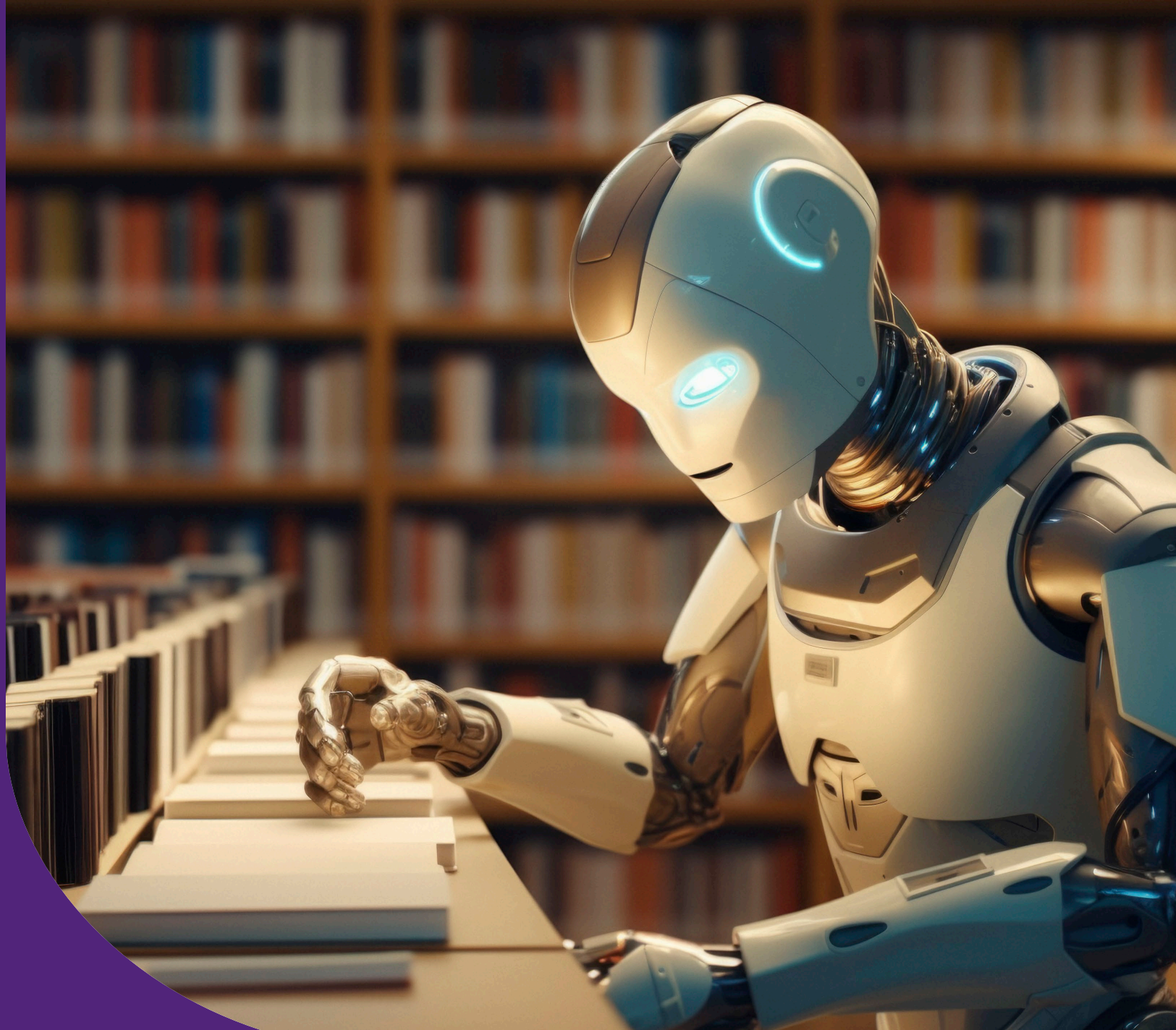


Reclaiming
the
humanities in
an era of
Generative AI



Acknowledgement of Country

The University of Queensland (UQ) acknowledges the Traditional Owners and their custodianship of the lands on which we meet.

We pay our respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.

We recognise their valuable contributions to Australian and global society.

The Brisbane River pattern from A Guidance Through Time
by Casey Coolwell and Kyra Mancktelow.





Apocalypse Now
R E D U X



Review Article

Revolutionizing Digital Pathology With the Power of Generative Artificial Intelligence and Foundation Models

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ABSTRACT

Digital pathology has transformed the traditional pathology practice of analyzing tissue under a microscope into a computer vision workflow. Whole-slide imaging allows pathologists to view and analyze microscopic images on a computer monitor, enabling computational pathology. By leveraging artificial intelligence (AI) and machine learning (ML), computational pathology has emerged as a promising field in recent years. Recently, task-specific AI/ML (eg, convolutional neural networks) has risen to the forefront, achieving above-human performance in many image-processing and computer vision tasks. The performance of task-specific AI/ML models depends on the availability of many annotated training datasets, which presents a rate-limiting factor for AI/ML development in pathology. Task-specific AI/ML models cannot benefit from multimodal data and lack generalization, eg, the AI models often struggle to generalize to new datasets or unseen variations in image acquisition, staining techniques, or tissue types. The 2020s are witnessing the rise of foundation models and generative AI. A foundation model is a large AI model trained using sizable data, which is later adapted (or fine-tuned) to perform different tasks using a modest amount of task-specific annotated data. These AI models provide in-context learning, can self-correct mistakes, and promptly adjust to user feedback. In this review, we provide a brief overview of recent advances in computational pathology enabled by task-specific AI, their challenges and limitations, and then introduce various foundation models. We propose to create a pathology-specific generative AI based on multimodal foundation models and present its potentially transformative role in digital pathology. We describe different use cases, delineating how it could serve as an expert companion of pathologists and help them efficiently and objectively perform routine laboratory tasks, including quantifying image analysis, generating pathology reports, diagnosis, and prognosis. We also outline the potential role that foundation models and generative AI can play in standardizing the pathology laboratory workflow, education, and training.

By leveraging artificial intelligence (AI) and machine learning (ML), computational pathology has emerged as a promising field in recent years. Recently, task-specific AI/ML (eg, convolutional neural networks) has risen to the forefront, achieving above-human performance in many image processing and computer vision tasks.

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Software from Baidu Research yields jabs for COVID that have greater shelf stability and that trigger a larger antibody response in mice than conventionally designed shots.



Apocalypse Now
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Apocalypse? No



THE USUAL SUSPECTS

The future of work is human

Interpersonal and creative roles will be hardest of all to mechanise.

- 86% of jobs created between now and 2030 will be knowledge worker jobs.
- By 2030, 25% of Australia's workforce will be professionals, mostly in business services, health, education or engineering.
- Two-thirds of jobs will be soft-skill intensive by 2030.

With the future of work more human than ever, organisations have a responsibility to build community trust. Ethical behaviour and diversity and inclusion must be embedded in business decision-making and workplace culture.

A diverse workforce is proven to stimulate greater creativity and exploration, which in turn drives innovation and productivity. This provides value not just at the business level, but to the entire economy.





World view



By Kate Crawford

Generative AI is guzzling water and energy

First-of-its-kind US bill would address the environmental costs of the technology, but there's a long way to go.

Last month, OpenAI chief executive Sam Altman finally admitted what researchers have been saying for years – that the artificial intelligence (AI) industry is heading for an energy crisis. It's an unusual admission. At the World Economic Forum's annual meeting in Davos, Switzerland, Altman warned that the next wave of generative AI systems will consume vastly more power than expected, and that energy systems will struggle to cope. "There's no way to get there without a breakthrough," he said.

I'm glad he said it. I've seen consistent downplaying and denial about the AI industry's environmental costs since I started publishing about them in 2018. Altman's admission has got researchers, regulators and industry titans talking about the environmental impact of generative AI

Within years, large AI systems are likely to need as much energy as entire nations."

actions to limit AI's ecological impacts now.

There's no reason this can't be done. The industry could prioritize using less energy, build more efficient models and rethink how it designs and uses data centres. As the BigScience project in France demonstrated with its BLOOM model³, it is possible to build a model of a similar size to OpenAI's GPT-3 with a much lower carbon footprint. But that's not what's happening in the industry at large.

It remains very hard to get accurate and complete data on environmental impacts. The full planetary costs of generative AI are closely guarded corporate secrets. Figures rely on lab-based studies by researchers such as Emma Strubell⁴ and Sasha Luccioni³; limited company reports; and data released by local governments. At present, there's little incentive for companies to change.

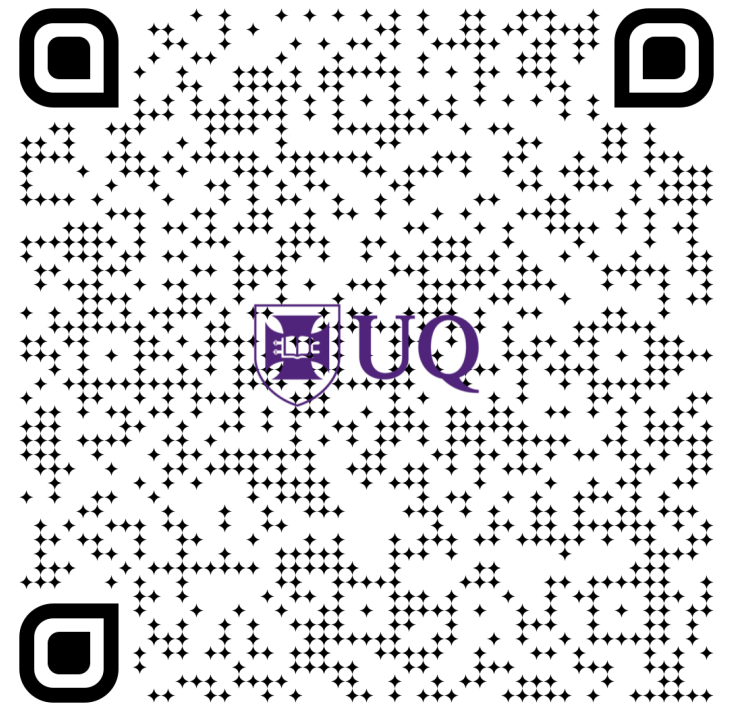
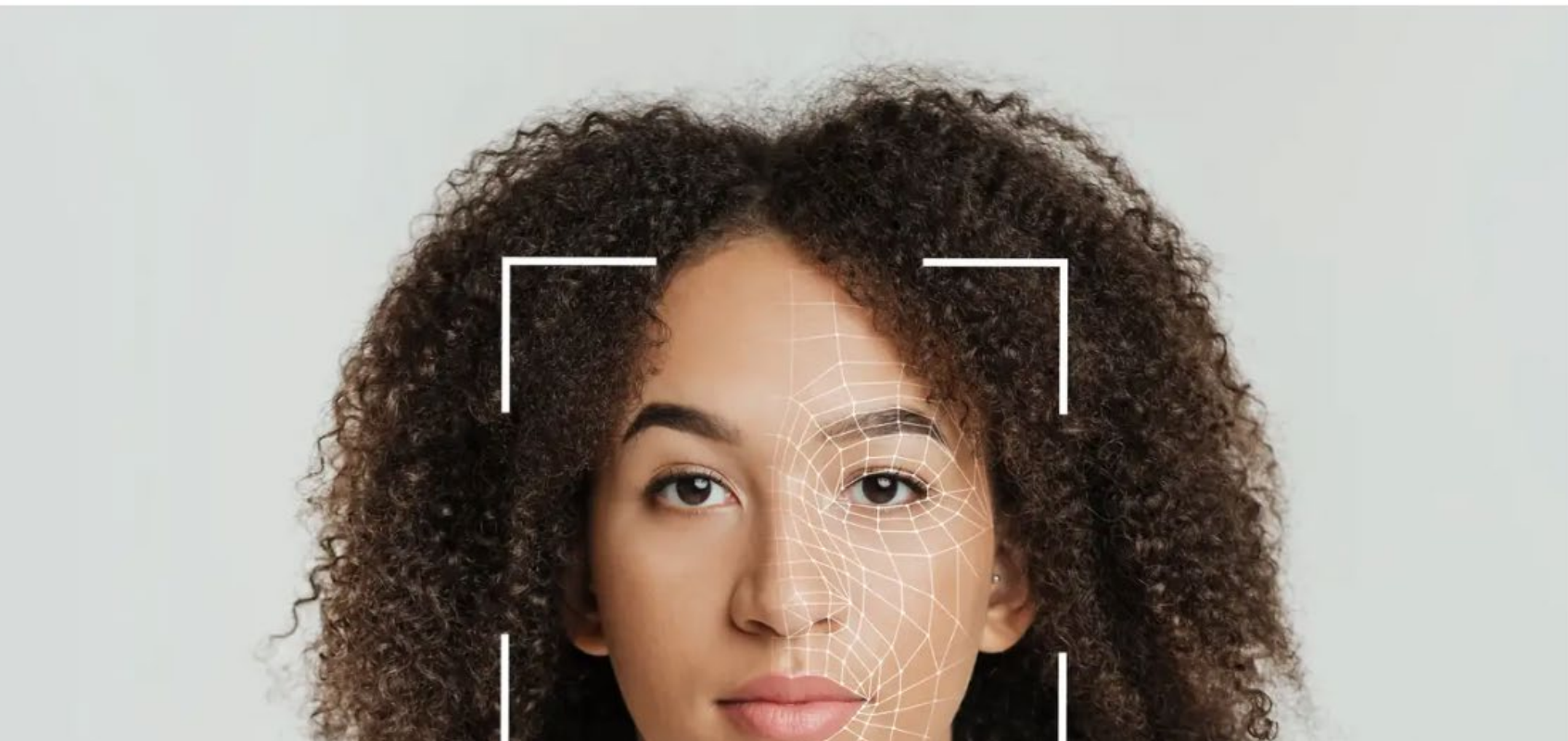
But at last, legislators are taking notice. On 1 February, US Democrats led by Senator Ed Markey of Massachusetts introduced the Artificial Intelligence Environmental Impacts Act of 2024. The bill directs the National Institute for Standards and Technology to collaborate with aca-

BUSINESS INSIDER

Should AI be used to classify humans? An AI researcher at USC says it's reductive and ethically dubious

Hannah Getahun Dec 26, 2022, 10:00 PM GMT+10

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Kate Crawford:
“What are the problems that generative A.I. can and will generate?”
Podcast interview for *Ground Truths*.

Hype Or Reality: Will AI Really Take Over Your Job?

Bernard Marr Contributor

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Recession and Automation Changes Our Future of Work, But There are Jobs Coming, Report Says

Published
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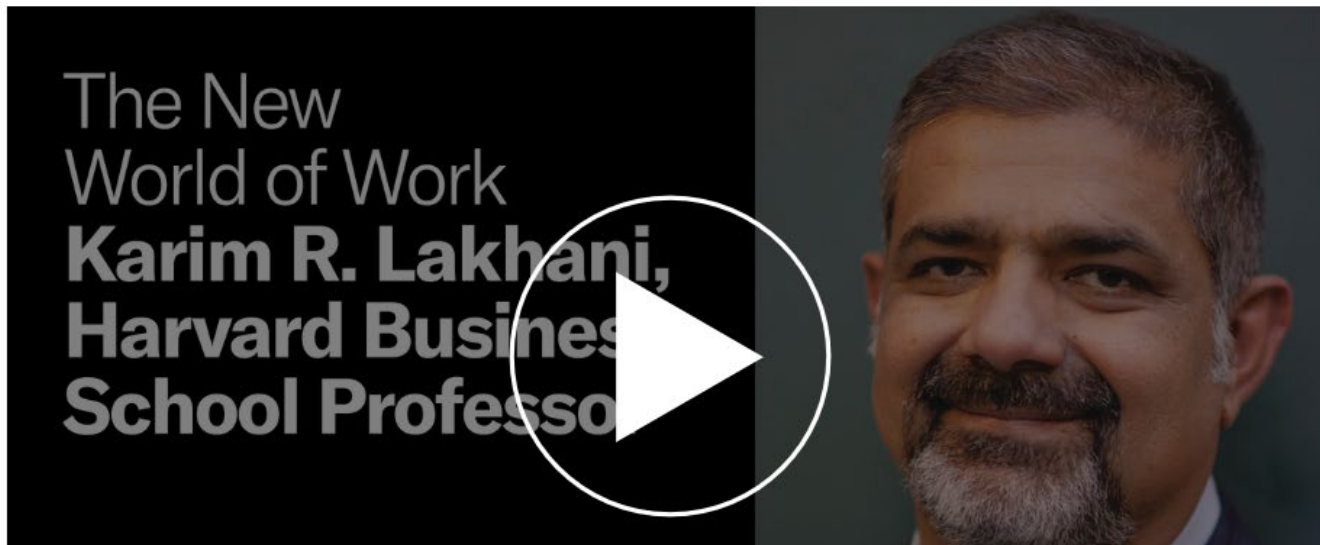


- The workforce is automating faster than expected, displacing 85 million jobs in next five years
- The robot revolution will create 97 million new jobs, but communities most at risk from disruption will need support from businesses and governments
- In 2025, analytical thinking, creativity and flexibility are among the top skills needed; with data and artificial intelligence, content creation and cloud computing the top emerging professions

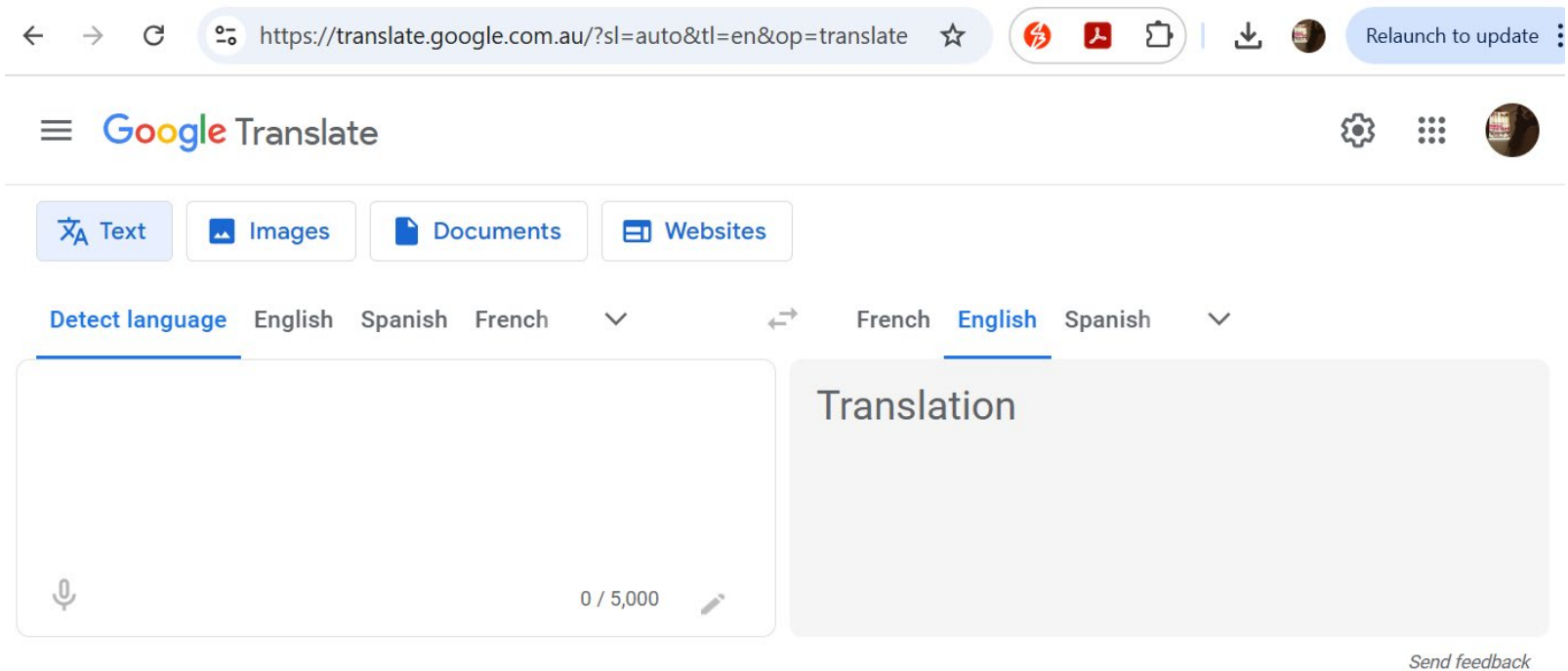


AI Won't Replace Humans — But Humans With AI Will Replace Humans Without AI

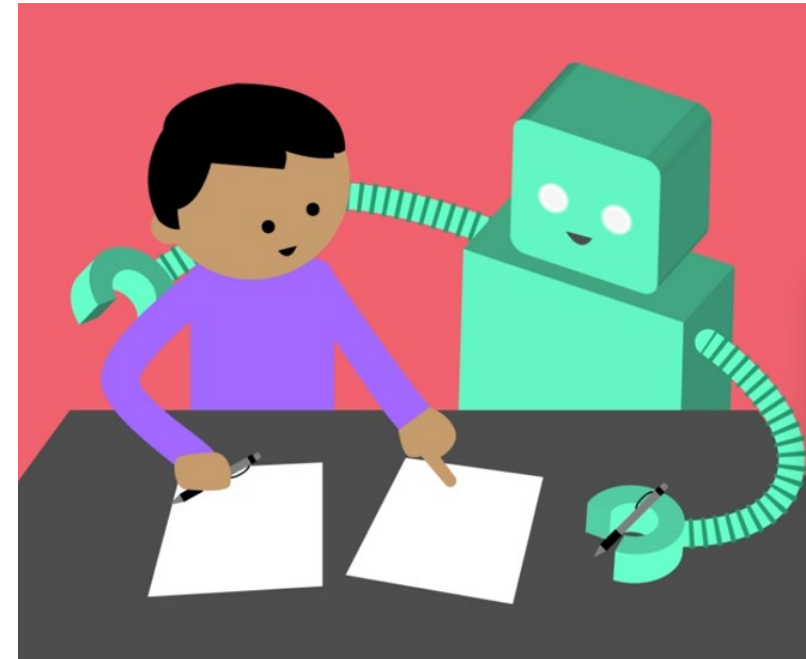
August 04, 2023



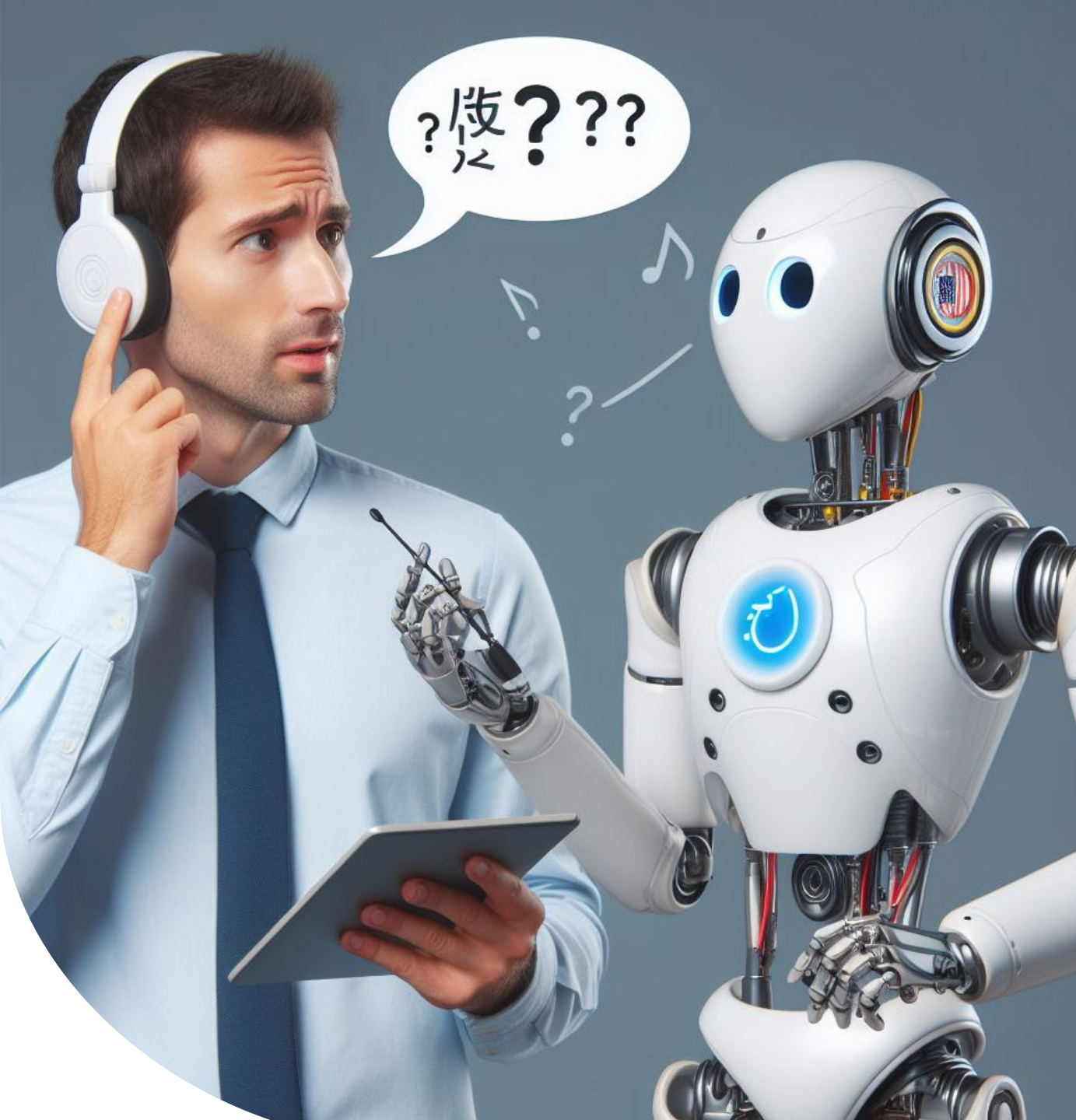
1. a new paradigm pt. 1



The screenshot shows the Google Translate web interface. At the top, the browser address bar displays the URL `https://translate.google.com.au/?sl=auto&tl=en&op=translate`. The Google Translate logo is visible in the top left, and a 'Relaunch to update' button is in the top right. Below the logo are navigation buttons for 'Text', 'Images', 'Documents', and 'Websites'. The language selection area shows 'Detect language' as the active option, with 'English', 'Spanish', and 'French' as alternatives. On the right, 'French', 'English', and 'Spanish' are listed. The main content area is split into two sections: a text input box on the left with a microphone icon and a character count '0 / 5,000', and a 'Translation' output box on the right. A 'Send feedback' link is located at the bottom right of the interface.



1. a new paradigm pt. 2



2. ambiguity and complexity pt.1



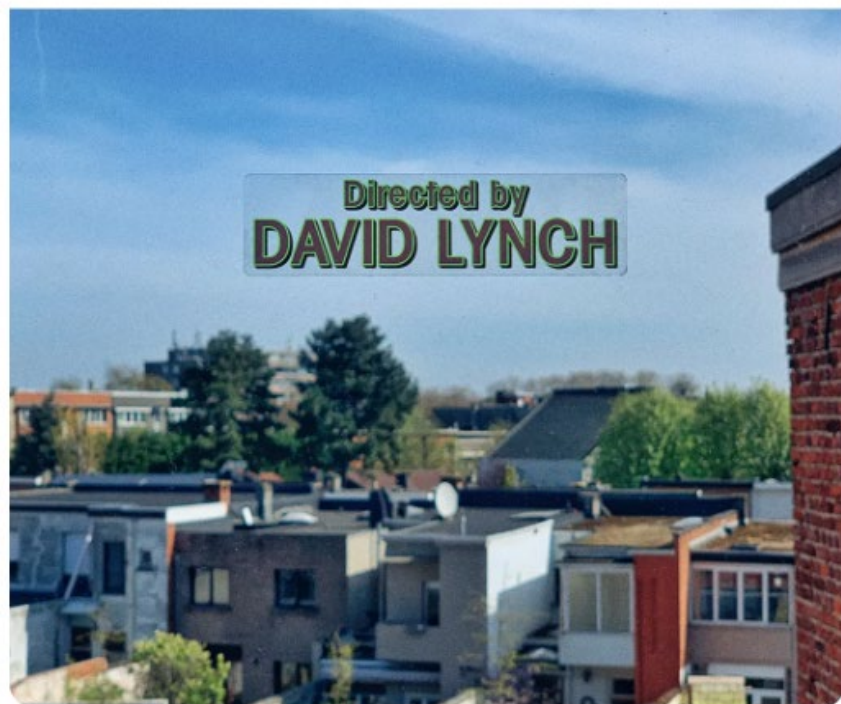
 NEWS

**UQ VACCINE
CANCELLED**

COVID-19 PANDEMIC

2. ambiguity and complexity pt.2

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