

# CAUCE 2025

Brock University • Niagara • May 28-30

---

Knowledge Knows No Boundaries



## CAUCE

Canadian Association for  
University Continuing Education



# Beyond the Hype: AI Literacy, Cognitive Extension, and the LLM Ceiling

---

**R. Lastra**, Ph.D. C.AL

University of Manitoba – Extended Education

2025 CAUCE President



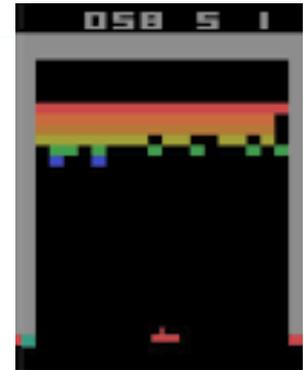
## 1997 – Deep Blue defeats Garry Kasparov

- IBM's Deep Blue becomes the **first AI to beat a world chess champion**
- A landmark in symbolic AI and brute-force computing

## 2014 – Google acquires DeepMind ~ \$0.5 Billion

## 2015 – Deep Q-Network plays Atari's Breakout

- DeepMind's AI learns **Breakout from scratch** using reinforcement learning
- Showed AI's ability to **learn through experience** without prior instructions



## 2016 – AlphaGo defeats Lee Sedol

- DeepMind's AlphaGo beats a Go world champion, **a game long thought too complex for AI**
- Used deep learning and self-play to develop intuitive-like strategies

## 2017–2018 – AlphaZero outperforms human champions

- Mastered **chess, shogi, and Go** from scratch in hours
- Marked a shift to **generalized game-playing AI**

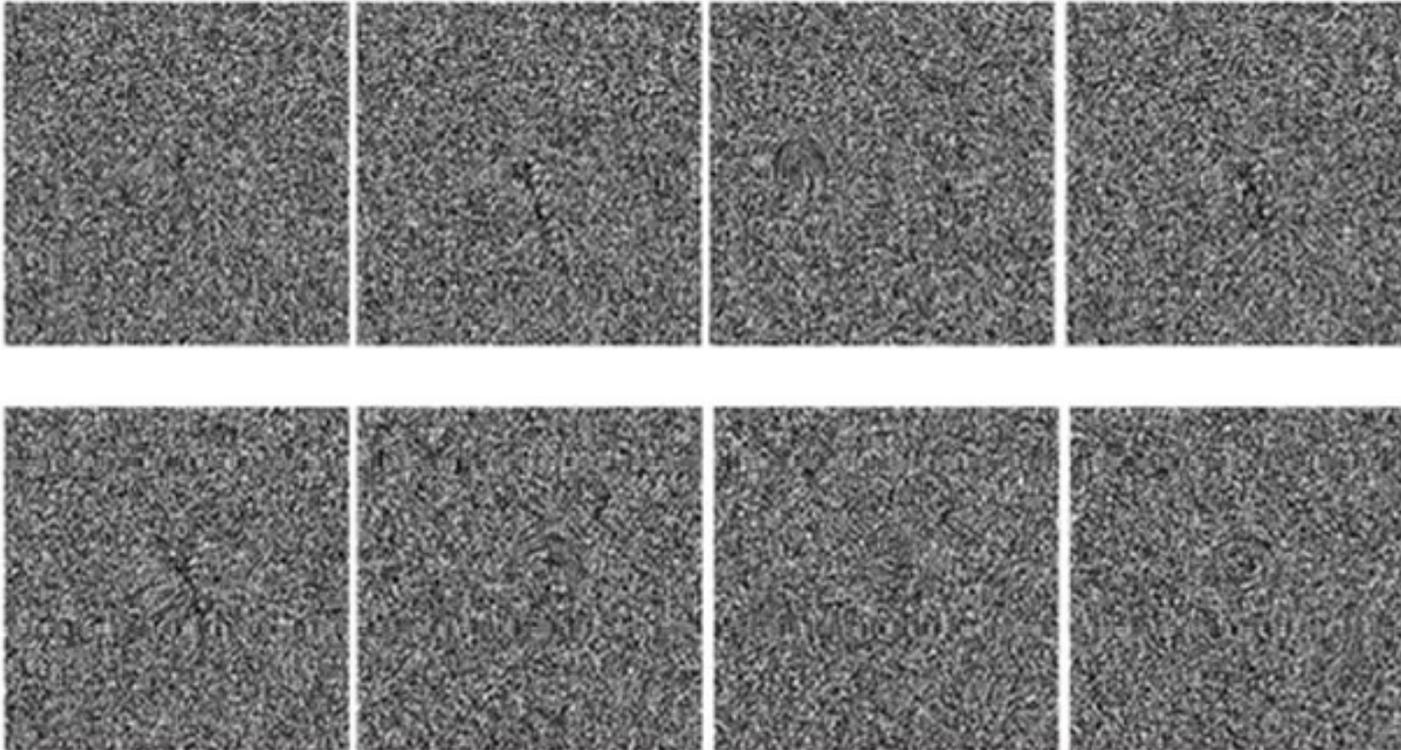
## Nov 30<sup>th</sup> 2022 – ChatGPT is released to the public

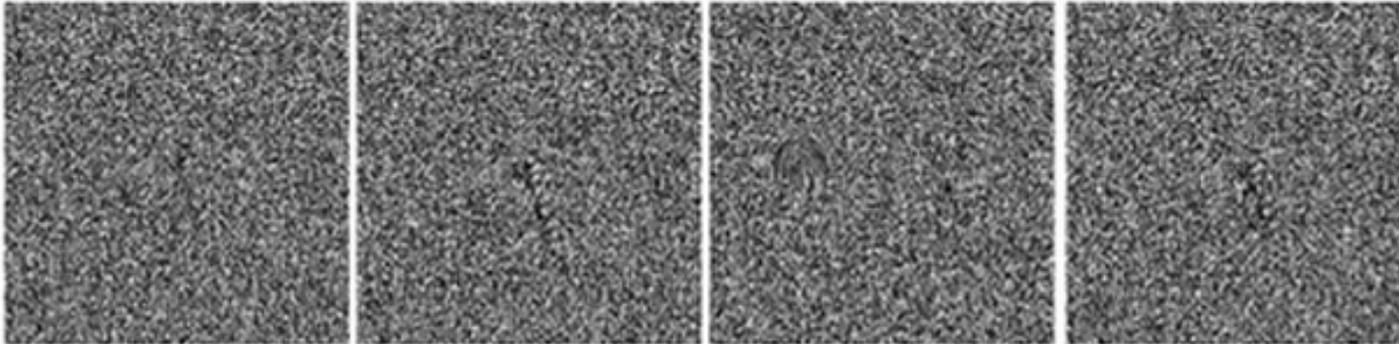
- Have we already reached the peak of current AI capabilities, before learning to use them responsibly?
- There is a need for better understanding.
- Pressure is growing to integrate generative AI especially **Large Language Models** into:
  - Course design
  - Personalized Learning
  - Operations
- We stand at the **intersection of hype and reality** facing both the **limits** and **transformative potential** of AI tools.

# The Mirage of Infinite Scaling

- AI's dominant narrative: **“Scale up, improve everything.”**
  - **Bigger data + more compute = better results** (e.g., GPT-3, GPT-4)
- But that **exponential progress is fading**.
  - **Scaling laws are hitting a wall**
  - GPT-5 shows marginal polish, not cognitive breakthroughs
- LLMs excel at **language mimicry**, but:
  - **Lack true reasoning**
  - **Interpolate (within their training data set)**, don't **think**
- Diminishing returns challenge the idea that size alone leads to intelligence.
  - LLMs perform well **within training data**
  - Struggle with **extrapolation** and **abstract reasoning**

# How Deep Learning Neural Networks “see” understand the World



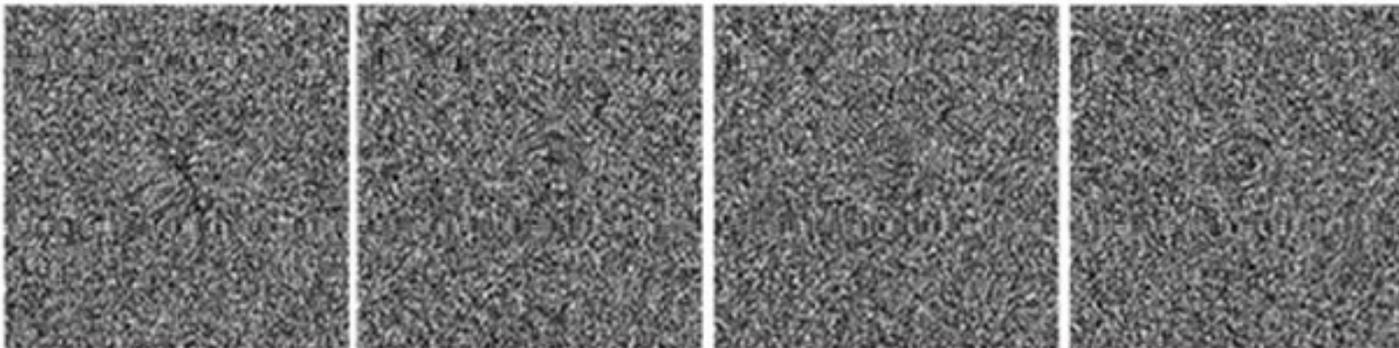


Robin

Cheetah

Armadillo

Lesser panda



Centipede

Peacock

Jackfruit

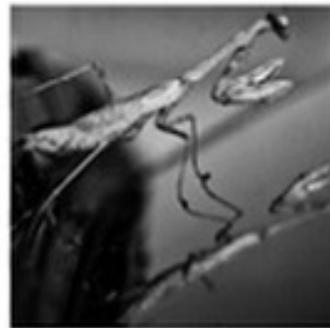
Bubble



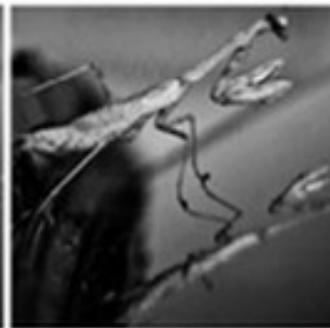
School bus



Ostrich



Praying mantis



Ostrich



Temple



Ostrich



Shih tzu



Ostrich

# Reasoning: Still a Human Domain

Current deep learning systems **lack true reasoning** (G. Marcus 2024)

- “These systems don’t reason well. They don’t really understand language”
- In contrast, humans:
  - Apply **heuristics** in novel situations
  - **Generalize** across contexts
  - Make **value-based** and nuanced decisions
- Treating LLMs as reasoning agents risks:
  - **Misleading educational design**
  - **Erosion of academic rigor**
- The solution: foster **critical AI literacy**
  - Understand **what AI is** and **what it is not**

# Extending Minds

- Humans have always used tools to extend cognition (Andy Clark 2025)
  - From writing to smartphones, we are **natural-born cyborgs**
- Generative AI is the **next phase of cognitive extension.**
- Clark argues:
  - Don't fear AI, **embrace it thoughtfully**
  - AI should **scaffold and augment**, not **replace** human thinking
- Key question:
  - *“Will AI make us dumber?”*
  - *“How can AI enable new thought, creativity, and collaboration?”*
- “It is our basic nature to build **hybrid thinking systems.**”
- The real danger: **Refusing to engage critically and constructively with AI**

# A Realistic Path Forward

---

The future of AI:

**Deep Learning + symbolic models + human oversight**

Potential - collaborative intelligence extending human cognition

this transformation by:

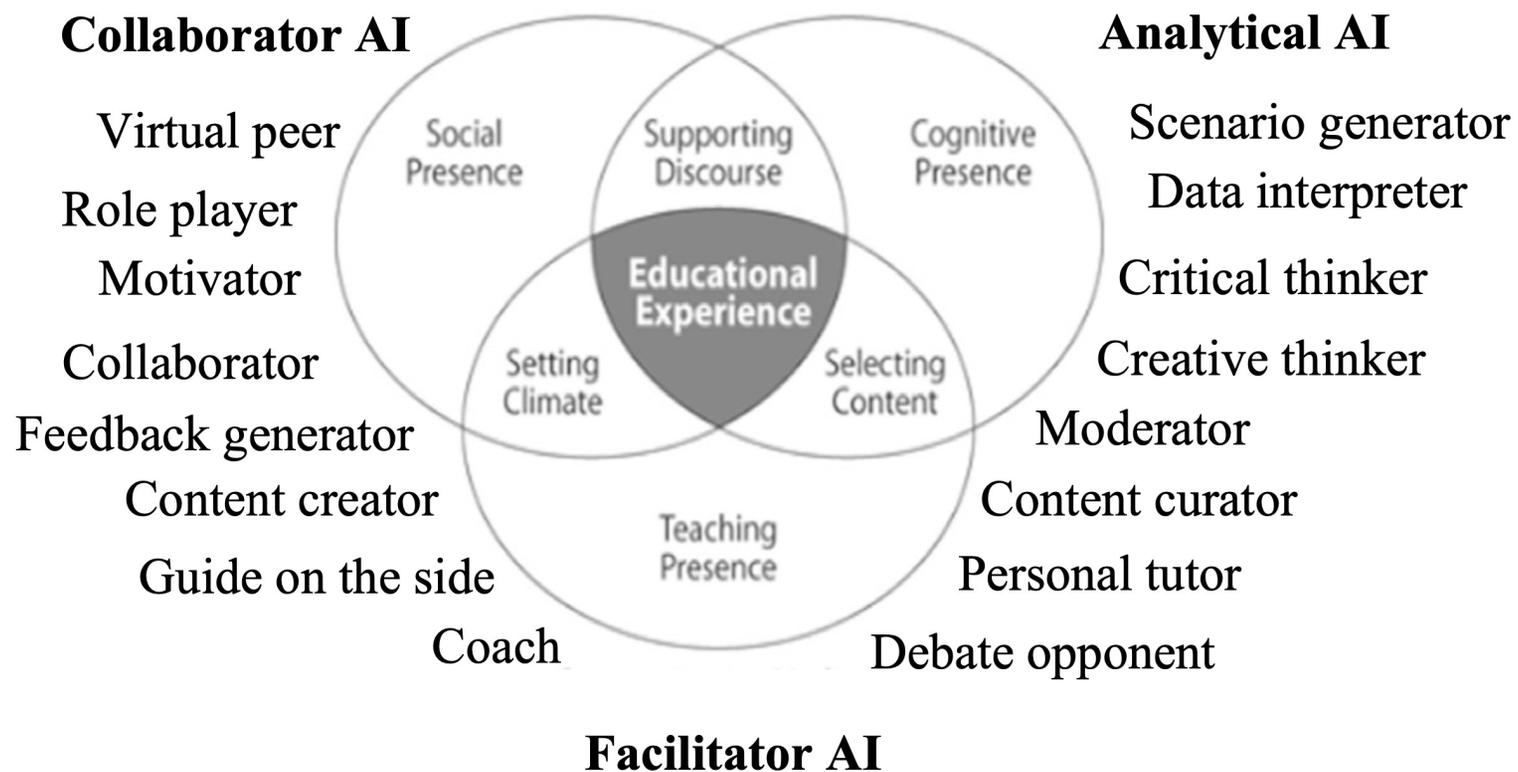
Defining **clear boundaries** and **use cases** for GenAI in curriculum

Encouraging **interdisciplinary discussions** on cognitive augmentation

Designing learning to show **AI's strengths and limits**

Goal: **Interrogative learning** (Socratic exchange)

# A Realistic Path Forward



# Curiosity with Caution

- Educators have always adapted to new tools, but must **question their foundations**
- If AI is to transform education, it must be:
  - Informed
  - Ethical
  - Deeply human
- Not all that glitters in AI is gold

# Discussion Questions

- What is the most surprising or impressive thing an GenAI tool has ever done for you? What was the most disappointing?
- Any use cases related to the integration of GenAI ?
- What challenge or potential does this pose to Instructional Design?
- How do we guide instructors and staff to engage ethically with AI tools while protecting learner autonomy, data, and academic integrity?