

Ability to dynamically adjust strategies and learn from outcomes in real-time



## **Advanced Reasoning**

Employing sophisticated reasoning techniques like chain-of-thought to break down and solve intricate problems

Agentic AI represents a significant leap beyond traditional AI, enabling systems that can think, plan, and act with greater autonomy and sophistication.