

CET139 Emerging Technologies



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AI evolution

- **1. Early AI (1950s–1970s) — Symbolic & Rule-Based**
- **1950** : In 1950 saw the publication of Alan Turing's work , "**Computing Machinery and Intelligence** " which introduced the Turing Test—a measure of computer intelligence.
- AI was basically *logic + rules* (expert systems).
- Example: **ELIZA** (1966) — a chatbot mimicking conversation via scripted patterns.
- Weakness: brittle; couldn't handle unexpected inputs.

2. The Expert System Era (1980s)

- Large “if–then” rule databases for medical diagnosis, troubleshooting, etc.
- Example: **MYCIN** for medical recommendations.
- Downfall: **knowledge bottleneck** (hard to encode everything as rules).

AI evolution

3. Machine Learning Era (1990s–2010s)

- Shift from rules → data-driven learning.
- Algorithms: Decision Trees, SVMs, Random Forests.
- Big leap in **computer vision** and **speech recognition**.
- Example: Google Translate's statistical models.

4. Deep Learning Explosion (2012–2020)

- Neural networks became deep & powerful thanks to GPUs + big data.
- **AlexNet** (2012) crushed ImageNet competition — start of DL revolution.
- Transformers (2017) → revolution in natural language (BERT, GPT).

AI evolution

5. Generative AI & Foundation Models (2020–Present)

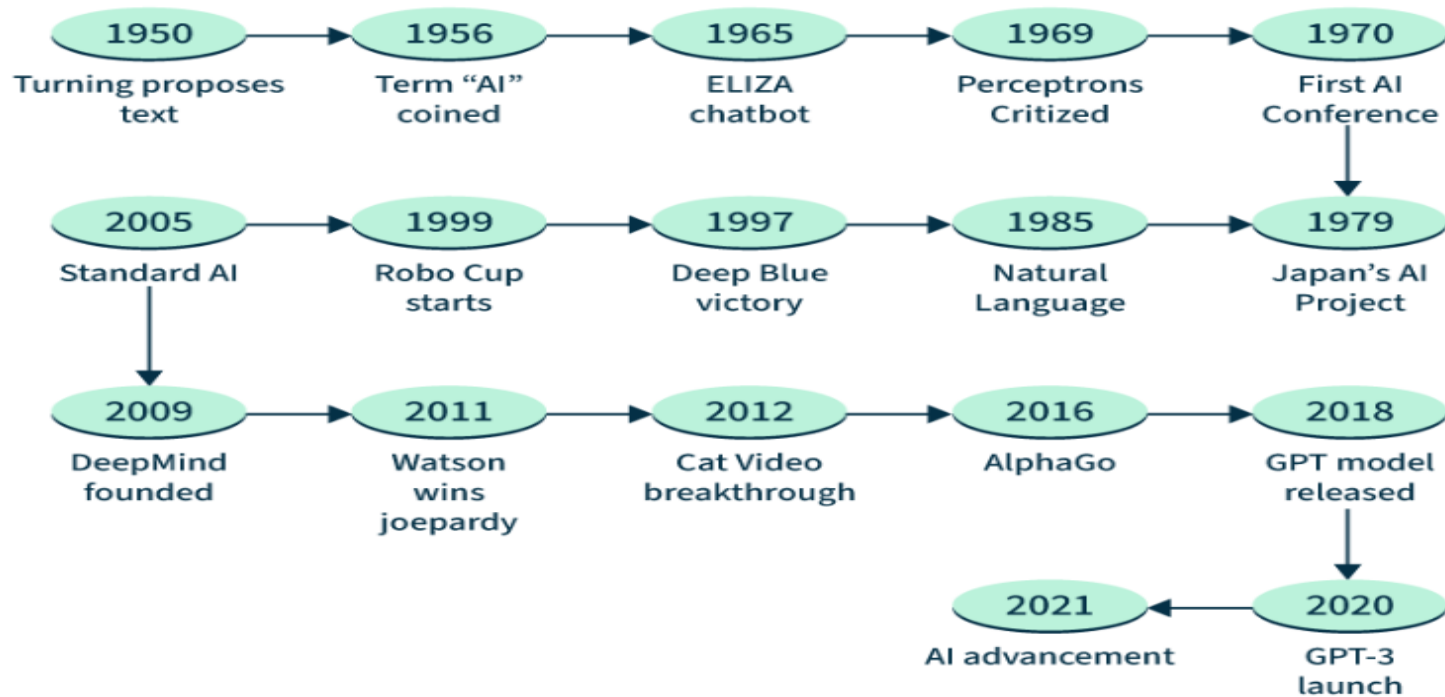
- Large Language Models (LLMs) like GPT-3, GPT-4, Claude, Gemini.
- Multimodal AI — text, image, audio, video in one model.
- AI moves from niche tool → general-purpose assistant.
- Example: ChatGPT, DALL·E, Midjourney.

6. Near Future (2025–2030) — Autonomous & Adaptive AI

- AI agents doing tasks end-to-end.
- Real-time multimodal understanding.
- More explainable, ethical, and personalizable systems.
- Likely breakthroughs in **AI reasoning** and **continuous learning**.

AI evolution

Evolution of AI



Evolution of AI

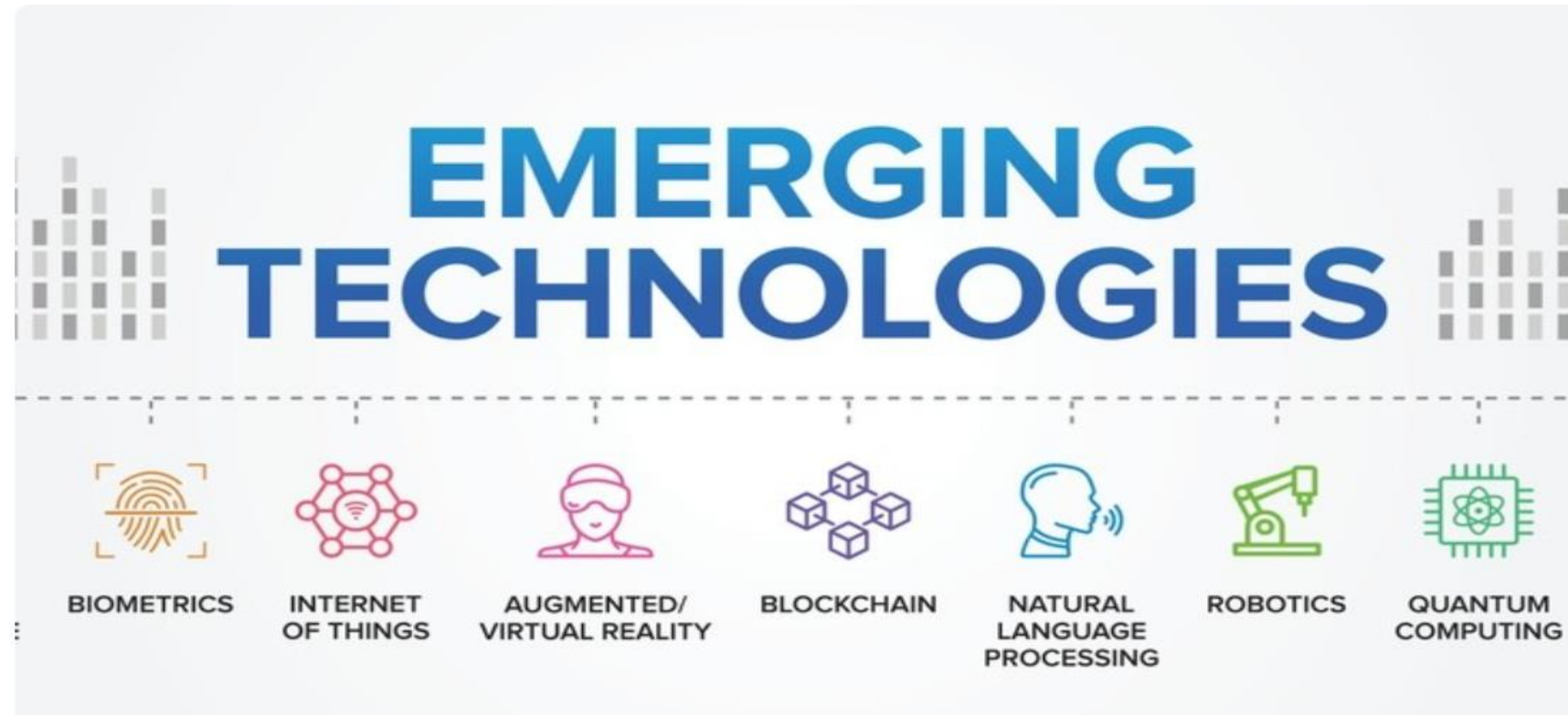
AI is one type of emerging technology when it's in a growth phase.

Machine Learning, Deep Learning, Natural Language Processing, Computer Vision, Robotics AI.

Emerging technologies **aren't always AI**

AI + Blockchain, Quantum Computing, AR/VR, IoT,
Biotechnology, Renewable Energy, 5G/6G,
Space Tech, Brain–Computer Interfaces, etc.

Emerging Technologies



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