

ARTIFICIAL GENERAL INTELLIGENCE – SCIENCE & TECHNOLOGY

NEWS: In a recent **paper** titled, “**An Approach to Technical AGI Safety and Security**” has proposed a framework for technical Artificial General Intelligence safety and security.

- **Published By:** The paper was published by **researchers from DeepMind (Google’s AI lab)**
- The paper was **hopeful about the development of powerful AGI systems by 2030**

WHAT’S IN THE NEWS?

Definition of Artificial General Intelligence (AGI)

- AGI refers to a type of artificial intelligence that is not limited to specific tasks or narrow functions.
- It has the ability to **learn, adapt, and apply knowledge** across a wide range of activities, **mimicking human cognitive capabilities**.
- In contrast to narrow AI (used in chatbots, image recognition, etc.), AGI is expected to handle **diverse, unfamiliar problems** with minimal supervision or task-specific training.

Historical Origin of the AGI Concept

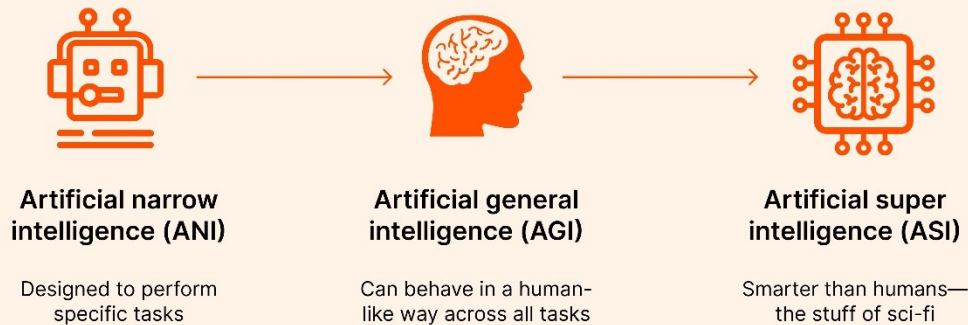
- **Alan Turing**, a British mathematician and the father of theoretical computer science, first conceptualized machine intelligence in his 1950 paper titled “*Computing Machinery and Intelligence*.”
- He argued that intelligence should be understood and evaluated based on **observable behavior**, not abstract philosophical definitions.
- This marked a **paradigm shift** in how machine cognition and artificial intelligence would be assessed scientifically.

The Turing Test – Foundation of AGI Evaluation

- Turing proposed a method to test machine intelligence based on an **Imitation Game**:
 - A human evaluator interacts through text with both a machine and a human.
 - If the evaluator cannot reliably tell which is which, the machine is considered to exhibit **human-like intelligence**.

What is AI?

ANI vs. AGI vs. ASI



- The test laid the groundwork for **behavior-based benchmarks** in AI development.

4. Levels of AGI – As per DeepMind's 2023 Paper

DeepMind researchers classified AGI into **five hierarchical levels** based on performance relative to humans:

1. Emerging AGI

- Functions at the level of an unskilled human or slightly better.
- This is the only level that current AI systems have arguably reached.

2. Competent AGI

- Performs tasks at or above the **50th percentile** of **skilled adult human** capability.
- Suitable for routine cognitive work.

3. Expert AGI

- Operates at the **90th percentile** level of skilled adults.
- Equivalent to domain experts in various fields.

4. Virtuoso AGI

- Matches or surpasses the **99th percentile** of human experts.
- Expected to handle complex problem-solving in creative, strategic, or abstract areas.

5. Superhuman AGI

- Exceeds the capabilities of **100% of humans** across all domains.
- Represents a level where machines **consistently outperform humans** in any cognitive task.

Benefits of Artificial General Intelligence

A. Raising Global Living Standards

- If deployed equitably and with strong safety measures, AGI has the potential to **enhance economic output**, reduce labor costs, and increase access to essential services.
- It can lead to **more efficient production, distribution, and decision-making** across societies.

B. Driving Innovation and Economic Growth

- AGI can **accelerate product and process innovation**, cutting research and development timelines.
- This could lead to **faster technological progress** and **higher societal returns on innovation investments**.

C. Improving Education and Healthcare Access

- AGI could deliver **customized educational experiences**, adapting content in real time to suit individual learning needs.
- It could power **diagnostic tools and virtual health assistants**, increasing the reach and effectiveness of healthcare services.

D. Accelerating Scientific Discoveries

- AGI systems can process and model **complex scientific theories**, predict outcomes, and explore novel research directions.
- This includes solving advanced mathematical problems or **hypothesizing mechanisms in biology, physics, and climate science**.

E. Democratizing Innovation

- By significantly lowering the cost of accessing **high-level computational power and information**, AGI could empower individuals and small organizations to innovate.
- This democratization helps **bridge global disparities in access to knowledge and technology**.

Source: <https://indianexpress.com/article/explained/explained-sci-tech/agi-artificial-general-intelligence-9950112/>

