九龍塘宣道小學
Alliance Primary School Kowloon Tong

ISAS International Society for the Advancement of STEAM 국제융합교육발전학회

ICAS 2026

International Conference on the Advancement of STEAM

Exploring AI in Education: From Emerging Technologies to Classroom Practice

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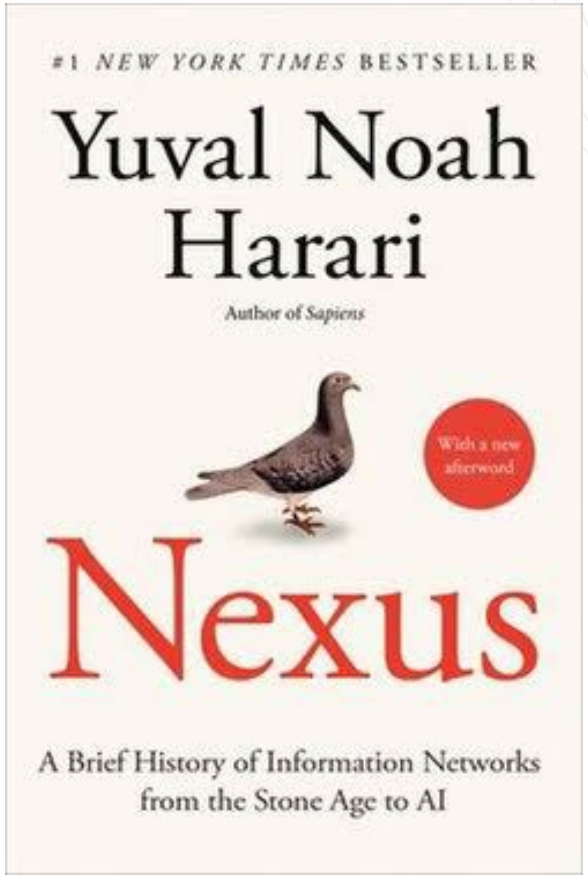
Exploring AI in Education: From Emerging Technologies to Classroom Practice



Prologue - A Perspective on AI

"But for reasons already evident from the previous discussion, it is perhaps better to think of it as 'alien intelligence.'"

—Yuval Noah Harari, *Nexus* (2024) pp. 217.



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Prologue - A Perspective on AI

Alien Intelligence: What Does It Mean?



If a vending machine can decide which drink is “best” for you today, is it still just a machine?

- AI can make decisions and create new ideas by itself, Harari suggests that it is better understood as “alien intelligence.”
- Do we still see AI simply as a machine or a tool? Or should we begin to understand it as a form of non-human intelligence? Should we even refer to AI as “they” rather than “it”?

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Introduction

AI Categories

A Conceptual Taxonomy of AI Systems

Category	Main Characteristics	
Generative AI 	Creates content such as text, images, audio and code.	Text generation with an LLM; image generation with Nano Banana
AI Agents 	Uses reasoning and external tools to complete specific tasks.	Codex or Claude Code operating as a single coding agent: editing files, running commands and checking results
Agentic AI 	Coordinates multiple agents, breaks down complex tasks and pursues goals over time.	Codex with coordinated subagents; Claude Code with Agent Teams; e.g. building one website using several agents.

Generative models can provide the foundation for agents and agentic systems.

Source: Sapkota, R., Roumeliotis, K. I., & Karkee, M. (2026). AI Agents vs. Agentic AI: A Conceptual Taxonomy, Applications and Challenges. Information Fusion, 126, 103599.

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Introduction

AI Categories

AI Model Families

Model Family	Main Capabilities
Large Language Models (LLM)	Process and generate language, primarily through text.
Vision Foundation Models	Analyse images and extract visual information.
Speech Foundation Models	Process speech and learn representations of spoken language.
Multimodal Foundation Models	Integrate information across modalities such as text, images and speech.

These model families can be combined within an AI system, including agents and agentic systems.

Source: Lu et al. (2025). Representation Potentials of Foundation Models for Multimodal Alignment: A Survey. EMNLP 2025, Sections 2.2–2.5.

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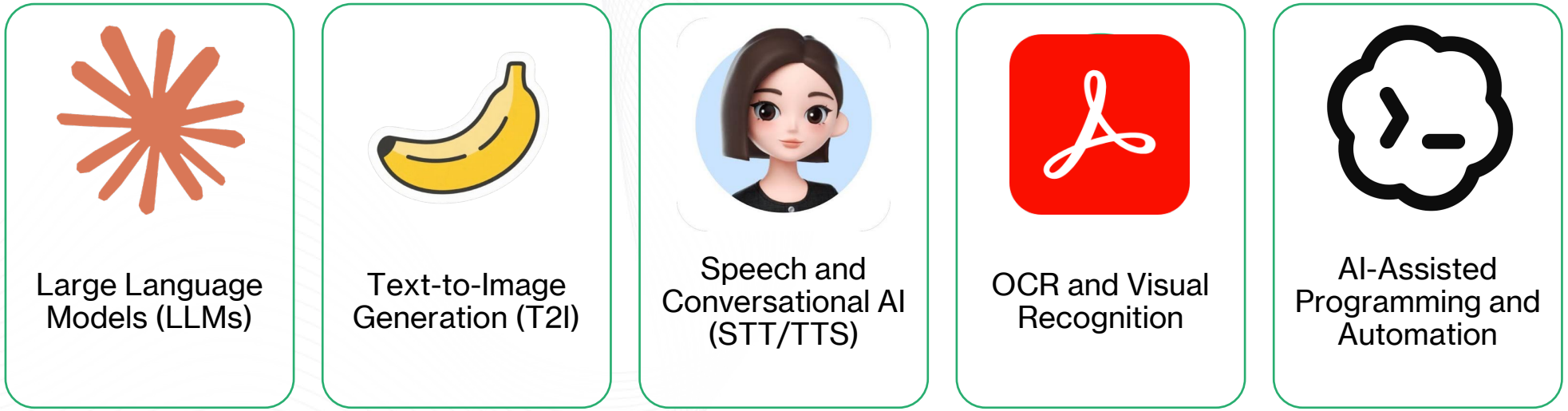
Exploration

Classification of AI for Teaching



How they(AI) can facilitate us(Human) on teaching and learning.

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Exploration

Large Language Models (LLMs)

- **Q&A**
  "What is a Calabi–Yau manifold, and what does ten-dimensional spacetime mean? How are they related in string theory? Explain in simple language for a non-specialist."
- **Language practice**
  "Create a short English dialogue about ordering food for Primary 4 pupils. Include the provided vocabulary."
- **Question generation**
  "Create five two-step word problems involving multiplication and division for Primary 4 pupils. Include worked solutions."
- **Polishing & Proofreading**
  Check and polish this paragraph for an international conference presentation. Correct spelling and grammar, preserve my meaning, and make it natural to say aloud. Show the changes and distinguish necessary corrections from optional style improvements: [text]

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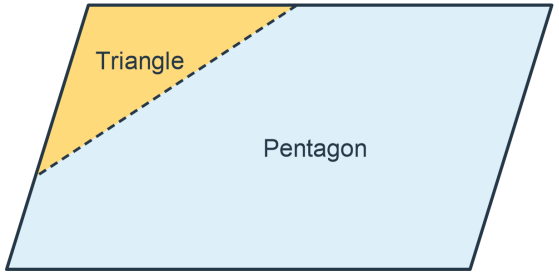
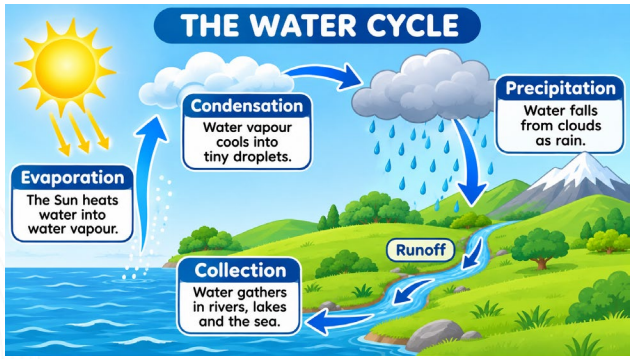
Exploration

Text-to-image (T2I) (2D and static)

- Visual Writing Prompts / Four-Panel Comics
- Vocabulary and Emotion Cards
- Observation and Comparison
- Conceptual Learning Materials
- Picture Books
- Mathematical / Science Diagrams







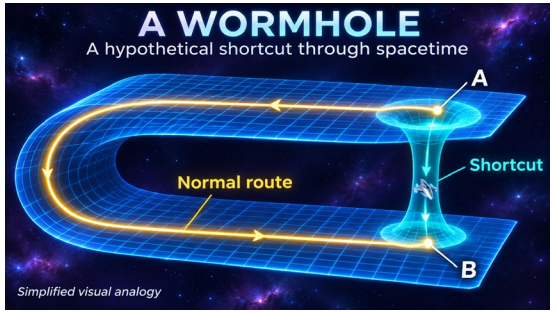


The first little pig built a house of straw.

The second little pig built a house of sticks.

The third little pig built a house of bricks.





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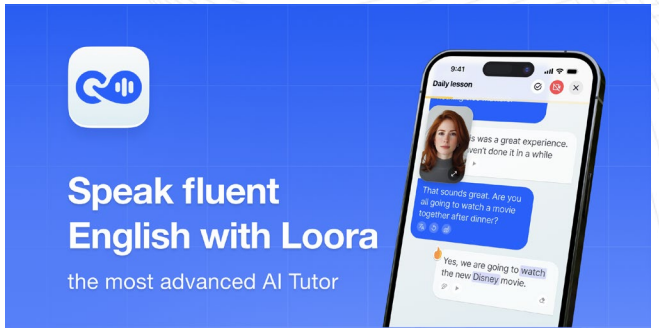
Exploration

Speech-to-text (STT) and text-to-speech (TTS)

- Create Listening recording
- Oral language practice
- AI teaching assistant
- Talks to historical figures





KHANMIGO by Khan Academy

narakeet

2. Generate images of ancient people or download images of ancient people from the internet.

You can use the AI image generation function to input keywords such as "Tang Dynasty poets", "Qing Dynasty officials", "ancient beauties" to generate unique images of ancient people, or you can download historical figures' portraits from the Internet as materials.



▲ Using YouCam's online AI text-to-image generation function, enter the command "Qin Shi Huang, ancient people, ancient people", and select "no style".

* The mobile version allows you to download Perfect AI Drawing for free to generate images.



Google cloud TTS is embedded
https://hin.hk/Tools/english-tts/

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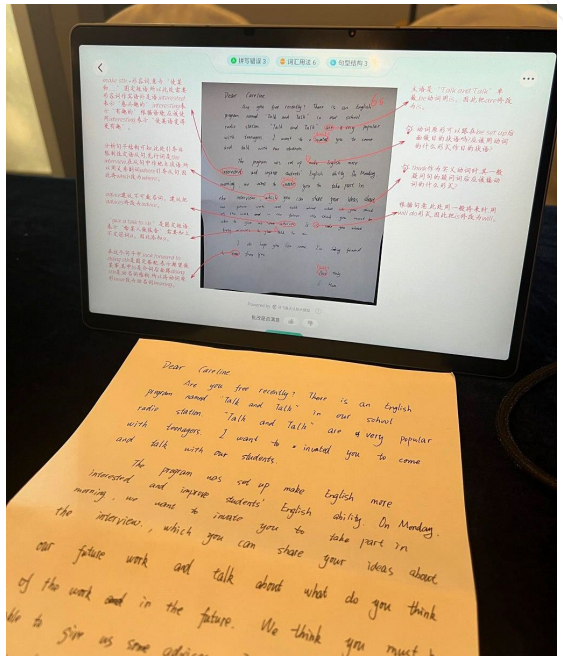
Exploration

Optical character recognition (OCR) and Visual Recognition

- AI-assisted marking
- Movement Analysis and Technique Assessment
- Facial Recognition Attendance System







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Exploration

AI-assisted programming and harnessing AI

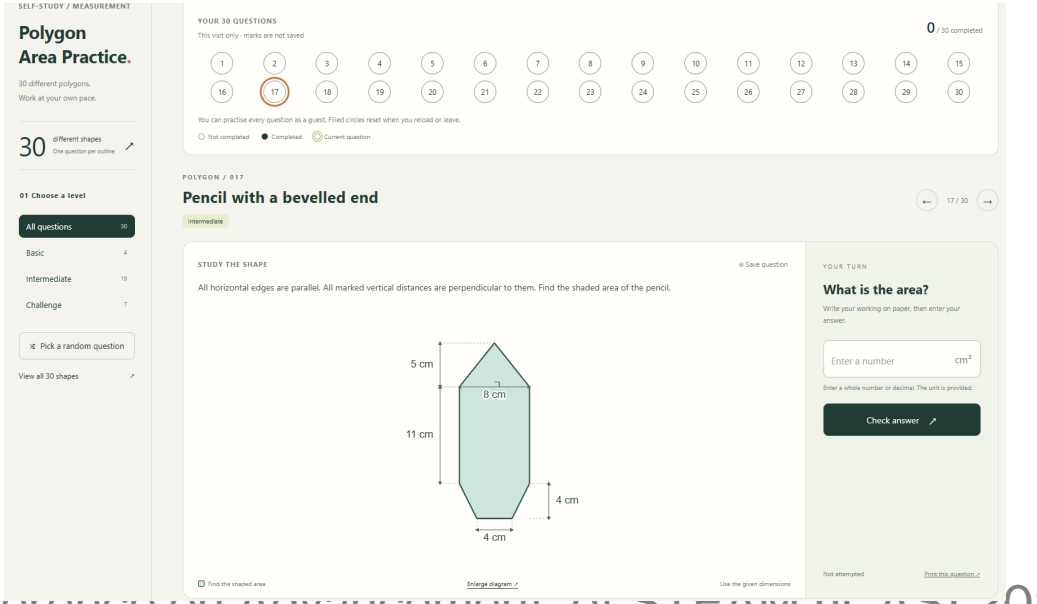
- Educational games
- Online exercise
- Leaderboard
- Simulator

https://hin.hk

https://apskt-official.web.app/polygon-area.html?question=17



https://hin.hk/maths/6M4_speed_driving.html



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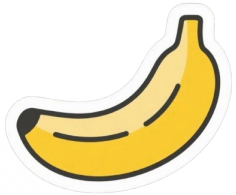
Conclusion

Classification of AI for Teaching



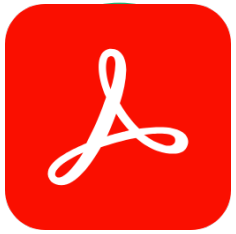
Large Language Models (LLMs)



Text-to-Image Generation (T2I)



Speech and Conversational AI (STT/TTS)



OCR and Visual Recognition



AI-Assisted Programming and Automation

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Q&A