

## Al and education

Sue Attewell

Head of AI







# 70 Years of Al

#### August 1955:

"We propose that a 2 month, 10 man study of artificial intelligence be carried out during the summer of 1956...

An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves.

We think that a significant advance can be made in one or more of these problems if a carefully selected group of scientists work on it together for a summer." A PROPOSAL FOR THE DARTMOUTH SUMMER RESEARCH PROJECT ON ARTIFICIAL INTELLIGENCE

J. McCarthy, Dartmouth College M. L. Minsky, Harvard University N. Rochester, I.B.M. Corporation C.E. Shannon, Bell Telephone Laboratories

August 31, 1955

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## Technology Developments

Key AI developments over the last few months



## **Deep Research**

#### Perplexity, Google, Open AI and more.

Deep Research lets you ask complex questions and get rich, trustworthy answers—drawing from your documents, messages, meeting transcripts, and the internet—with clear sources so you can easily check and explore further.



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## why do Al image generation tools get text wrong



#### Why AI Image Generation Tools Struggle with Text Rendering

Al image generators have revolutionized visual content creation, yet they consistently stumble when tasked with rendering readable text within images. Despite significant advancements in generating photorealistic scenes, objects, and people, these powerful tools often produce garbled, misspelled, or completely nonsensical text. This persistent limitation stems from fundamental differences in how Al processes visual versus textual information, creating a technical disconnect that results in what researchers call "text-like" shapes rather than actual readable content. Understanding these challenges requires examining both the technical architecture of image generation systems and the complex

ス Ask follow-up

Technical Foundations of AI Image Generation



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## The latest image generation tools

A step change in AI Image Generation in Open AI's latest models





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## **Diffusion models**

The first wave of AI image generation struggles with text and certain types of detail (hands!)

#### Prompt:

Create an educational poster with basic food vocabulary in English and Italian side by side. Include ten words (e.g., "Coffee – Caffè" "Strawberry – Fragola," "Cake – Torta," etc.) in a grid layout with icons. Title: "Food Vocabulary – English & Italian".



## **Auto-regression models**

Based on a different technique, the latest models can create complex images accurately.

#### Prompt:

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## FOOD VOCABULARY

#### **ENGLISH & ITALIAN**



# What challenges does this present when the text is so real?

FAKEY'S CAFE				
	/04/2024 12:24 PM			
Omelette Side Salad Tea	7.95 2.50 1.80			
Subtotal12.25Tip (10%)1.23				
Total	13.48			
Paid CASH				
This is not a real receipt, it was created for demonstrative purposes.				

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## LearnLM

AI designed for learning from the ground up

Google are incorporating AI Models fine-tuned for learning into many of their products

### With LearnLM infused, Gemini 2.5 is the leading model for learning

In a head-to-head competition, educators and experts preferred Gemini 2.5 Pro over other models when evaluating its pedagogy and effectiveness in helping with learning goals across a diverse range of scenarios. 2.5 Pro also outperformed competitors on every one of the five principles of learning science used to build AI systems for learning. **Related resources** 

Evaluating Gemini in an Arena for Learning

May 2025 report

Learn in newer, deeper ways with Gemini May 2025 announcement

You are a high school biology educator. Design a lesson for 10th grade students introducing the structure and function of DNA. Tailor the lesson for an inquiry-based science class and include an engaging lab activity and a claim-evidence-reasoning (CER) writing prompt as the exit ticket.

#### **Prompting LearnLM**

With appropriate system instructions, Gemini can leverage LearnLM's research and grounding in learning science to elicit pedagogical behavior. Our prompt guide provides sample instructions and prompts to see this in action.

#### Visit the prompt guide

## Notebook LM

Google's Notebook LM lets us work with our own documents, and present them in many ways, including as a podcast.

	Learner guide to Al 🔅 Settings			
Sources () 🛨	* Notebook guide			
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🎦 2+How+are+Al+syste 🗸	FAQ   Study Guide   Table of Contents     Timeline   Briefing Doc	Learner guide to AI		
3++What+can+Al+hel 🗸		00:56 / 08:14		
📴 4+What+are+the+limi 🗸	Summary These sources provide an overview of artificial intelligence (AI),	Suggested questions		
🖻 5+Al+Glossary+for+le 🗹	focusing on its capabilities, limitations, and creation. The first document defines AI, its connection to machine learning, and the significance of generative AI tools. The second source explains how AI systems are	What are the key benefits and limitations of using AI in education and personal development?		
📴 6+Getting+to+underst 🗸	created, emphasizing the importance of training data, human involvement, and the significant costs involved. The third document explores the benefits of AI, highlighting its potential to increase capacity and extend capabilities through automation and innovative applications. The fourth document delves into the limitations of AI,	How do biases, stereotypes, and explainability affect the trustworthiness and reliability of AI systems?		
	discussing bias, explainability challenges, the potential for generating inaccurate information, and concerns regarding uniformity in content creation. Lastly, the fifth document offers a glossary of Al terms, and the sixth provides engaging activities and questions to encourage further understanding and exploration of Al.	What are the major players in AI development, their key models, and how are these models being used to create new products and features?		
	further understanding and exploration of Al.			
	<b>5 View Chat</b> 6 sources Start typing	* Notebook guide		
	NotebookLM may still sometimes give inaccurate responses, so you may want to confirm any facts independently.			



## We are shifting how we think about tools...

#### AI TOOLS







## Saving staff time - tools become built into existing platforms...

#### Microsoft AI in Teams for Education

► Applies To

Microsoft Teams for Education is a suite of tools and resources that enable educators and students to leverage the power of artificial intelligence in teaching and learning. With Microsoft Teams for Education, you can create personalized and interactive learning experiences, enhance curriculum and assessment design, and empower students with future skills.

#### Core features for assignments

#### Assignment Instructions

Al instructions for educators are designed to streamline assignment creation and editing to offer options to add more details, increase inclusivity, and engage young readers. Using Al, teachers can easily update their assignments with instructions for students that are clear, concise, and appropriate for their grade level.

Learn more about Al Instructions for assignments in Microsoft Teams.

Get answers to some common questions on instructions generation.

#### Lab Report Worksheet

Lab report

In this assignment, you will be completing a lab report worksheet. The purpose of this assignment is to holp you understand the process of writing a lab report. You will be using the process that we discussed in class today to complete this worksheet.

#### Steps to Complete the Assignment

- To complete this assignment, follow these steps:
- 1. Download the attached lab report worksheet.
- Read through the instructions on the worksheet carefully.
   Conduct the experiment or observation as directed on the worksheet
- 4. Record your observations and data in the appropriate sections of the worksheet. 5. Analyze your data and draw conclusions based on your observations. 6. Write a conclusion that summarizes your findings and explains how they relate to the
- hypothesis. 7. Proofread your work to ensure that it is free of errors and that it follows the process we discussed in class.

Remember that your lab report should be clieir, concise, and easy to understand. Use appropriate scientific language and be sure to one any sources that you used in your research. If you have any questions or need help with any part of this assignment, don't hesitate to ask your teacher of TA. Good luck!

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😤 By Tom Moule 📋 24 April 2024 📮 No Comments





Virtual Learning Environments (VLEs) – a ubiquitous tool in tertiary education – have begun to harness generative AI, leading to exciting new features and

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## Presenting content in multiple ways...

## This was created from a blog post using Synthesia.

The content and images were lightly edited – the whole process took about 10 minutes.





## Including multilingual...

- Translation tools are improving all the time.
- We can communicate with students in their language of choice





### ilmproving the student experience



## **Broader contexts**

Policy, strategy, regulation and media perceptions



## The EU AI Act

Al systems falling into specific areas that will have to be registered in an EU database:

This includes Education and vocational training

Some use cases are banned completely: behavioural manipulation, social scoring, biometric categorisation, and real-time surveillance through remote biometric identification in public spaces



# UK: From AI Safety to AI Security

A shift in approach in the the UK.

Al Safety Institute renamed Al Security Institute

This seems sensible and balanced!





# Sustainable Al

We often use 'sustainability' as shorthand for environmental sustainability, but it's perhaps important to recognise its broader dimensions.

#### Why does this matter?

From an AI perspective, the UK is a signatory to the UN's draft AI resolution "Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable\_development"

This commits to supporting all 17 of the UN's sustainable development goals (SDGs) "in its three dimensions – economic, social and environmental.



**UN News** Global perspective Human stories

21 March 2024 SDGs

The UN General Assembly on Thursday adopted a landmark resolution on the promotion of "safe, secure and trustworthy" artificial intelligence (AI) systems that will also benefit sustainable development for all.

Adopting a United States-led draft resolution  $\Im$  without a vote, the Assembly also highlighted the **respect, protection and promotion of human rights** in the design, development, deployment and the use of Al.

The text C was "co-sponsored" or backed by more than 120 other Member States.

The General Assembly also recognized AI systems' potential to accelerate and enable progress towards reaching the 17 Sustainable Development Goals.

It represents the first time the Assembly has adopted a resolution on regulating the emerging field. The US National Security Advisor reportedly said earlier this month that the adoption would represent an "historic step forward" for the safe use of Al.

#### Same rights, online and offline

The Assembly called on all Member States and stakeholders "to refrain from or cease the use of artificial intelligence systems that are impossible to operate in compliance with international human rights law or that pose undue risks to the enjoyment of human rights." 
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#### #BREAKING

UN General Assembly ADOPTS resolution to promote safe, secure and trustworthy artificial intelligence systems for sustainable development

: @UN\_PGA announcing the adoption of the

# Environmental impact is at the forefront of many people's minds...

#### Advice and Guidance

Artificial intelligence and the environment: The current landscape

🙁 By Catherine Barker 🛛 📋 28 March 2025 🖓 No Comments



Alan Warburton / https://betterimagesofai.org / Image by BBC

Since writing about the environmental impacts of AI and the importance of taking a responsible approach last September (2024), AI technologies have become even more integrated into our digital infrastructure. Generative AI

#### Advice and Guidance

Artificial intelligence and the environment: Putting the numbers into perspective

🔗 By Catherine Barker 📋 2 May 2025 📮 2 Comments

Headlines around generative Al's environmental impact often focus on isolated numbers and statistics, which can appear alarming without context. However, some recent articles, such as '<u>What's the impact of artificial</u>

#### Advice and Guidance

Artificial intelligence and the environment: Looking ahead

A By Catherine Barker 🛗 5 June 2025 📮 No Comments



Catherine Breslin & Tania Duarte / https://betterimagesofai.org / https://creativecommons.org/licenses/by/4.0/

In our AI and the environment blog series, we've covered taking a responsible approach, provided an update on the current landscape, and looked at putting the numbers into perspective. In this final blog of the series, we're highlighting a few trends we've seen emerging lately. These range from greener energy solutions for AI infrastructure, to [...]

## Microsoft builds first wooden data centre



## AI OPPORTUNITIES ACTION PLAN

Ramping up Al adoption across the UK to boost economic growth, provide jobs for the future and improve people's everyday lives

## **Government quote**

### Artificial Intelligence will drive incredible change in our country.

From teachers personalising lessons, to supporting small businesses with their record-keeping, to speeding up planning applications, it has the potential to transform the lives of working people.





## **Cross economy adoption**

### Push hard on cross-economy adoption

The public sector should rapidly pilot and scale AI products and services and encourage the private sector to do the same.

## Three core strands:



## Bias remained a significant concern

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Avery Mack · Rida Qadri CHI Conference on Hurr			<u>Bennett</u> ·				
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#### Abstract

This paper reports on disability representation in images output from text-to-image (T2I) generative AI systems. Through eight focus groups with 25 people with disabilities, we found that models repeatedly presented reductive archetypes for different disabilities. Often these representations reflected broader societal stereotypes and biases, which our participants were concerned to see reproduced

## AI in Education and the Media

## **Everyone Is Cheating Their Way Through College** ChatGPT has unraveled the entire academic project.



By James D. Walsh, Intelligencer staff writer



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## Are Scottish students using AI to cheat their way to a degree?



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# Academic Integrity and Skills for the Future

A multi-prong approach



## A three-pronged approach

**Clear advice to students** 

Typical through "traffic lights" or assessment scales A move to a mix of assessment methods

**Robust by design** 

Assess the right things

Al skills, 'soft skills' and a focus on skills that may be lost due to Al



# AI and Assessment: some key studies

We know have access to a lot more research on this:

- Al detection is still inaccurate.
- Al can pass many types of assessment
- Training staff to spot AI doesn't really help.

The only real option is changes to assessment

### PLOS ONE

GOPEN ACCESS DEPER-REVIEWED

#### A real-world test of artificial intelligence infiltration of a university examinations system: A "Turing Test" case study

Peter Scarfe 🚥 🖾, Kelly Watcham, Alasdair Clarke, Etienne Roesch 🚥

Published: June 26, 2024 • https://doi.org/10.1371/journal.pone.0305354

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The Open University: Developing robust assessment in the light of Generative AI developments



## More evidence : authentic assessment alone isn't sufficient

Accuracy of identifying AI written authentic assessment varies between 33% and 85%





# Traffic Lights and assessment scales

#### **RED: AI Cannot be used**

Amber: AI Tools can be used in an assistive role

Green: AI has an integral role and should be used a part of the assessment

https://generative-ai.leeds.ac.uk/ai-andassessments/categories-of-assessments/

#### The AI Assessment Scale

1	NO AI	The assessment is completed entirely without Al assistance in a controlled environment, ensuring that students rely solely on their existing knowledge, understanding, and skills You must not use Al at any point during the assessment. You must demonstrate your core skills and knowledge.		
2	AI PLANNING	Al may be used for pre-task activities such as brainstorming, outlining and initial research. This level focuses on th effective use of Al for planning, synthesis, and ideation, but assessments should emphasise the ability to develop and refine these ideas independently. You may use Al for planning, idea development, and research. Your final submission should show how you have developed and refined these ideas.		
3	AI COLLABORATION	<ul> <li>Al may be used to help complete the task, including idea generation, drafting, feedback, and refinement. Students should critically evaluate and modify the Al suggested outputs, demonstrating their understanding.</li> <li>You may use Al to assist with specific tasks such as drafting text, refining and evaluating your work. You must critically evaluate and modify any Al-generated content you use.</li> </ul>		
4	FULL AI	Al may be used to complete any elements of the task, with students directing Al to achieve the assessment goals. Assessments at this level may also require engagement with Al to achieve goals and solve problems. You may use Al extensively throughout your work either as you wish, or as specifically directed in your assessment. Focus on directing Al to achieve your goals while demonstrating your critical thinking.		
5	AI EXPLORATION	Al is used creatively to enhance problem-solving, generate novel insights, or develop innovative solutions to solve problems. Students and educators co-design assessments to explore unique Al applications within the field of study. You should use Al creatively to solve the task, potentially co-designing new approaches with your instructor.		
Perkins, Furze, Roe & MacVaugh (2024). The Al Assessment Scale				

https://aiassessmentscale.com/

Examples from "Talk is cheap: why structural assessment changes are needed for a time of GenAl" (Corbin, Dawson, Liu 2025)

	Discursive change	Structural change
Traditional take-home essay	Telling students to use AI for editing but not for generating text	Supervising the generation of parts of the essay
		Discussing random questions with each student in interactive oral assessment
•	Raising the importance of not fabricating data with Al	Checkpoint in live assessment requiring tutor signoff on lab work



# Students are worried about the impact of Al on future employability

#### News > All news

News

## Students worried about the impact of AI on future employability

23 May 2025

#### Copy link < Share

The latest student perceptions of AI report shows more needs to be done to ensure students are partners not passengers with artificial intelligence (AI).

The <u>student perceptions of artificial intelligence (AI) report 2025</u> reveals that while UK students are embracing AI as an essential part of their academic and personal lives, they are increasingly calling for clearer guidance, fairer access, and a greater say in how AI is integrated into education.

Now in its third year, the report, based on in-depth discussions with over 170 students and learners across UK further and higher education (FE and HE), and survey data from Jisc members, highlights how students are navigating the rapidly evolving AI landscape.

Michael Webb, head of AI at Jisc, said of the report:

"The value of Jisc's student perceptions of AI report is that it allows students to be part of the growing conversation around AI, ensuring their concerns and their insight inform our overall approach.

"As AI continues to become increasingly integrated into our everyday lives it's not surprising that students are voicing their concerns over how this will impact their future career prospects. They are keen to get involved now in the development of policy and regulation to ensure fairness and ethical use is at the heart of AI adoption, but further support is needed around career guidance in the age of AI.

"It's reconving to been students company concerns chart relying to be used a structure of the start of the start



# Students are changing their career plans

10% of respondents to a Jisc/Prospects survey had already altered their career plans due to Al 'I was planning a career in the creative arts, however with the advancement and now commonplace use of AI, I feel like creative arts are suffering and therefore are perhaps no longer a realistic career plan.'

'I initially thought about pursuing a career in translation. Due to the advancement in AI, however, the need for human translators is rapidly decreasing.'

'I want to be a copywriter/editor, but with the way AI is going, those jobs won't be around much longer



## Student perspectives - Accessibility

"It structures my thoughts and helps me produce flowing written work, keeping me on point and preventing personal tangents."

Nalina Brahim-Said - "AI: Empowering Inclusive Education"



## **Evolving Student Perceptions**

Some students noted that overreliance on AI was starting to have a negative effect on the quality of their work, causing them to re-evaluate its use.



Many students are starting to report a feeling of anxiety about the speed of AI developments.



Students are starting to be concerned that their data would be used to predict their behaviours on a larger scale in future.



As deepfakes become ever more realistic, student concern about their impact on the world is growing.



Some students are starting to report that they are using AI applications for relationship and mental health advice and support.



## A strategic approach to AI







## Thank you

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