



University of
Southern
Queensland

Open to AI: Oversharing in a data hungry time

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Image generated using M365 CoPilot on 09/10/2025

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Today's Session

1. What is AI?
 - Q&A
2. Issues and Frameworks
3. Misinformation/Hallucination & Bias
 - Q&A/Discussion
4. Ownership & Authorship
 - Q&A/Discussion
5. Implications in Open Access Publishing
 - Open Discussion

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What is AI?

Definitions
 Symbolic Systems
 Non-Symbolic Systems
 Machine Learning
 Example

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What is AI?



What is AI?

"Artificial intelligence (AI) is **technology** that enables computers and machines to **simulate** human learning, comprehension, problem solving, decision making, creativity and **autonomy**." (IBM, n.d.)

What is an AI model?

"An AI model is a **program** that has been **trained** on a set of **data** to **recognize certain patterns** or make certain decisions without further **human intervention**. Artificial intelligence models apply different **algorithms** to relevant data inputs to achieve the tasks, or output, they've been programmed for." (IBM, n.d.)

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What is AI? | Examples

- The algorithms streaming services such as Netflix use to recommend media to you
- The algorithms that automatically curate your social media feeds
- Adaptive cruise control
- Internet search engines (since 1993)
- This thing:

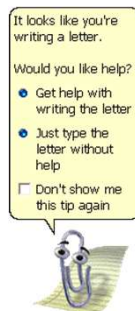


Image credit: Microsoft

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What is AI? | Symbolic/Expert Systems

Well-defined problem spaces
 Variables can be modelled in advance
 May be represented with a decision tree:

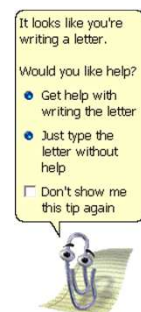
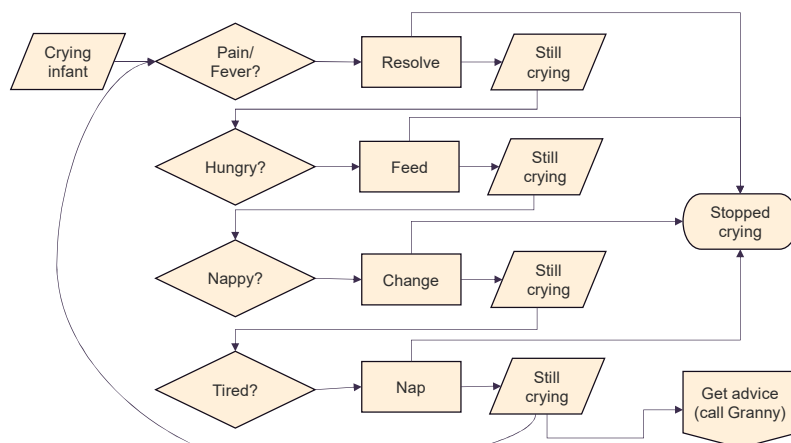
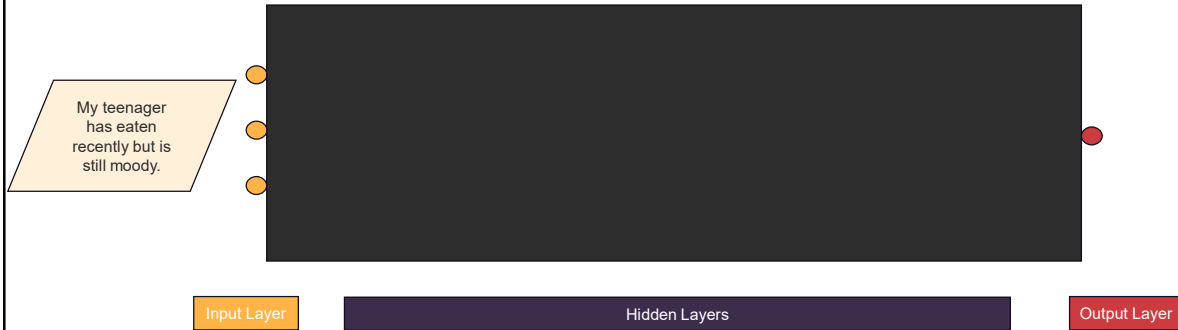


Image credit: Microsoft

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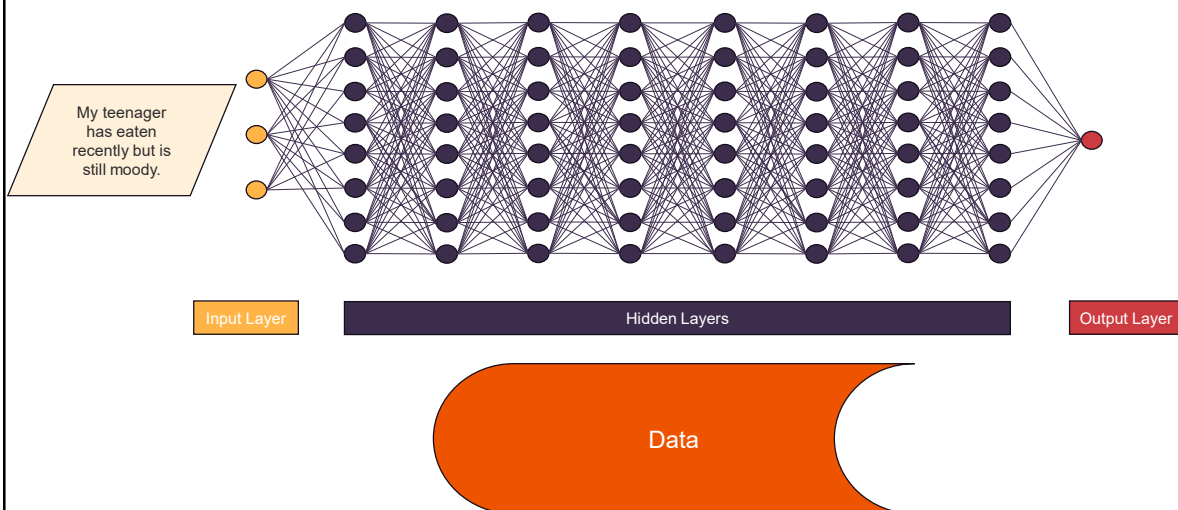
What is AI? | Non-Symbolic Systems (Deep Neural Networks)



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What is AI? | Non-Symbolic Systems (Deep Neural Networks)



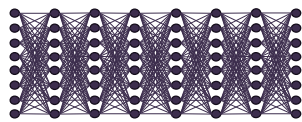
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What is AI? | Data-driven vs. Knowledge-based AI

Data-Driven

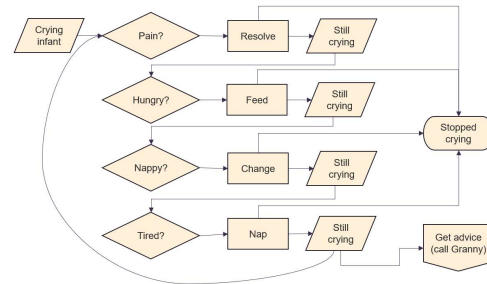
- Learns from large amounts of raw data to identify patterns and make predictions
- Uses algorithms (i.e. neural networks) to process data
- Identifies correlations and makes predictions from large datasets



ChatGPT/M365
CoPilot, Claude.ai,
Grok, DeepSeek, etc.

Knowledge-Based

- Incorporates expert knowledge and context to make accurate, trustworthy decisions
- Uses logical rules to derive new insights
- Produces trustworthy, reliable and explainable results



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What is AI? | Abridged History

- *A logical calculus of the ideas immanent in nervous activity* (McCulloch & Pitts, 1943)
- *Computing machinery and intelligence* (Turing, 1950)
- ...
- DENDRAL, an expert system initially developed by Feigenbaum et al. in 1965
- ...
- 2004 to 2018 – Graphics Processing Units (GPU's) increasingly used



Image credit: Charlie Nelson 2025

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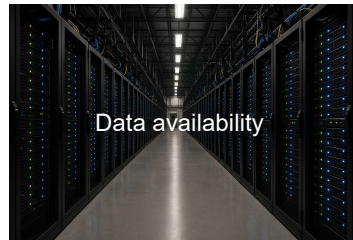
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What is AI? | Abridged History



- 2010 – DeepMind is founded then purchased by Google in 2014
- 2015 – OpenAI is founded
- 2018 – GPT1 (117 million parameters/variables)
- 2019 – GPT2 (1.5 billion parameters/variables)
- 2020 – GPT3 (175 billion parameters/variables)
- 2022 – general release of the GPT-3.5 model

Estimates of the number of parameters/variables for GPT5 range between several hundred billion to 5 trillion



Data availability

Image generated using M365 CoPilot on 09/10/2025

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What is AI? | Machine Learning



Supervised Learning

Humans label a sample dataset
AI matches labels to items
Fraud detection

Unsupervised Learning

Unlabelled data
AI groups similar items
Customer segmentation/categorisation

Reinforcement Learning

Reward function
AI strategises towards achieving a goal
Playing Go

Federated Learning

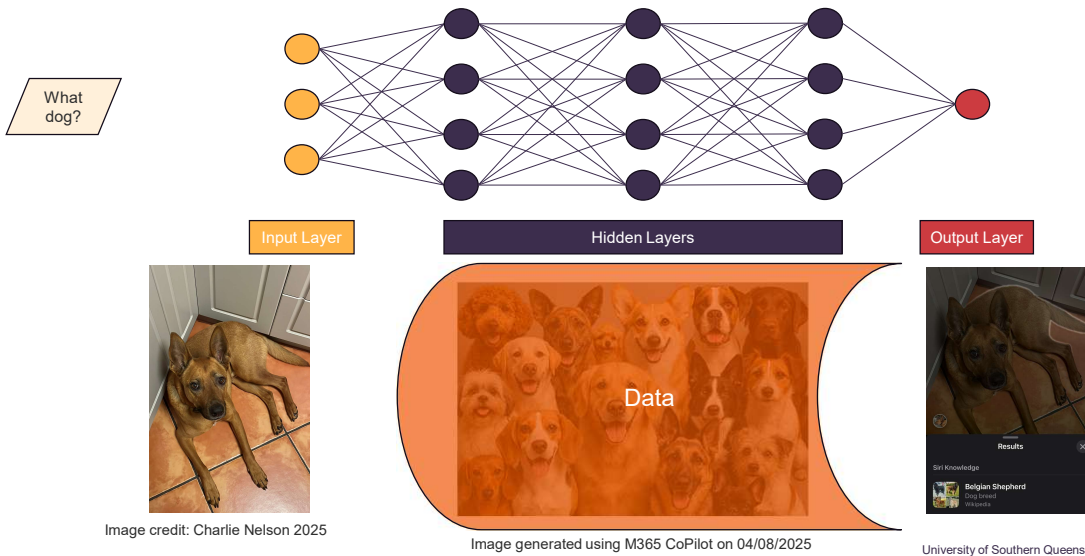
Generative Adversarial Networks (GANs)

Large Language Models
Generative AI
ChatGPT, Claude.ai, Gemini, Grok, etc.

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What is AI? | Non-Symbolic System Example



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What is AI? | Other Terms

Narrow (or Weak) AI

Designed for a specific, limited, task.

- Answering questions
- Generating text
- Generating images
- Play chess

Can have a high degree of autonomy, but:

- Does not have agency;
- Does not have cognitive ability.

THEORETICAL

General (Complex or Strong) AI

- Self-aware
- Conscious

Has agency

The same cognitive abilities as a human intelligence.

Super AI

- Self-aware
- Conscious

Has agency

Cognitive abilities that surpass human intelligence.

IBM Data and AI team (n.d.).

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What is AI? | Additional Resources



LinkedIn Learning



DeepLearning.AI



The AI Literacy Lab

Questions



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Issues & Frameworks

The Australian Code for the Responsible Conduct of Research
 UniSQ's Research Code of Conduct Policy
 FAIR & CARE
 Research Pitfalls (AI for HDR)

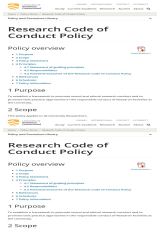
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The Code & The Policy



Image Source: NHMRC



UniSQ (2019)



Honesty	in the development, undertaking and reporting of research
Rigour	in the development, undertaking and reporting of research
Transparency	in declaring interests and reporting research methodology, data and findings
Fairness	in the treatment of others
Respect	for research participants, the wider community, animals, and the environment
Recognition	of the right of Aboriginal and Torres Strait Islander peoples to be engaged in research that affects or is of particular significance to them
Accountability	for the development, undertaking and reporting of research
Promotion	of responsible research practices

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UniSQ Guidance & Published Frameworks

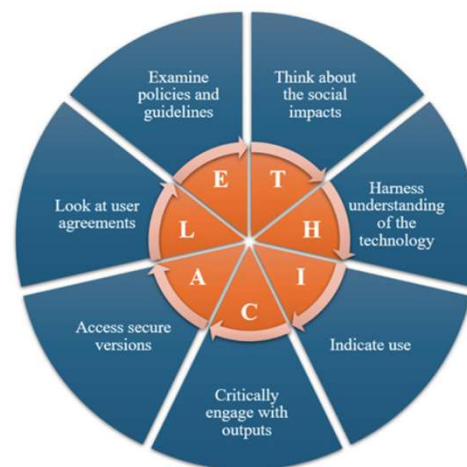
Using Generative AI in Research at UniSQ

Generative AI (GenAI) has emerged as a powerful tool with the potential to enhance the capacity of researchers at all levels. Use of GenAI in research is not, however, without its risks. If a researcher chooses to use GenAI in their work, they are responsible for ensuring they do so in a manner that does not breach the Australian Code for the Responsible Conduct of Research or the University's Research Code of Conduct Policy.

All researchers at the University are expected to uphold the principles of the Code while undertaking research activities. These principles are:

1. **honesty** in the development, undertaking and reporting of research
2. **rigour** in the development, undertaking and reporting of research
3. **transparency** in declaring interests and reporting research methodology, data and findings
4. **fairness** in the treatment of others
5. **respect** for research participants, the wider community, animals, and the environment

UniSQ (2025)



Eacersall et al. (2025)

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FAIR & CARE



F indable	C ollective Benefit
A ccessible	A uthority to Control
I nteroperable	R esponsibility
R eusable	E thics

UniSQ (2022)



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Research Pitfalls



Data Privacy & Consent

Bias & Fairness

Transparency & Reproducibility

Authorship & Attribution

Plagiarism & Academic Integrity

Misinformation & Hallucination

Overreliance on AI

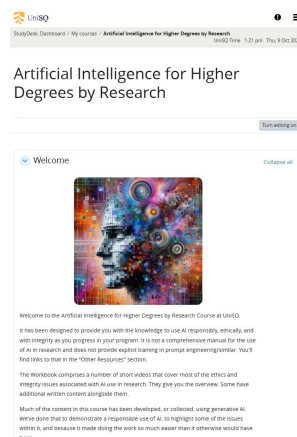
Job Displacement

Dual Use Concerns

Equitable Access

Environmental Concerns

(Nelson, 2025)



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3 Misinformation, Hallucination & Bias

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Misinformation, Hallucination & Bias



Gizmo



Image credit: Charlie Nelson 2025

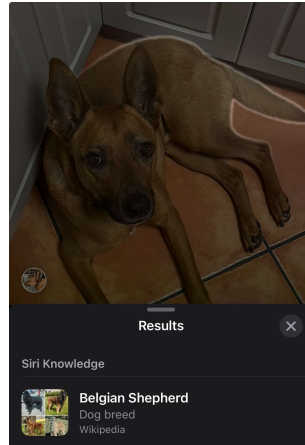


Image credit: Wikimedia Commons CC 2.0 Generic

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Misinformation, Hallucination & Bias



Image credit: Charlie Nelson 2025

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Source: Wikimedia Commons, unrestricted

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Source: Wikimedia Commons, unrestricted

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Misinformation & Hallucination & Bias



Image generated using CoPilot 365 04/08/2025

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Misinformation Hallucination & Bias



Why do misinformation and hallucination happen?

1. What is the formula for the area of a circle?

A: *Length x Width x Height*

B: πr^2

C: $2\pi r$

D: x_{y^z}

E: $\sqrt{r}\pi^3$

- | | | | | | |
|----|-----|-----|-----|-----|-----|
| 1. | (A) | (B) | (C) | (D) | (E) |
| 2. | (A) | (B) | (C) | (D) | (E) |
| 3. | (A) | (B) | (C) | (D) | (E) |
| 4. | (A) | (B) | (C) | (D) | (E) |
| 5. | (A) | (B) | (C) | (D) | (E) |

Based on Kalai et al. (2025)

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Misinformation Hallucination & Bias



To err is human;
to really foul things up requires a computer.

Bill Vaughan, 1969

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Questions/Discussion



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Ownership

Data vs. Knowledge
Data Privacy & Consent
Data vs. Knowledge in LLM-Land
Demand for Training Data
Ethical Implications of the Unintentional Overshare
Authorship

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Ownership | Data vs. Knowledge



Data

Raw, unprocessed facts and figures.

Knowledge

Processed, contextualised, and understood application of information to solve problems, make decisions, or gain insights.

Asadi (2020)



Image generated using CoPilot365 on 09/10/2025



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Ownership | Data vs. Knowledge in LLM-Land



Knowledge

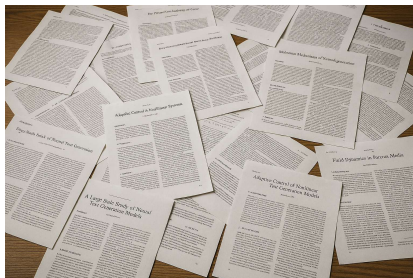


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Data

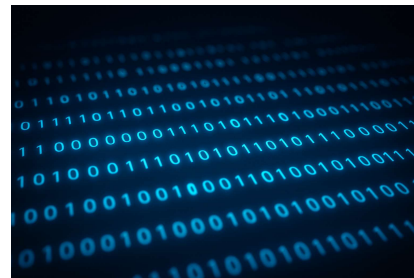
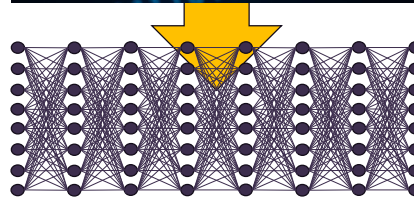


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Ownership | Data vs. Knowledge in LLM-Land

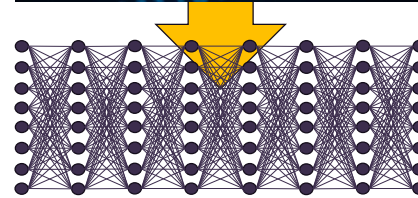
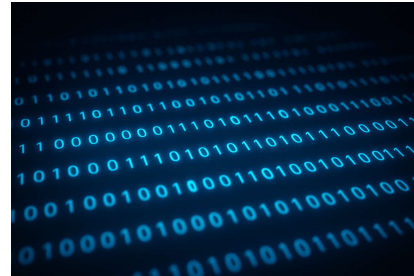
Research Data



Image generated using CoPilot365 on 09/10/2025

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Data



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Ownership | Demand for Training Data



In May, a multibillion-dollar UK-based multinational called Informa announced in a trading update that it had signed a deal with Microsoft involving "access to advanced learning content and data, and a partnership to explore AI expert applications". Informa is the parent company of Taylor & Francis, which publishes a wide range of academic and technical books and journals, so the data in question may include the content of these books and journals.

"What's in the Informa deal?"

Informa's update stated four focus areas of the Microsoft deal:

- increasing Informa's own productivity
- developing an automated citation tool
- developing AI-powered research assistant software (perhaps like a system being tested by online academic library JSTOR)
- giving Microsoft data access to 'help improve relevance and performance of AI systems'.

Informa will be paid more than £8 million (A\$15.5 million) for initial access to the data, followed by recurring payments of an unspecified amount for the next three years." Potter (2024)

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Ownership/Ethics | The Unintentional Overshare



Unpaid version

	ChatGPT	CoPilot	Claude.ai	Grok	DeepSeek
Prompts used to train model	Yes	Yes	-	-	Yes
Opt out option	No	No	Yes	Yes	No
Ownership	USA	USA	USA	USA	China

Paid version

	ChatGPT	CoPilot	Claude.ai	Grok	DeepSeek
Prompts used to train model	No	No	No	No	?
Opt out option	No	No	Yes	Yes	?
Ownership	USA	USA	USA	USA	China

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Ownership/Ethics | The Unintentional Overshare



TECH

Analysts downplay AI bubble worries as Altman says some investors will be left 'very burnt'

PUBLISHED MON, AUG 18 2025 8:48 PM EDT



WATCH LIVE

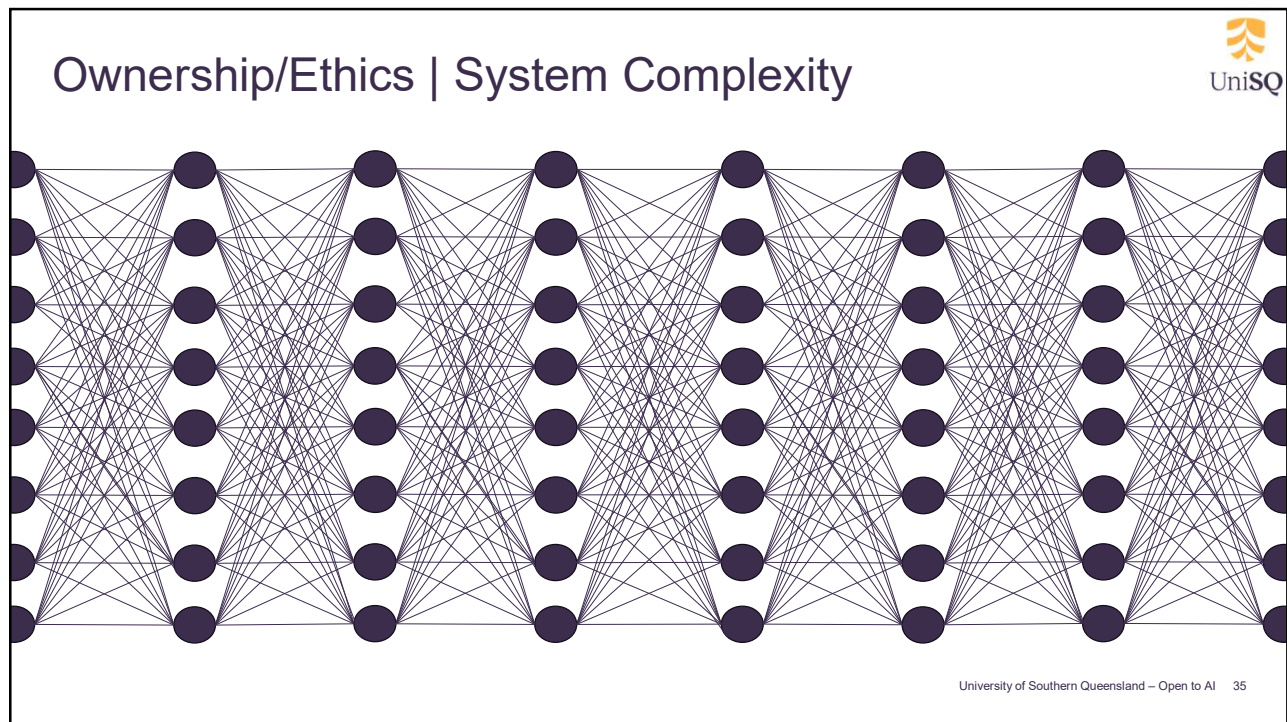
KEY POINTS

- OpenAI CEO Sam Altman said AI is in a bubble, but he's ready to keep "aggressively" spending on infrastructure.
- Altman acknowledged "insane" valuations and irrational investor behavior, but framed it as a typical phase in tech's boom-bust cycle.
- Tech's biggest names all raised capital expenditure guidance to keep pace with AI demand, with Microsoft, Amazon, Alphabet and Meta all set to spend big.

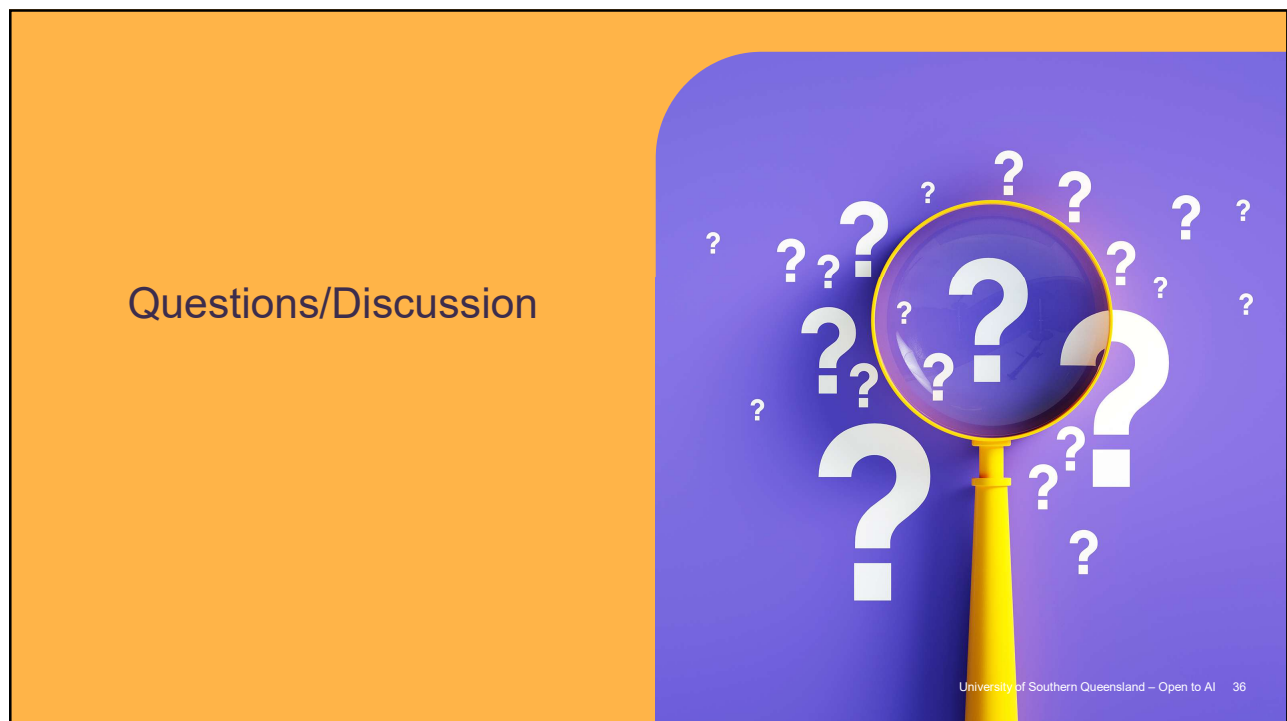
Sigalos (2025)

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Authorship | Hypotheticals



A gardener uses a hammer to put together a raised garden bed out of timber framing. Who built the garden bed?



The gardener

Had the idea to build the garden bed, bought the timber, and used the hammer.



The hammer

Is the necessary tool. Has no agency or autonomy.



The inventors
of the hammer

Invented/designed the tool used.

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Authorship | Hypotheticals



A researcher uses NVivo to code their qualitative dataset into themes in line with Braun & Clarke (2023)
Who is the author of the analysis?



The researcher

Collected the data and used the computer system to help code it.



The computer system

Is the essential tool, has no agency or autonomy.



The developers of
the computer system

Researched, wrote the code for, and developed the computer system.

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Authorship | Hypotheticals



A researcher asks ChatGPT to code their qualitative dataset into themes in line with Braun & Clarke (2023) ChatGPT codes the data and produces an output. Issues of confidentiality and integrity aside, who is the author of the analysis?



The researcher

Collected the data and wrote the prompt/instructed the computer system.



The computer system

Did the analysis, has no agency, but has a **high degree of autonomy**.



The developers of the computer system

Researched, wrote the code for, and developed the computer system.

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Authorship | Resource



Understanding authorship in Artificial Intelligence-assisted works, Fritz (2025)

- **Identify Human Involvement:** Determine who was involved in the creation process.
- **Type of AI Used:** Assess the nature and capabilities of the AI system.
- **Subjective Judgment:** Evaluate whether the human contributors exercised creative judgment.
- **Control Over Execution:** Consider whether the humans had meaningful control over the final output.

Conclusion: The article suggests that authorship in AI-assisted works should be attributed based on the degree of human creativity and control, not merely on the use of AI tools.



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Questions/Discussion



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Open Access Implications

Dissemination
Economics

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Implications | Dissemination



...of Knowledge

...of Research Data

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Implications | Economic



Generative AI and Open Access Publishing: A New Economic Paradigm (Lo, 2025)

Opportunities

- Workflow efficiencies (initial peer review, metadata preparation, etc.)
- Improved discoverability of knowledge

Challenges and Risks

- New exclusivities
- Proprietary, closed ecosystems that monetize content
 - Equity issues



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Declaration of AI Use

The following Generative AI systems were used in the development of this slide deck:

M365 CoPilot (GPT-4 & GPT-5)

Uses:

- Article summarisation
- Image generation
- Review & proofreading of this slide deck

Google Gemini

Uses:

- Enhanced Google searches

Apple Intelligence/Siri

Uses:

- Dog identifier example

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Questions/Discussion



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