

Artificial Intelligence (AI) in education: ethics and futures

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AI: What are we talking about?

“Technologies used to allow computers to perform tasks that would otherwise require human intelligence, such as visual perception, speech recognition, and language translation”

– Scotland’s AI Strategy, 2021

“machines that can learn from their own experience, adapt to their contexts and uses, improve their own functioning, craft their own rules, construct new algorithms, make predictions, and carry out automated tasks without requiring control or oversight by human operatives”

– Williamson and Eynon 2020

“**AI is whatever hasn't been done yet.** Software and algorithms developed by AI researchers are now integrated into many applications, without really being called AI” (Woolf 2015)



AI in Education (Aled)

Learning as progress, mastery, creativity, connection?

- made visible and predictable through big data, tracking and monitoring.
- improved with intelligent, personalised, just-in-time input.
- supported with tools and services that the learner calls on.
- collaboratively enacted through a combination of humans and technologies.

it's big business... but how much is hot air?

it has been estimated that the global market for AI products in education is set to expand from \$1.1 billion in 2019 to \$25.7 billion by 2030. At the same time, developers and vendors of AI systems are already claiming impressive learning gains, as adaptive learning software begins to be taken up across school systems. – Facer & Selwyn 2021

Proponents claim [AI] is able to accurately infer emotional states, while an academic review in the journal Psychological Science in the Public Interest has argued strongly that it simply cannot do this... for AI to be used in schools, it must be subject to rigorous testing to prove it can actually do as claimed – Scarff 2023

AI *and* Education (beyond Aled)

A range of tools and processes were not particularly created for educational purposes, but are finding purchase amongst teachers and learners.

- Generative AI for images, text, code and more
- Virtual assistants and voice applications
- Chatbots
- Recommendation systems

Some tools may be influenced by our educational and ethical principles... others perhaps not.

Are we on the cusp of big shifts in how people write, create, and consolidate knowledge?

What does this mean for education and learning?

AI in Education (Aled) – issues with Generative AI

- current GenAI models do not generate explanations by default, so the content they produce cannot be fully scrutinised, nor the models adapted.
- information produced by GenAI is not guaranteed to be accurate, so the task of critically engaging with its outputs falls on teachers and students.
- current approaches to training Large Language Models may result in outputs that replicate dominant perspectives, risking further marginalisation of data-poor populations, minority languages and alternative perspectives
- issues of consent, data rights, and ethical data collection have not been resolved in relation to GenAI.

(Miao & Holmes 2023) – UNESCO report

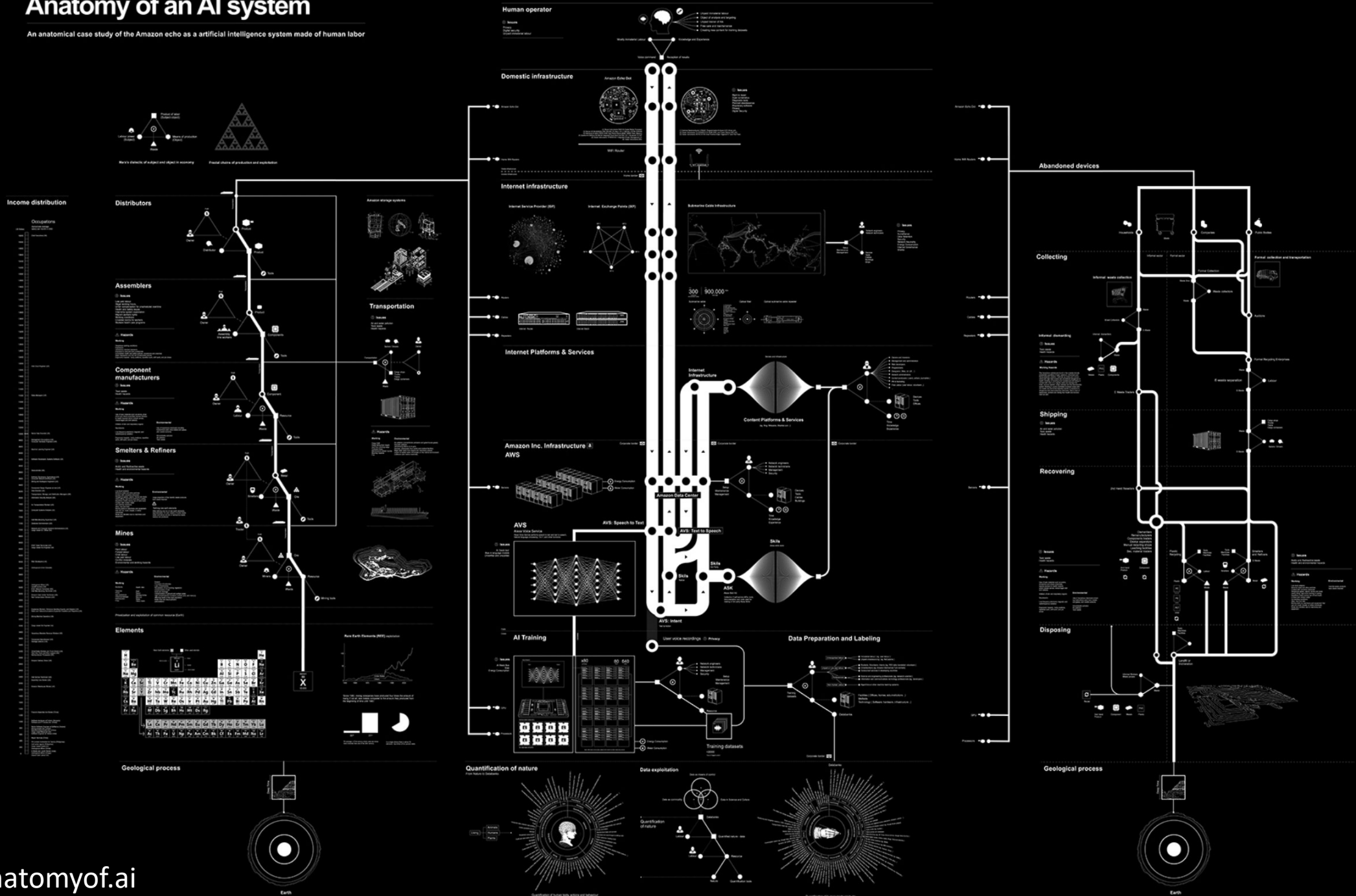
AI controversies

- automation in workplaces and public services;
- algorithmic forms of bias and discrimination;
- automated reproduction of inequalities and disadvantage;
- regimes of data-centred surveillance and algorithmic profiling;
- disregard of data protections and privacy;
- political and commercial micro targeting;
- control by technology corporations.

Williamson & Eynon 2020

Anatomy of an AI system

An anatomical case study of the Amazon echo as a artificial intelligence system made of human labor



AI and values

“We are a society that treats all our people with kindness, dignity and compassion, respects the rule of law and acts in an open and transparent way” - Scotland’s National Performance Framework

How do we “advance [educational] values and facilitate better educational experiences, rather than adding to teachers’ workloads or undermining their work”? (Gallagher and Brienes 2021)

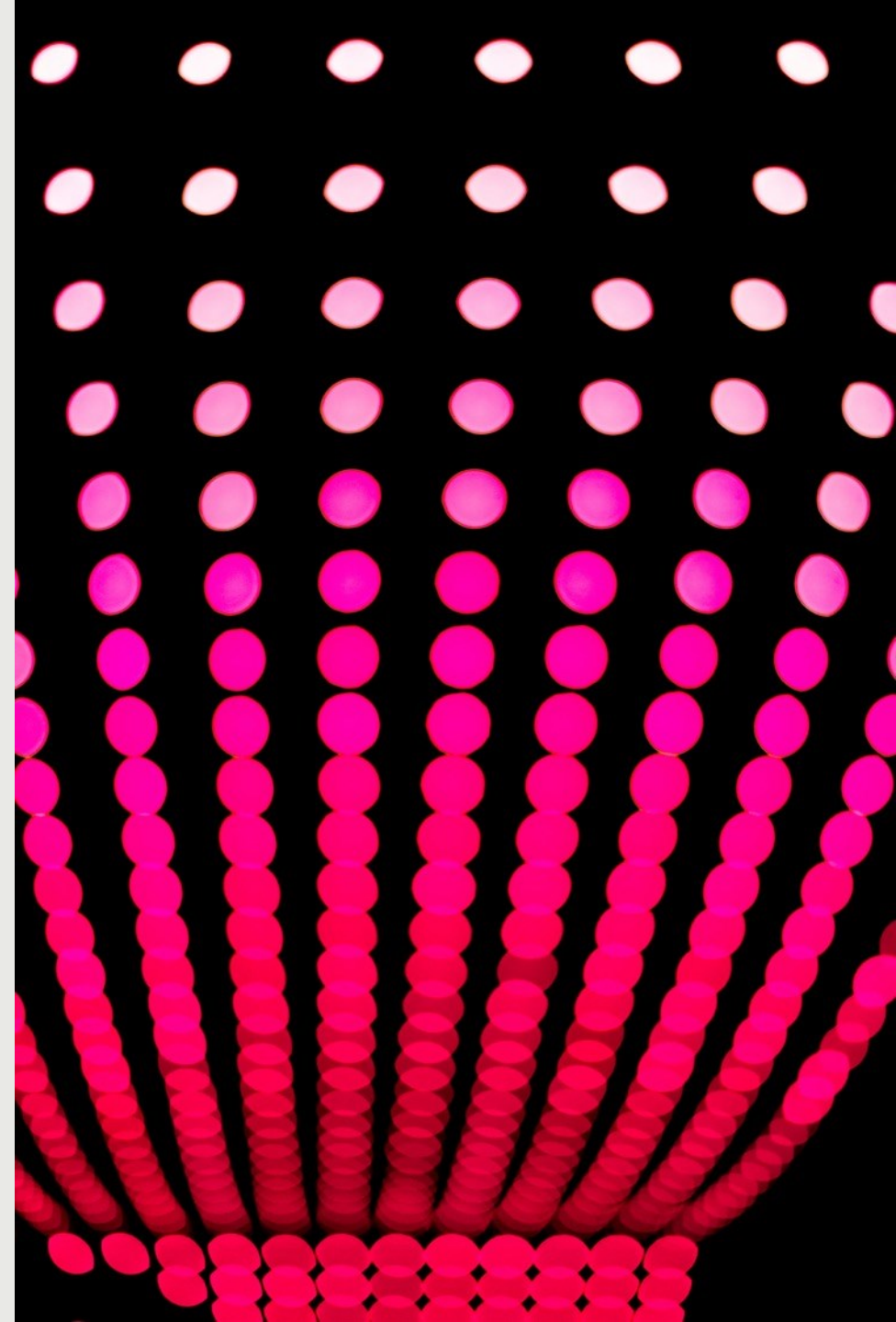
Creativity and voice

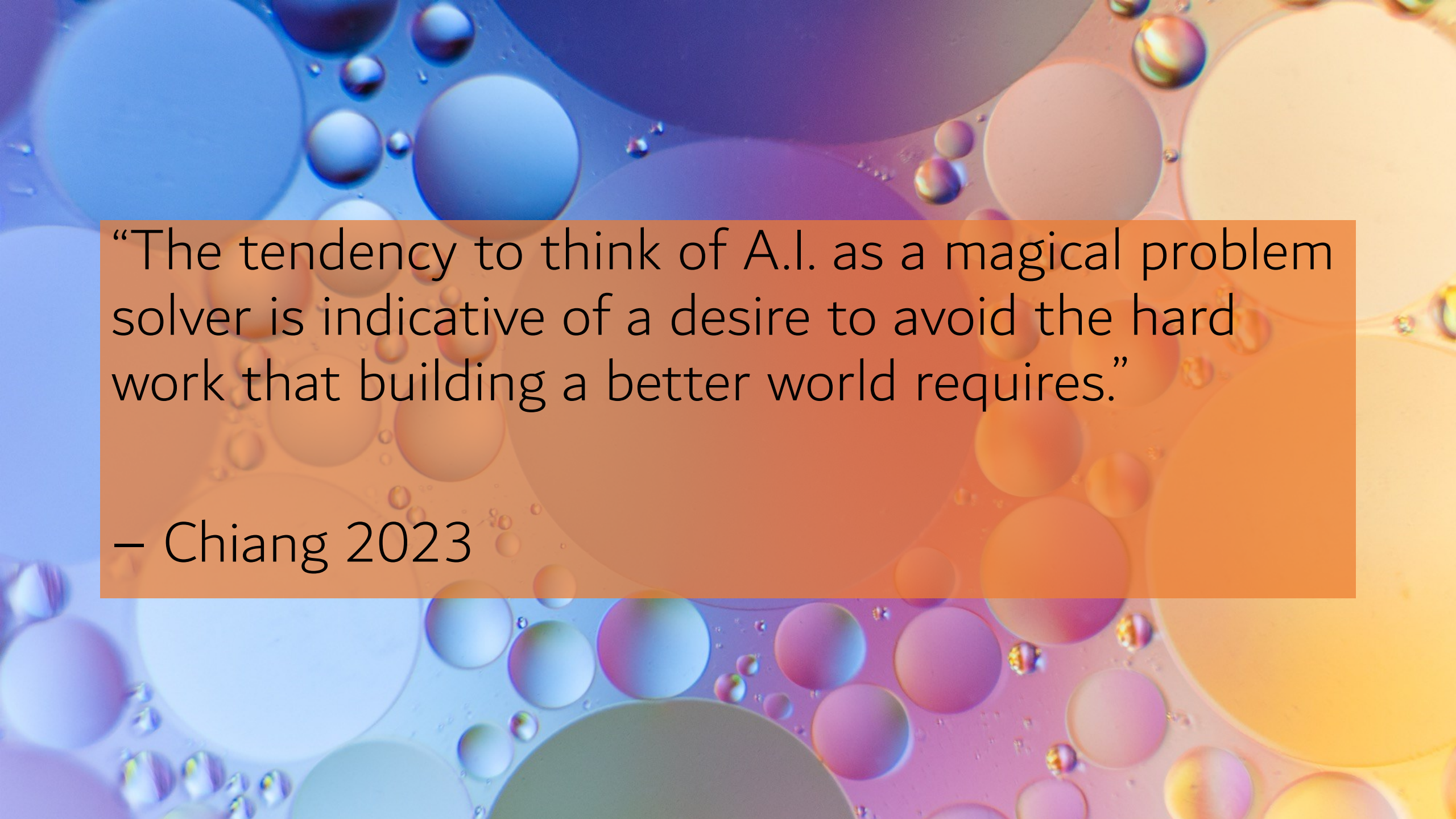
“Over-reliance on AI tools simply to generate written content, software code or analysis reduces your opportunity to practice and develop key skills (e.g. writing, critical thinking, evaluation, analysis or coding skills). These are all important skills that are valued and required to succeed in and beyond your time at University.” – ChatGPT advice given to University of Edinburgh students

If creativity is key to the futures we want to be prepared for, how do we nurture our desire and ability to take risks, engage in inquiry and find our voices?

- 1** AI should benefit people and the planet by driving inclusive growth, sustainable development and well-being.
- 2** AI systems should be designed in a way that respects the rule of law, human rights, democratic values and diversity, and they should include appropriate safeguards – for example, enabling human intervention where necessary – to ensure a fair and just society.
- 3** There should be transparency and responsible disclosure around AI systems to ensure that people understand AI-based outcomes and can challenge them.
- 4** AI systems must function in a robust, secure and safe way throughout their life cycles and potential risks should be continually assessed and managed.
- 5** Organisations and individuals developing, deploying or operating AI systems should be held accountable for their proper functioning in line with the above principles.

OECD Principles on Artificial Intelligence, 2019





“The tendency to think of A.I. as a magical problem solver is indicative of a desire to avoid the hard work that building a better world requires.”

– Chiang 2023

Thank you!!

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