

The Future of Higher Education in The Age of Artificial Intelligence

Contact North | Contact Nord
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Acknowledgement

This presentation is being made from Treaty 6 territory. We respect the histories, languages, and cultures of First Nations, Métis, Inuit, and all First Peoples of Canada, whose presence continues to enrich this vibrant community.



Also

I want to acknowledge the many families who today remember lost relatives who fought on the beaches of Normandy to begin the liberation of Europe and end the second world war.

Today is the 80th anniversary of the D-Day landings and my family lost several members that day, as did many I grew up with.





Stephen Murgatroyd

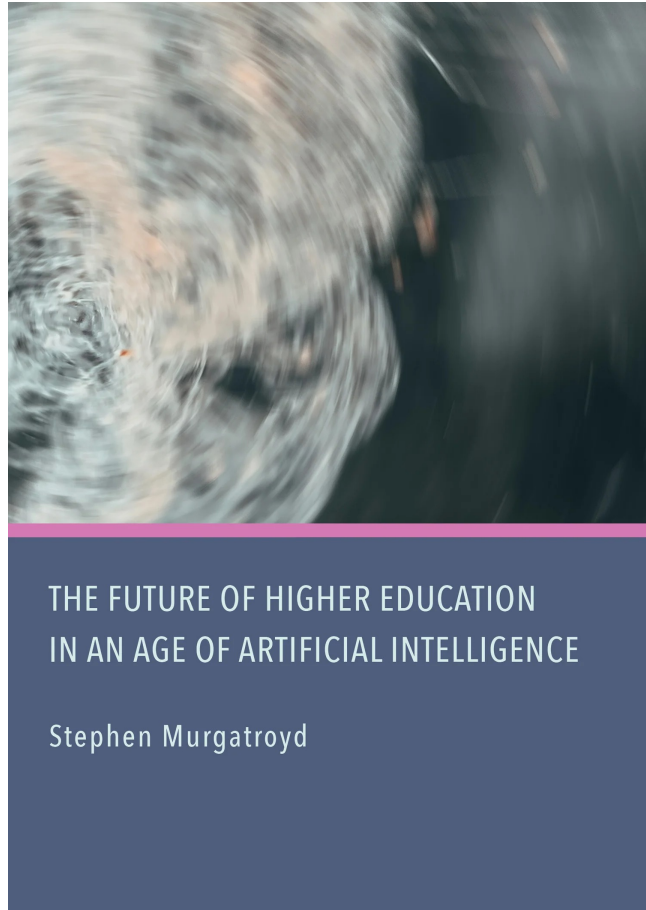
- Working in higher education | business since 1972.
- Teaches anticipatory studies at the University of Alberta and Athabasca University at the graduate level.
- Written extensively on leadership, change, transformation and development. Over 40 books.
- Led a large consulting company focused on organizational change and transformation – working with 40 of the Fortune 100.
- Worked in around the world on a range of projects – including India, China, New Zealand, Paraguay, Chile, UK, US and across Canada.
- **Research Associate at Contact North | Contact Nord**

What This Presentation Will Explore

- Understanding AI
- 15 Use Cases for AI
- Ethics, Value & Legal Issues – Issues Landscape
- Polyscapes and Risk
- The “Transformation Conversation”
- Four Scenarios for the Future

This is not a “how to” presentation, though there will be examples of AI in use. We’re focused more on the strategic questions AI poses for the sector

Based on My New Book!



- Available from [Ethics Press](https://ethicspress.com) – [discount for those participating today](https://ethicspress.com) (30% off!)
- Based on three years of work with graduate students, industry leaders and colleagues
- Full of practical use cases, concerns and frameworks

<https://ethicspress.com/products/the-future-of-higher-education-in-an-age-of-artificial-intelligence/?INTEGRITY>

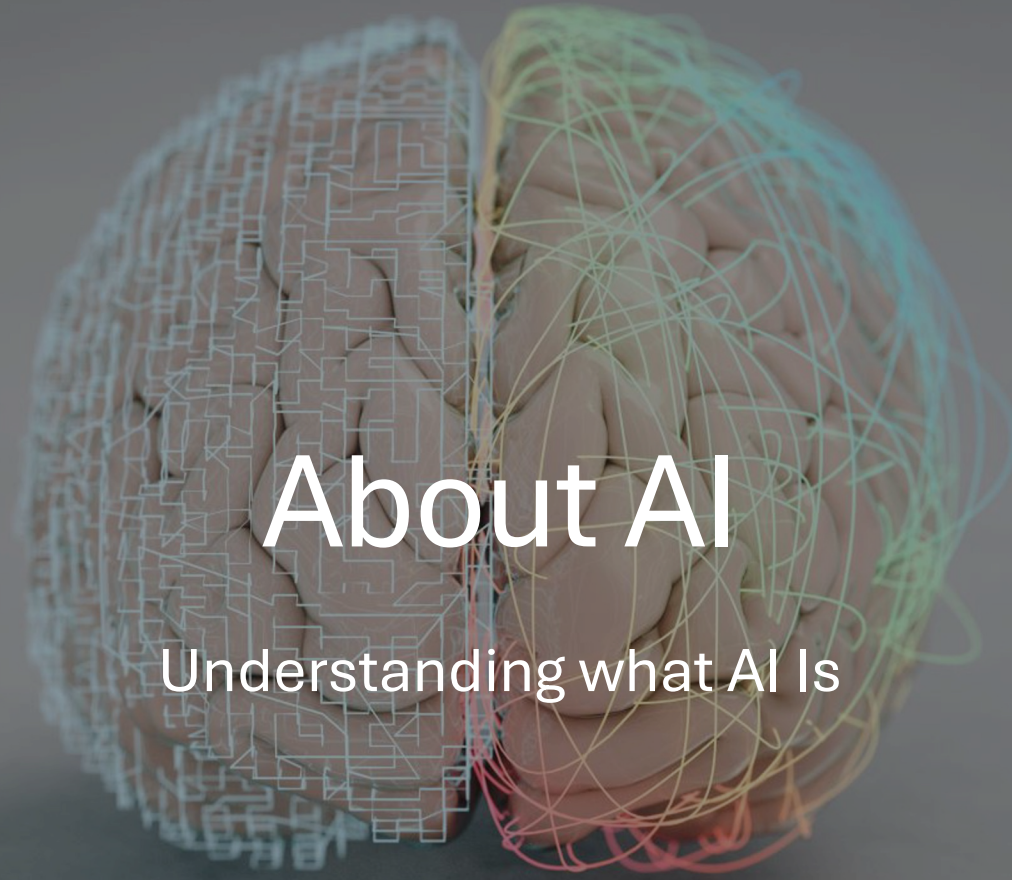
Basic Idea



*“When you come to
a fork in the road,
take it!”* Yogi Berra

Let's set up this presentation with an AI-generated video.



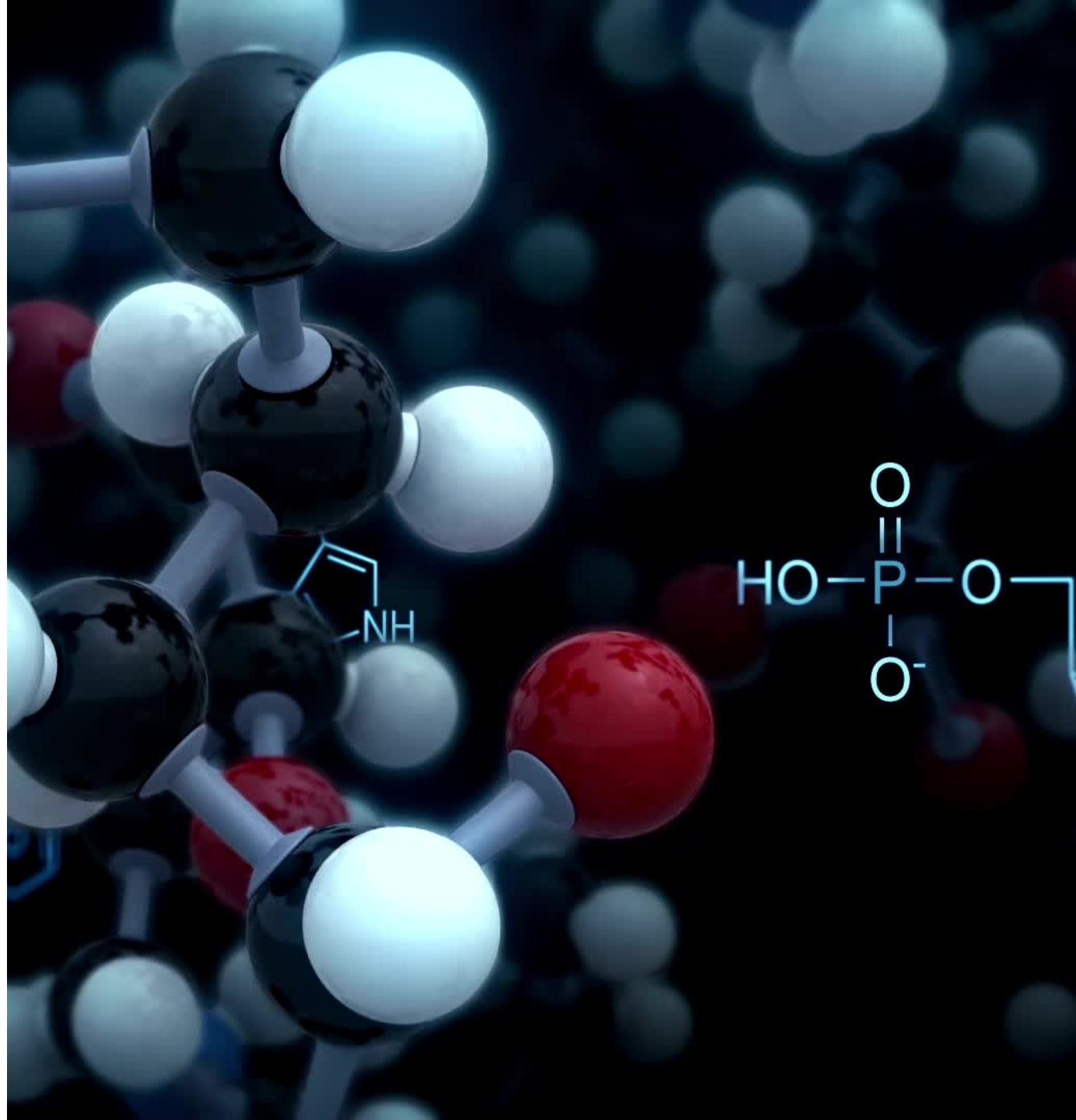


About AI

Understanding what AI Is

When You Think About AI, Remember

- The first chatbot was introduced in 1966
- Apple released SIRI in 2011 and Amazon released Alexa in 2014
- Google's AlphaGO beat world champion Go player Lee Sedol in 2016
- The first version of ChatGPT was released in 2018
- DeepMind's Alpha Fold system won the Critical Assessment of Protein Structure Prediction protein-folding contest, demonstrating AI's potential in solving complex scientific problems in 2021
- ChatGPT4 is just one of several large language models – Gemini (Google), Claude3 (Anthropic), Grok (xAI) are all in play and more are coming.
- There are over 13,000 AI apps currently available.



**ChatGPT is NOT The Only
Option!**
Currently GPT4o is the best

Open Source

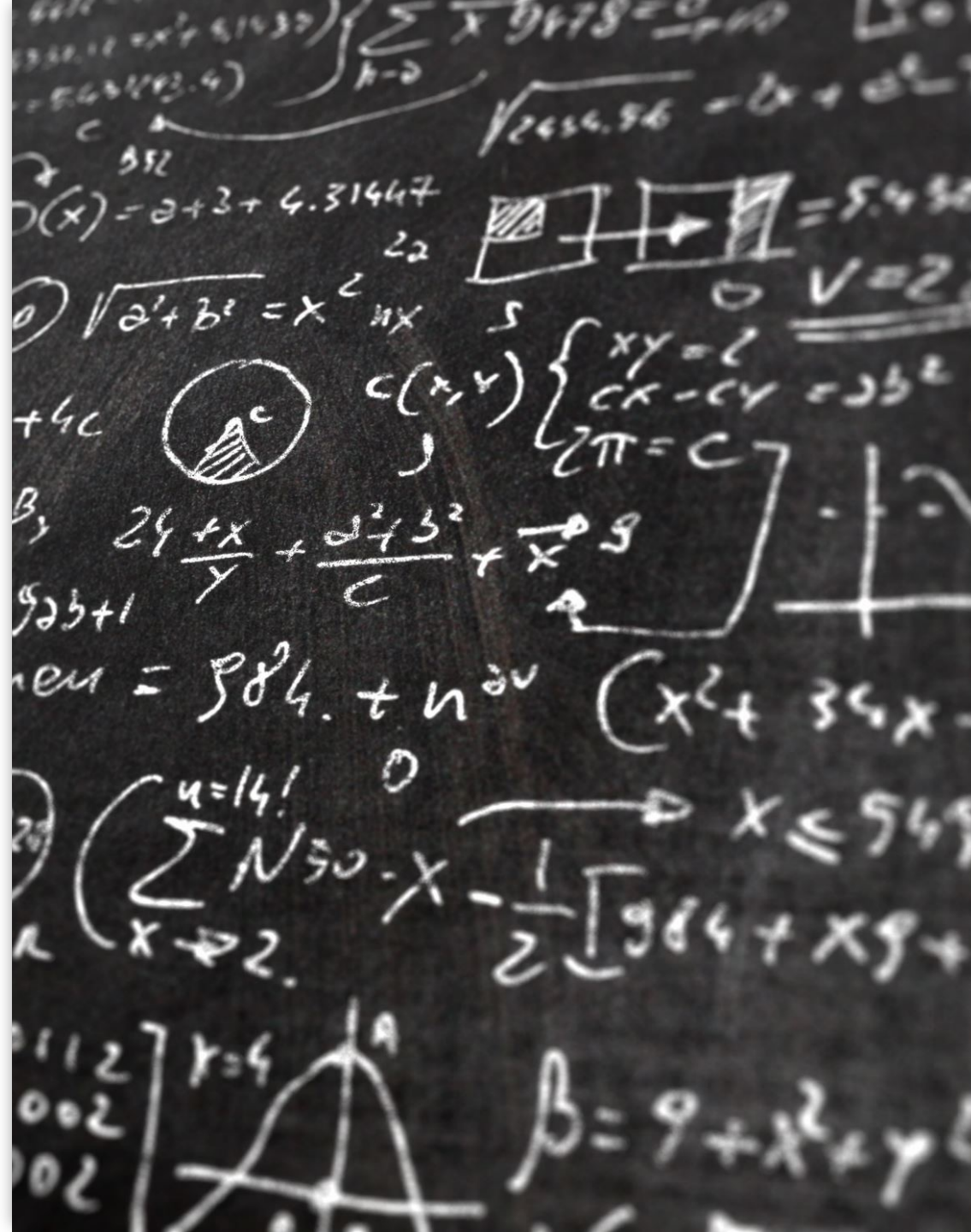
- LLaMA2
- Bloom
- MPT7-B
- Falcon
- GPT-Neo
- Chinchilla

Proprietary

- Chat GPT4o (5 coming soon)
- Claude 3 Opus
- Gemini
- Gopher
- Sonar
- Mistral
- Grok
- Galacica

Large Language Models are Not All Created Equally

- Multitask Accuracy (Rank Order)
 1. Chat GPT4o
 2. Claude 3 Opus
 3. Chat GPT4
- Hella-Swag (Common Sense Inference)
 - ChatGPT4o – 95% accurate
 - Mixtral 8x7B – 86%





Prompt Engineering

- Do not treat the large language models like a “better Google!”
- Learn prompt engineering for your domain of work.
- Lets take the idea of leadership talent management:
- “I am working to define the key competencies for leadership in a VUCA and BANI world and the processes which an organization of 652 people use to help build these competencies as part of a talent management strategy. Suggest the competencies, talent management processes and provide case studies of this idea in use.”
- Treat LLMs as digital assistants and colleagues (Co-intelligence), not as search engines.

15 Use Cases for AI in Higher Education

```
for object to mirror  
mirror_mod.mirror_object  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
selection at the end -add  
mirror_ob.select= 1  
mirror_ob.select=1  
context = bpy.context  
("Selectd...")  
mirror_ob.select = 0  
= bpy.context.selected_object  
data.objects[one.name].select  
print("please select exactly  
-- OPERATOR CLASSES ----  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"
```

AI Pro Series



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Check and grow your knowledge on any topic quickly and easily

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AI Teaching Assistant Pro

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AI Pathfinder Pro

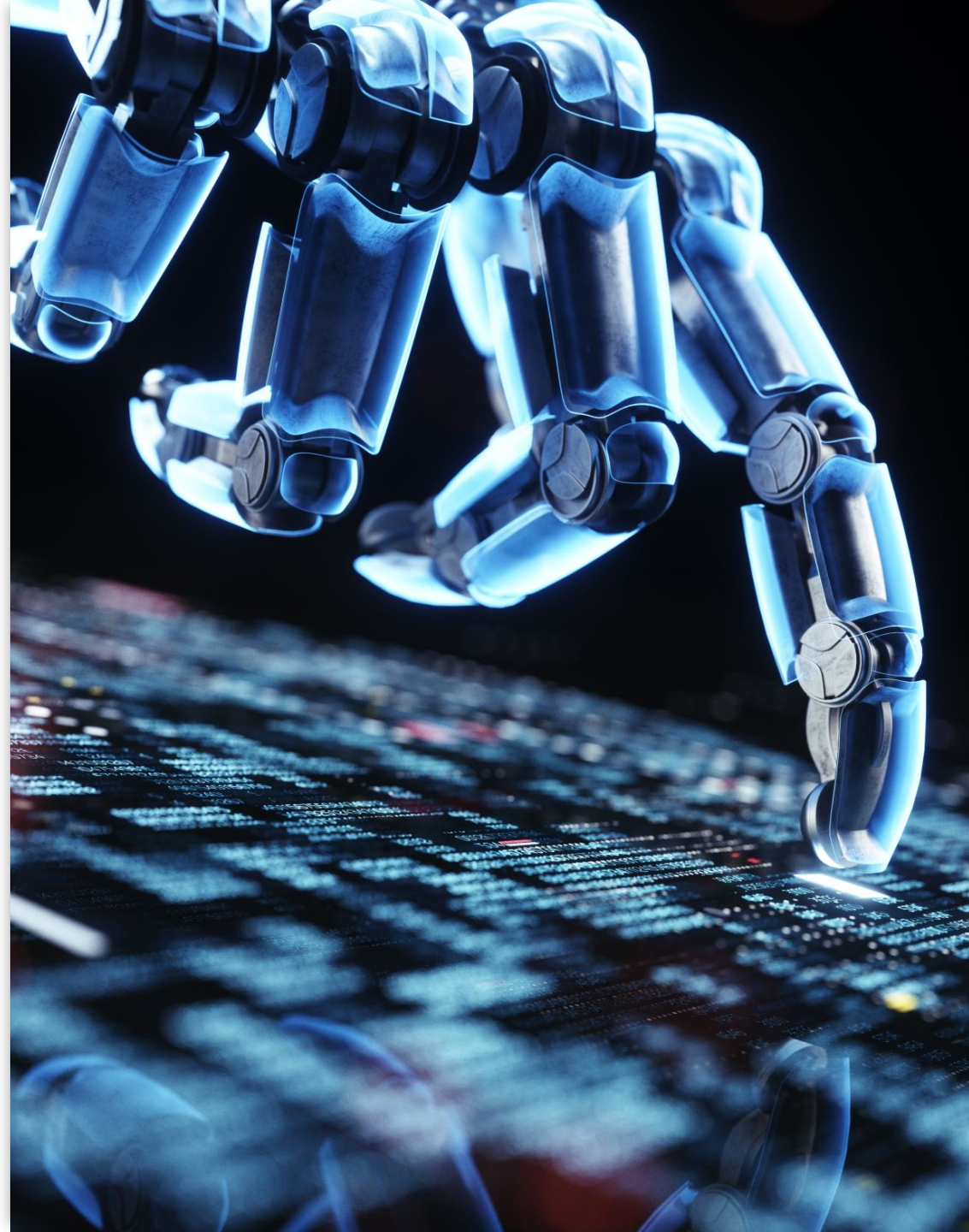
Your Interactive Guide to Education & Training

Explore education and training opportunities with AI power

[Click here to learn more](#)

15 Use Cases

- Content Creation – e.g. [Course.AI](#)
- Personalized and Adaptive Learning – see [Mollick & Mollick \(2024\)](#)
- Rethinking Assessment – e.g. [TAO](#)
- 24x7 Tutor Chatbots – e.g. [Profbot](#)
- Immersive Learning – Simulation –e.g. [Exploring the Cree Language using Apple Vision Pro](#)





ayiy
vowels

Short vowels



a



i



o

Long vowels



ā



ī



ō

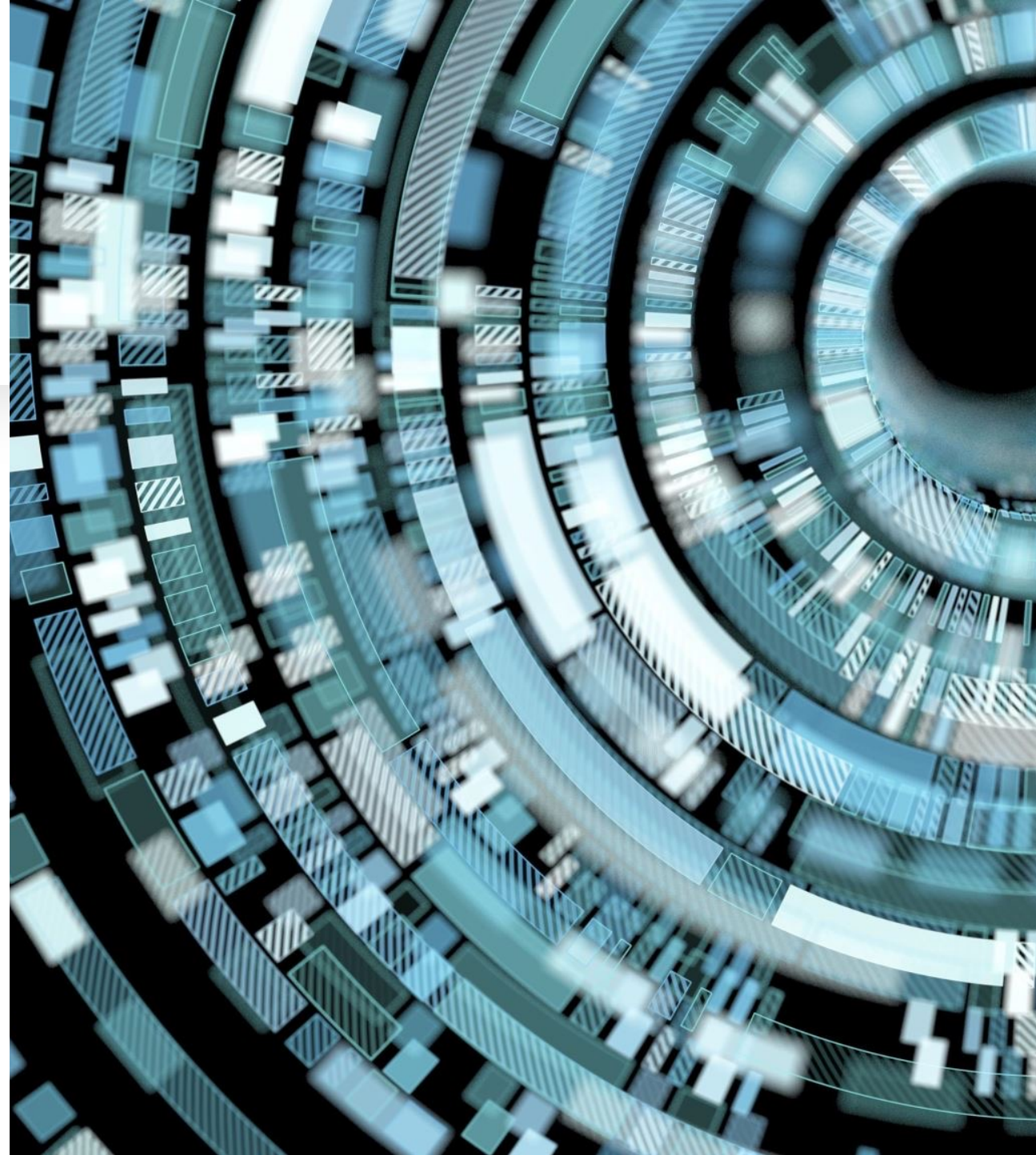


ē

Choose the vowels to listen to their
pronunciation in Cree

15 uses Cases (2)

- Virtual science and engineering – see Merlot (eg. [Chemistry](#) | [Engineering](#))
- Virtual arts, music, design and humanities – e.g. [MusicStar](#), [TimeTravel GPT](#)
- Peer to Peer Network Learning –e.g. [Kritik.io](#)
- Project based learning and research – e.g. [Cubby](#), [Eduaide.ai](#) & [Thinkster Math](#)
- Collaboration and Networking – e.g. [Workhub](#)



Professor Success Stories

Get a glimpse into how instructors across disciplines and class sizes implement peer assessment with Kritik in their courses.



Alex Gainer
University of Alberta
Associate Professor

Alex Gainer: Incorporating Generative AI within Peer Assessment

Prof. Alex Gainer from the University of Alberta encourages students to use AI in their Economics assignments and complement it with peer assessment activities.

[Read more](#)

Kritik's peer assessment framework engages students in an interactive learning process

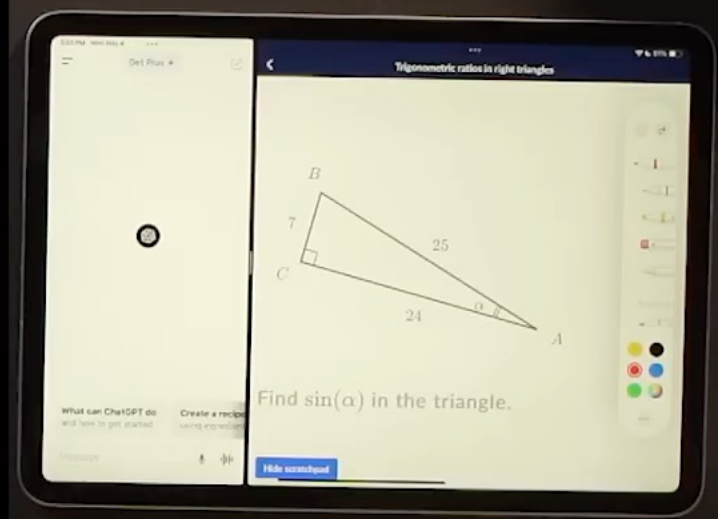
Students develop a deeper learning of course concepts, higher-level reasoning, and soft



15 Use Cases (3)

- Supporting students with disabilities of exceptionalities – e.g. [Curipod](#)
- Mental health supports –e.g. [Youper](#)
- Learner Analytics & The Zone of Success – e.g. [Civitas Learning](#), [Cognii](#)
- Blockchain e-Portfolios – e.g. [Ethereum](#)
- Career Advice and Pathway Finding – e.g. [Eightfold.ai](#)





Three Paradigms for AI Deployment

Ouyang and Jiao (2021)

	AI Directed	AI Supported	AI Empowered
Core Idea	Learner as Recipient	Learner as Collaborator	The empowered learner as leader
Underlying Pedagogy	Behaviourism	Social Constructivism	Connectivism
Core AI Methodology	Statistical rational techniques	Natural language processing – Markov decision trees	Deep learning
Example	Chatbot and Tutoring Systems	Exploratory environment	Use of predictive modelling in a problem-based challenge

Some Issues & Concerns



1. Cybersecurity and Privacy

- **Data privacy:** AI relies heavily on data which may include sensitive personal information. Researchers must get proper consent, anonymize data, and ensure strong cybersecurity to safeguard privacy.
- **Safety and security:** Like any technology, AI carries risks of accidents, errors and adversarial attacks. Researchers share responsibility for rigorously testing systems for safety and security before real-world deployment.



2. Moral Agency

- **Moral agency:** As AI becomes more advanced, questions arise over accountability when systems behave undesirably. Who is responsible - the developer, user or AI system itself?
- Researchers should consider **ethical frameworks and use case guidelines** that ascribe appropriate responsibility.



3. Academic Misconduct and the Role of AI

- Cheating is not new – it has been with us since the Ming Dynasty.
- Around 60% of all high school students cheat (and some teachers aid them in doing so).
- If we create a culture that values grades more than learning, cheating is a consequence.
- AI will force us to reimagine assessment – pushing us to imagine new ways of enabling learning through feedback and advice.

AI Detection Software is a Bust!

1. In systematic tests of CheatGPT, it detected AI-generated material just 26% of the time.
2. Most of the tools available are based on older LLMs than those currently in use – e.g. ChatGPT3.5 versus ChatGPT4o – and so are not up to date on the quality and depth of responses LLMs now produce.
3. Even a small change to the LLM output or a change due to regenerating the output using a different LLM (e.g. using the output from Claude 3 Opus and regenerating it in ChatGPT4o) fools the detection system.
4. As students get better at prompt engineering (iterative prompting and challenging LLMs to do better), the detection software is less effective in identifying AI input – it is essentially catching those who have yet to learn prompt engineering.
5. Detectors are biased against those whose first language is other than English.

3. Bias, Hallucination and Error

- **Bias and discrimination:** AI systems can perpetuate and amplify existing societal biases if the training data reflects historical discrimination or imbalance.
- This can lead to unfair and unethical outcomes. Researchers must proactively assess for and mitigate bias.
- **Explainability:** The complexity of many AI models makes it difficult to explain their internal logic and decisions. Lack of transparency prevents accountability and trust. There are also many examples of AI “hallucinating” or providing false information.
- Researchers should favour explainable AI where possible



4. Copyright & Legal Peril

- Authors, artists, musicians and others have filed lawsuits because their resources were being used to “train” AI systems without their permission or acknowledgement. AI developers are using “fair use” as their defence.
- This is also an issue when AI generates “original” material – who owns it? ([Copyright is exclusively about human creation](#)).
- When using AI detection software in cases of academic misconduct, what are the risks of wrongly accusing a student of cheating? Very high probability that around 20-30% of those “caught” did not in fact cheat.





5. Traceability and Explainability

- **Traceability:** Researchers need to reference their sources. ChatGPT4, Claude 2 and Gemini now provide some basic information about sources and researchers can interrogate these sources when seeking verification. But sometimes the sourcing by AI is unreliable and sometimes it is just wrong.
- **Explainability:** The complexity of many AI models makes it difficult to explain their internal logic and decisions. Lack of transparency prevents accountability and trust. Researchers should favor explainable AI where possible.

We Also Need to be Concerned About

1. Homogenization through AI at Scale
2. Learnification and Datafication
3. Loss of Human Connection, Creativity and Compassion
4. Marginalizing the Voices of Experience
5. Equity, Inclusion and Algorithmic Bias
6. Privacy, Security and Transparency
7. Ethics, Morals and Subversion
8. Costs and the Risk of Failed Implementation
9. Commercialization and Marketization

The Polyscapes for AI in Higher Education

Exploration of Four Snapshots of the Future Coupled with Three AI Strategies

- The Snapshots are (based on Couture & Murgatroyd, 2024):
 - Indicative Snapshots
 - Prognostic Correlations
 - Projected Transformations
 - Phantasmagoric Fictions
- The three AI strategies are (based on Gulson et. al., 2021,2022):
 - Promotion
 - Acceptance
 - Appropriation

1: Indicative Snapshots

Promotion	Acceptance	Appropriation
Promote the use of AI, such as personalized learning and smart campuses, emphasizing its benefits and potential for incremental change.	Accept the inevitability of AI integration in higher education and adapt current policies to accommodate it, focusing on risk management and ethical considerations.	Adapt the narrative around AI to align with the institution's values and goals, emphasizing its role in enhancing student success and faculty research and development.

2. Prognostic Correlations

Promotion	Acceptance	Appropriation
Promote the use of AI in data-based profiling and predictive analytics to improve student outcomes and institutional performance.	Accept the use of AI in targeted interventions and change management, emphasizing the need for transparency and accountability.	Adapt the narrative around AI to focus on its potential for empowering students and faculty rather than just monitoring and controlling them.

3. Projected Transformations

Promotion	Acceptance	Appropriation
Promote the use of AI in scenario planning and strategic foresight, emphasizing its role in shaping the future of the institution and the ecosystem of higher education.	Accept the projected transformations brought about by AI, focusing on the need for reskilling and upskilling of faculty and staff.	Adapt the narrative around AI to emphasize its potential for creating new opportunities and innovations rather than just disrupting existing ones. See AI as a change agent, not just an efficiency resource.

4. Phantasmagoric Fictions

Promotion	Acceptance	Appropriation
<p>Promote the use of AI in imagining and creating radically different futures for higher education, emphasizing its potential for transformative change.</p>	<p>Accept the uncertainty and unpredictability brought about by AI, focusing on the need for agility and adaptability.</p>	<p>Adapt the narrative around AI to emphasize its potential for fostering design justice, equity, and inclusion in the assessment of learning.</p>

What Colleges and Universities Need to Do

- ❖ **Launch governance initiatives specific to the college or university needs.** No “one size fits all” policy exists, given the unique character of each higher education institution. However, existing policies from other organizations provide a fertile ground for exploration.
- ❖ **Identify and establish relevant policies and frameworks.** In doing so, involve students, faculty, staff and governing body members to ensure alignment. Effective policy communication is a critical task.
- ❖ **Assess AI’s performance over time to ensure safety and trustworthiness.** Given the speed at which AI is developing, a policy written in 2021 is already stale-dated. This policy space requires constant attention. Current AI deployments should be monitored continuously to detect any change in the way in which they are deployed or in the way in which their use impacts the organization.
- ❖ **Pinpoint potential risks and vulnerabilities that arise throughout the AI lifecycle.** Using an analysis based on the idea of “moments of truth” (Löfgren, 2005; Solis, 2013), identify the moments of truth in the use of AI within the institution that put the reputation and integrity of the institution on the line.
- ❖ **Continually monitor and report on discoveries.** Investing in continuous review of emerging policy and governance issues, leveraging organizations such as JISC (UK), Educause (US), UNESCO and others who scan the policy space continuously. Regional networks of collaboration are also helpful here

The “Transformation Conversation”

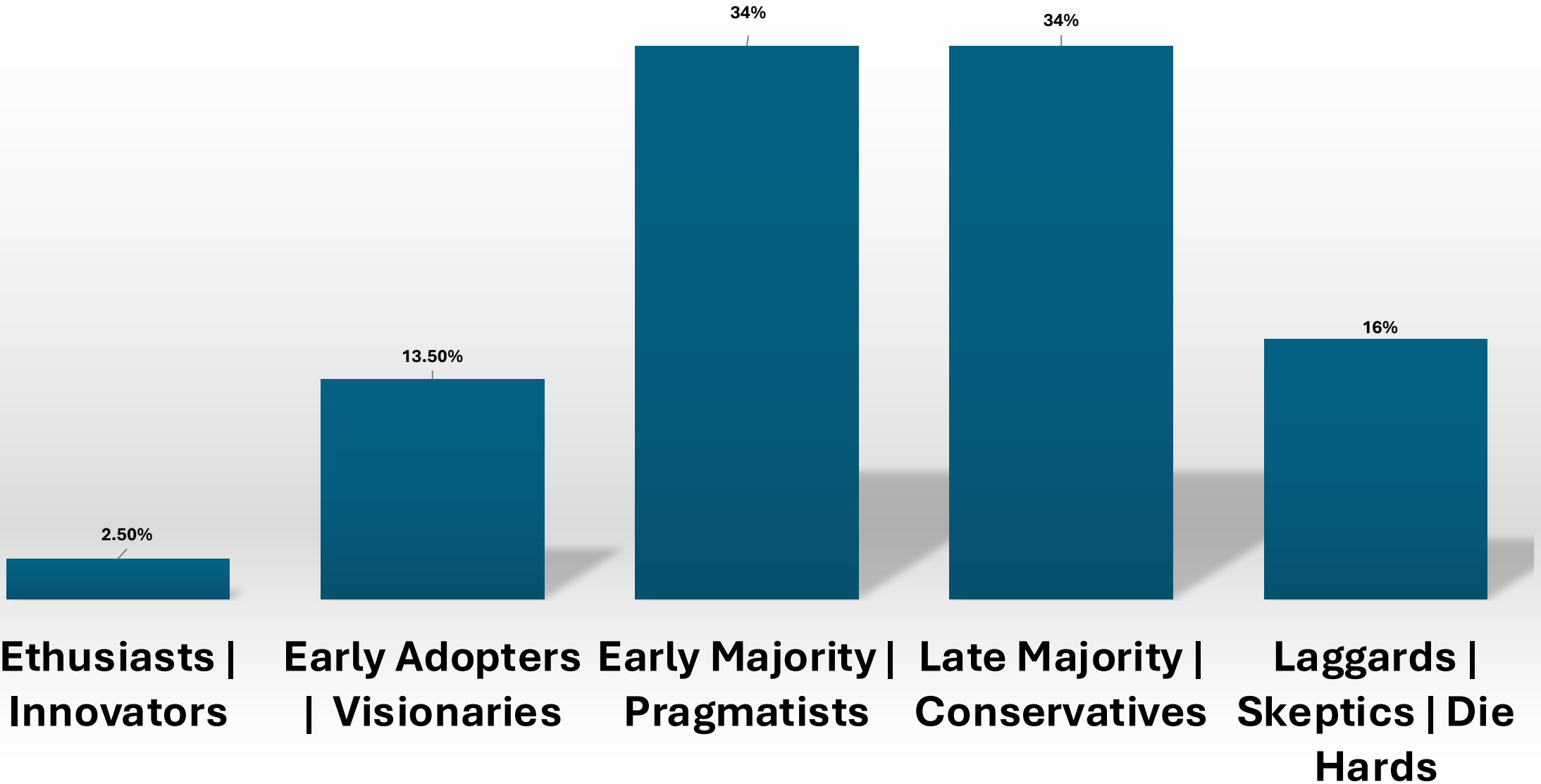
“Culture eats strategy for breakfast!”

– Attributed to Peter Drucker.

Five Key Observations

1. Most IT-driven AI transformations fail at a failure rate of 60% to 85% depending on the “transformation”.
2. Almost all transformations that succeed come in over budget.
3. The pattern of staff reaction continues to follow the Rogers Adoption curve.
4. Many “transformations” don’t last over time – e.g. the brief flirtation with SmartBoards
5. Top-down transformations are more likely to fail than bottom-up transformations, especially with AI in higher education.

Rogers Adoption Curve

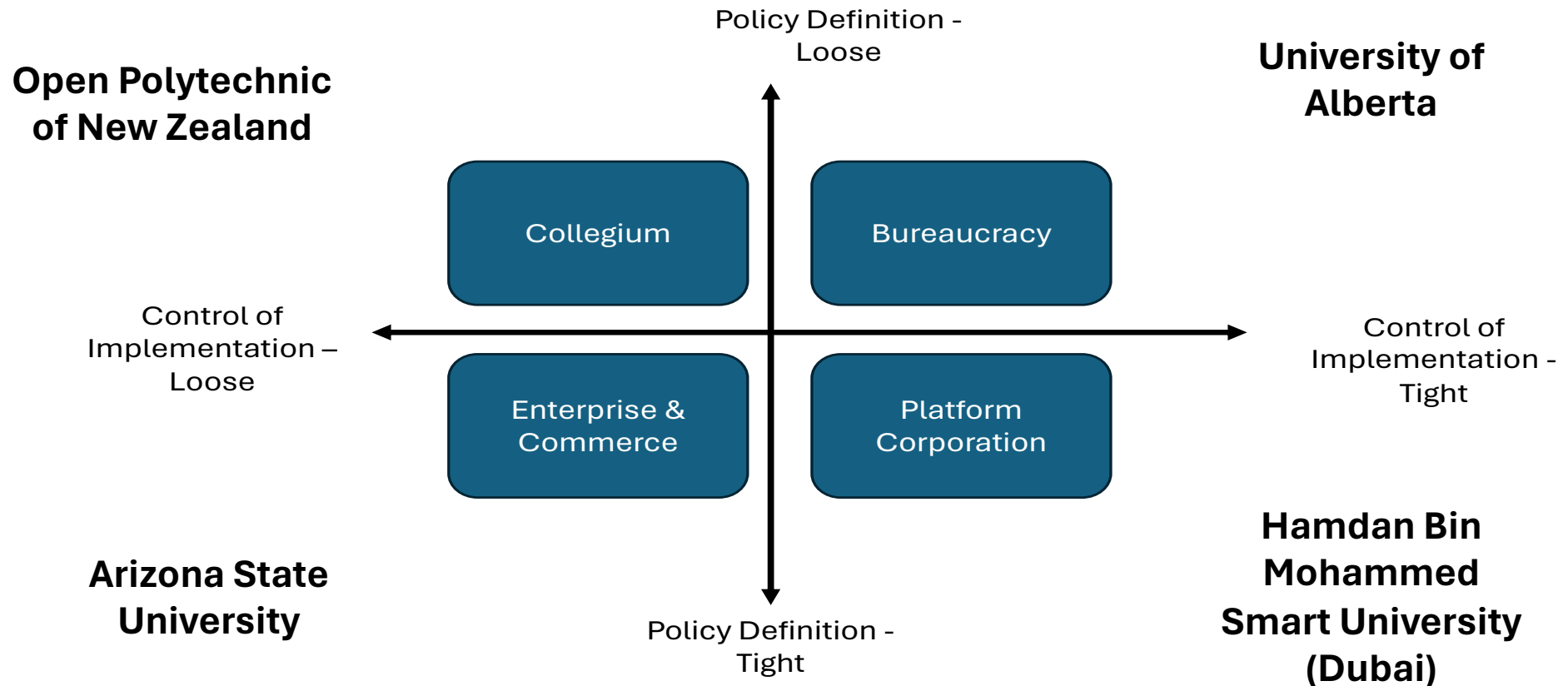


Four Scenarios for the Future

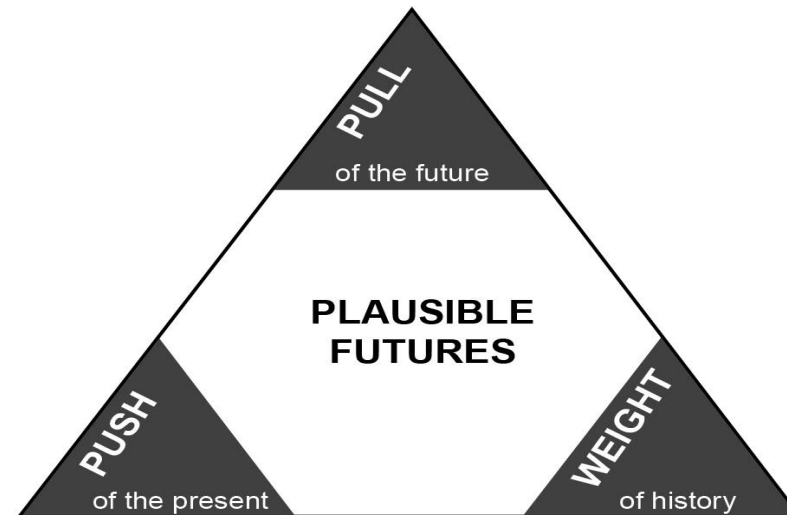
Two Drivers for the Four Scenarios

- The extent of technology-enabled learning (including AI) within an institution – high to low. **Control of Implementation.**
- The commitment *in practice* to equity, diversity and inclusion – high to low. **Policy definition.**

The Four Scenarios

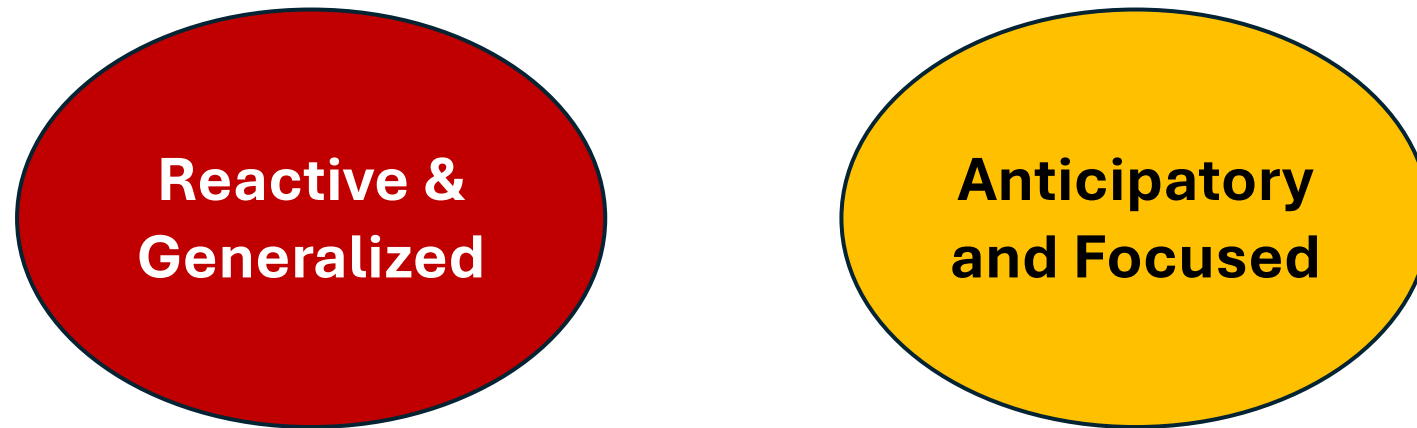


The Futures Triangle Helps Us Understand the Change Dynamics Here

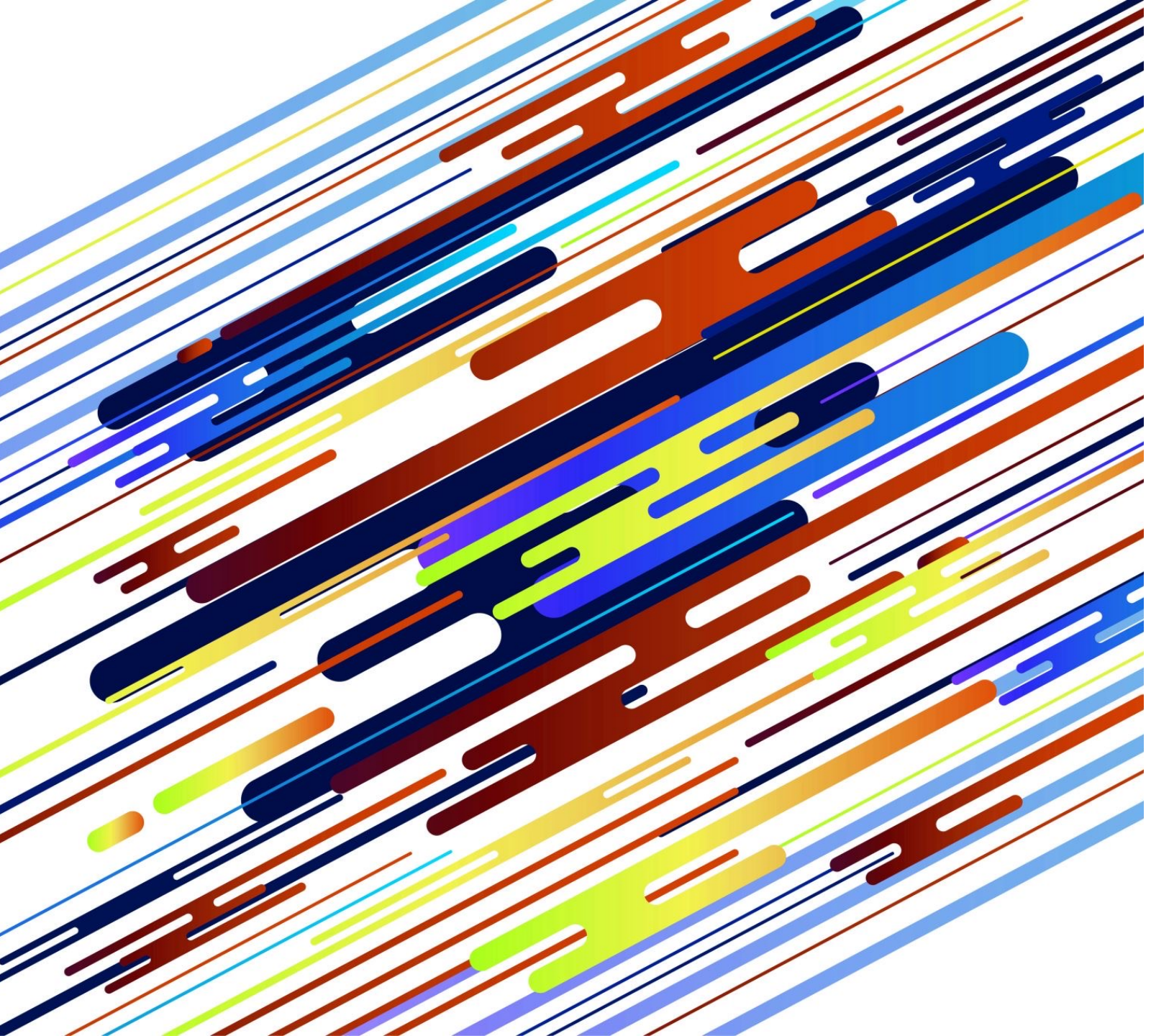


PUSH	PULL	WEIGHT
<ul style="list-style-type: none">▶ What drivers of change are pushing us towards particular futures?▶ What quantitative drivers of change are changing the future?▶ What is happening now?	<ul style="list-style-type: none">▶ What drivers of change are pushing us towards particular futures?▶ What are the compelling images of the future, those we can't overlook?▶ Are there competing images of the future?	<ul style="list-style-type: none">▶ What is holding us back or getting in our way?▶ What are the barriers to change?▶ What are the deep structures that resist change?

Institutions Need to Shift Governance Mindsets



Finding Trade-Offs Between Rules, Innovation & Risk

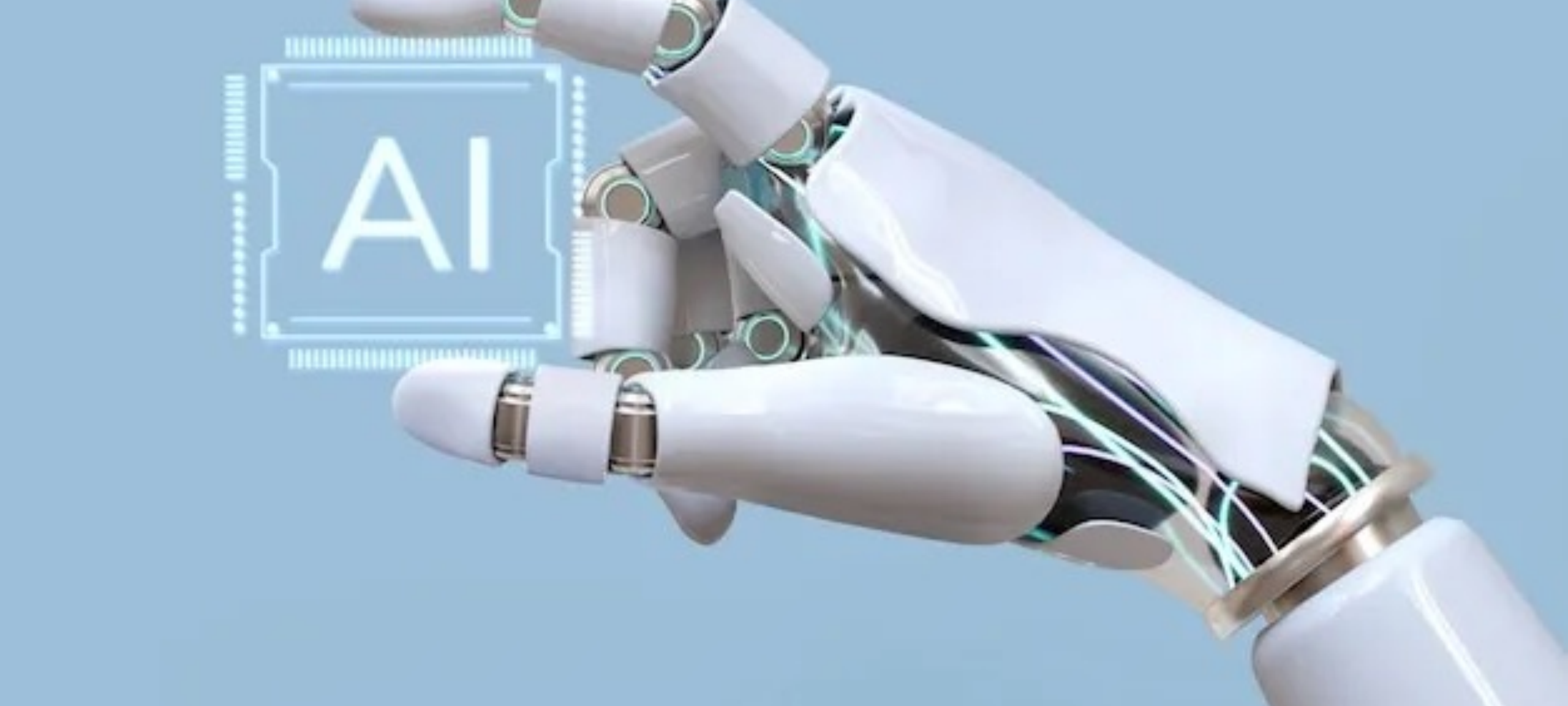


**What You
Might Want to
Explore**



Six Things..

1. Leveraging AI as a co-intelligent digital assistant for a variety of tasks.
2. Keep up with developments via [Bens Bites](#) or [The Rundown AI](#)
3. Search [There's an AI for That](#) for specific applications – Over 12,500 now listed.
4. Study [Mollick & Mollick](#) carefully.
5. Ensure you understand the [Treasury Board Guidelines for the Use of AI](#) and the framework from [Canada's Privacy Commissioner](#). Review [Bill C-27](#).
6. Start to understand the difference between current governance models and anticipatory governance.



MANY THANKS! Questions??

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