Edinburgh Napier
UNIVERSITY

School of Computing,
Engineering & the
Built Environment

Intentional AI

Marianne Wilson

Introduction

- CDI AI for Career Practitioners course
- Career Development Professional's AI Toolkit
  - with Michael Larbalestier
- PhD research - chatbots in career services for young people
  - sponsored by Skills Development Scotland
  - human design centred approach

Disclaimers

Why When Who

NOT What How

Costs Risks

NOT Benefits

© Aram J. French

mandatoryrollercoaster.com/post/808104605026320384/this-is-progress

Intentional AI


Costs
Risks
Assessed
Measured
Monitored
Accepted
Corrected
Benefits

Financial


LinkedIn accused of using private messages to train AI

João da Silva
Business reporter

23 January 2025

BBC NEWS


UK.gov kicks off half-a-billion quid sovereign AI venture with £80M invite

Companies get to keep IP developed for government projects

Lindsay Clark

The Register

Mon 20 Apr 2026 // 12:13 UTC

Subscription

Equality

Privacy

Dependency

Replacement

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Skills

Connection

Community

Workers

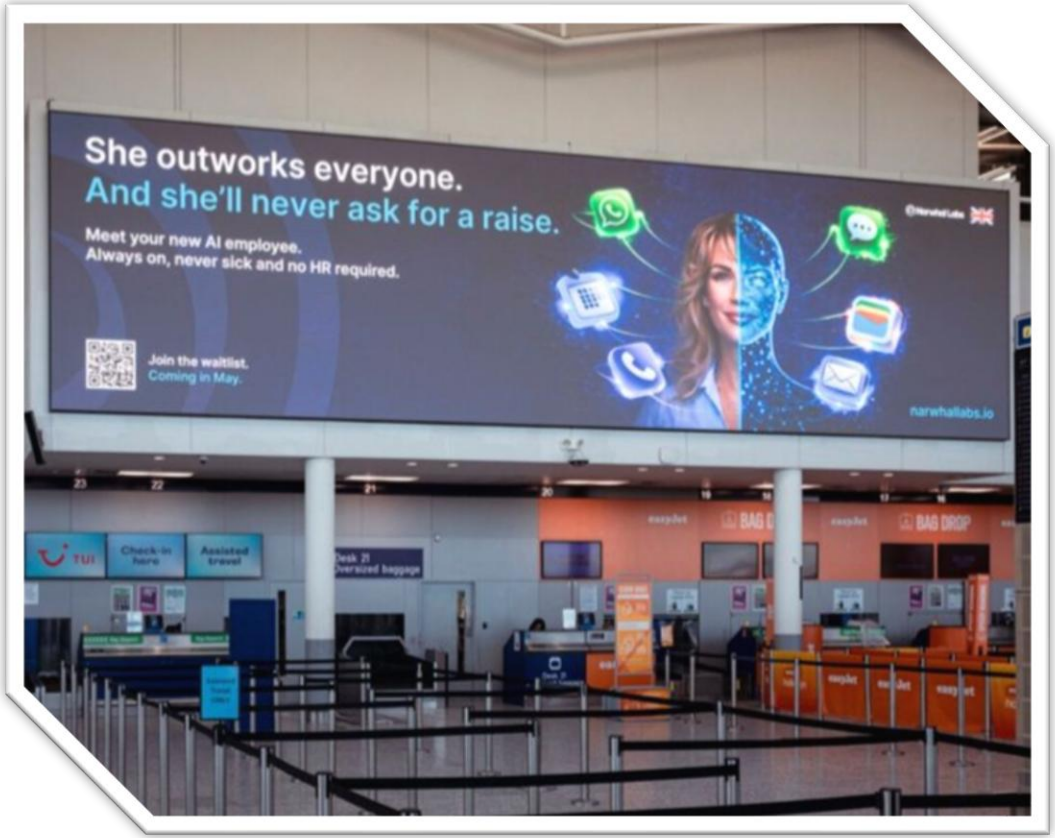


Image Credit: Joeli Brearley/Lewis McLachlan on LinkedIn
https://www.linkedin.com/posts/joelibrearley_oh-look-a-billboard-proclaiming-she-outworks-activity-7449117041996742656-ouRn/

Society

CEO of Palantir Says AI Will Seize Power Away From College-Educated Women

"This technology disrupts humanities-trained — largely Democratic — voters."

By Frank Landymore / Published Mar 14, 2026 10:30 AM EDT

Futurism

Officials hugely underestimated impact of AI datacentres on UK carbon emissions

Revised figures increase fears about energy-intensive datacentres worsening climate emergency

Damien Gayle

Fri 24 Apr 2026 17.57 BST

The Guardian UK

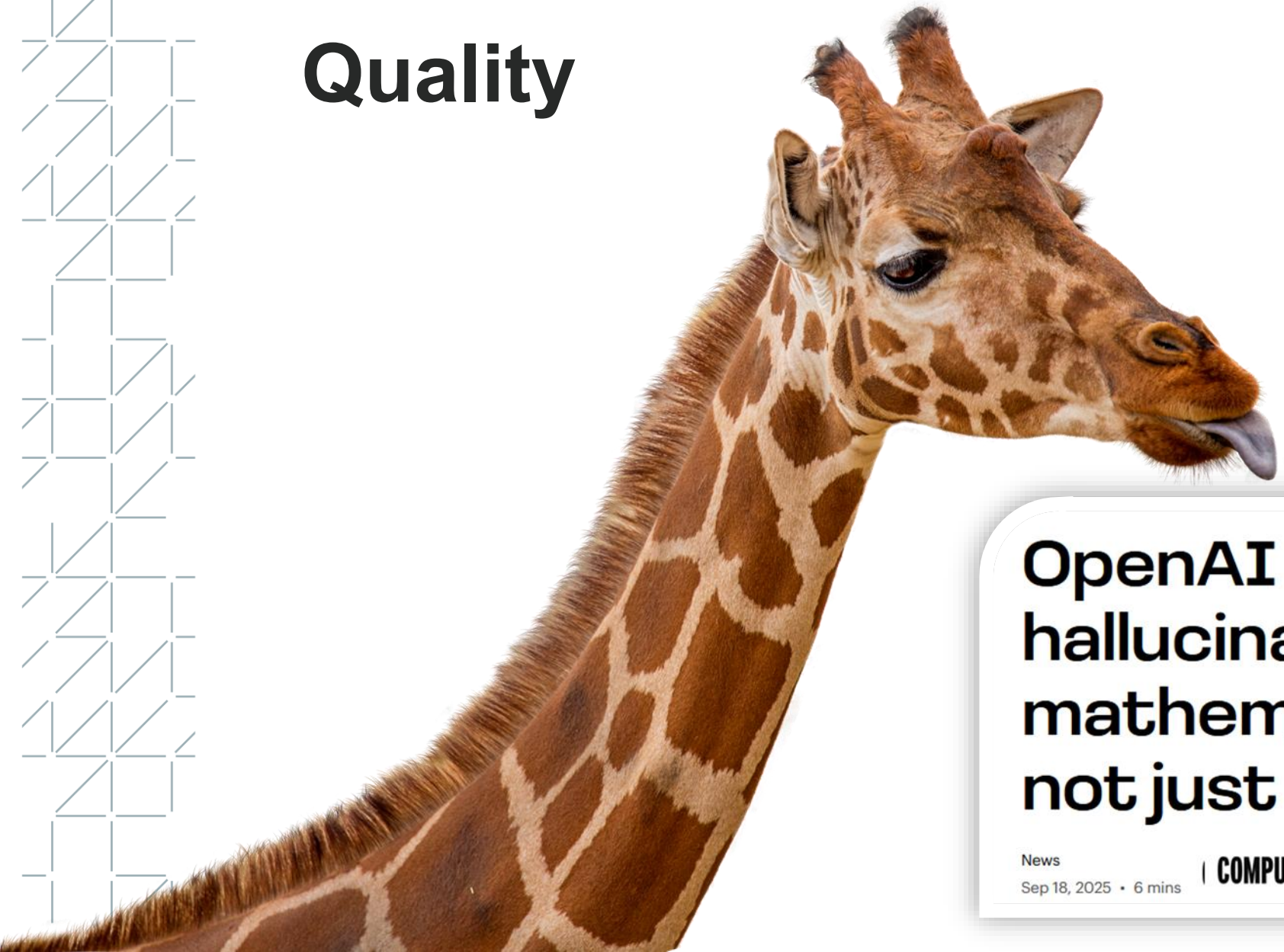
Expertise

Creativity

Opportunity

Planet

Quality



OpenAI admits AI hallucinations are mathematically inevitable, not just engineering flaws

News
Sep 18, 2025 • 6 mins

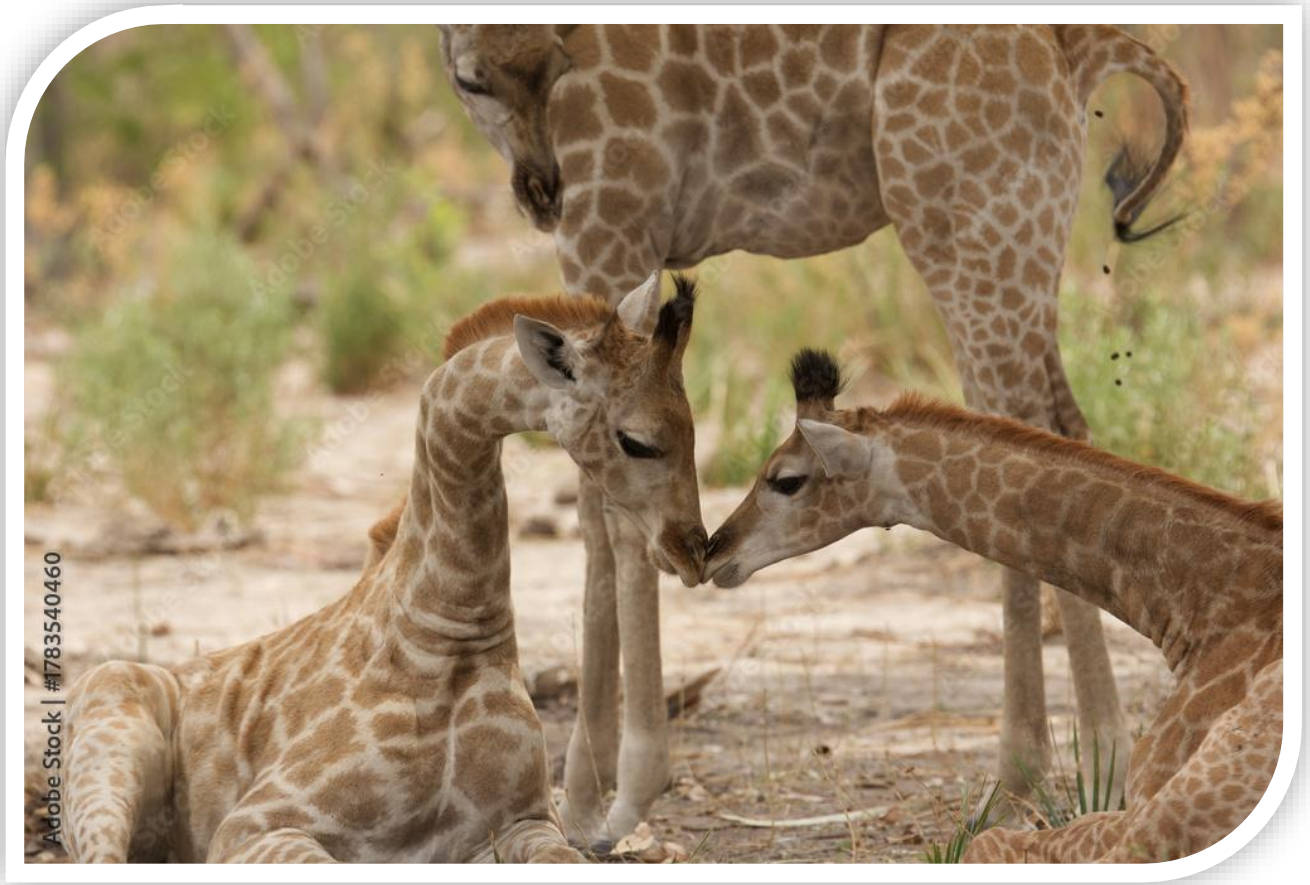
COMPUTERWORLD

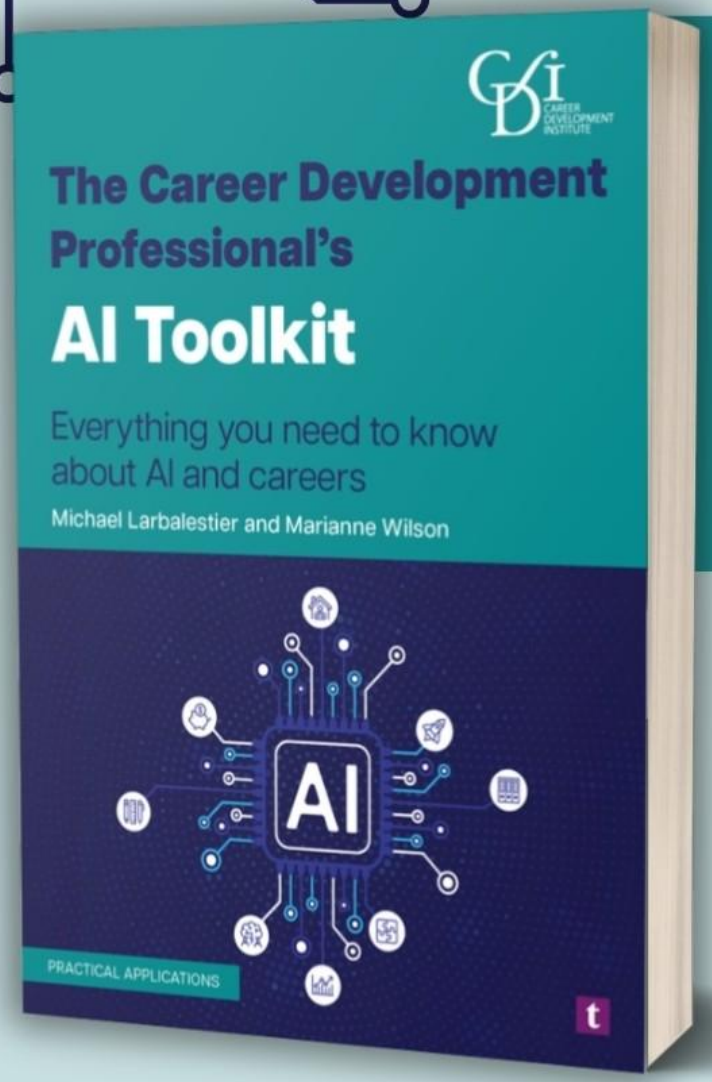
www.computerworld.com/article/4059383/openai-admits-ai-hallucinations-are-mathematically-inevitable-not-just-engineering-flaws.h

Intentional AI in Practice

Curious questions

Deliberate decisions





Everything you need to know about AI and careers.

By Michael Larbalestier and Marianne Wilson

Coming 22nd June 2026

CDI Members Price:

~~£34.99~~

£26.24

Estd. 1969 trotman t

CDI CAREER DEVELOPMENT INSTITUTE

https://trotman.co.uk/collections/career-development-institute-books

University of Southampton

- 15-minute lightning talk

The work before the prompt.

Metacognitive AI literacy - and the gap between student practice and professional readiness.

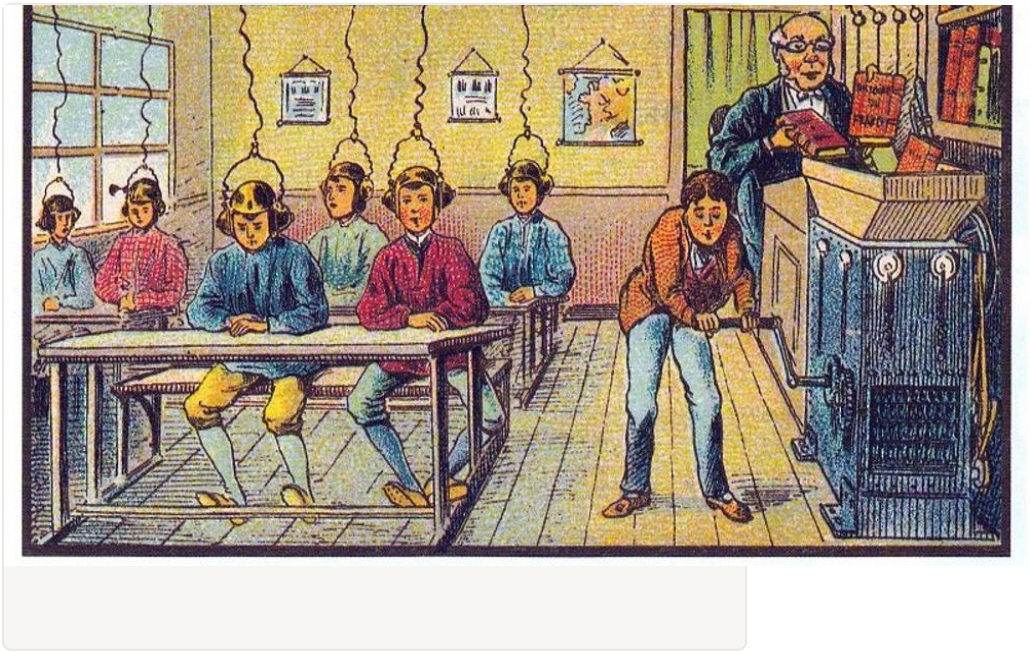
Speaker

Cato Rolea

Head of Digital Innovation & AI · iSolutions, Southampton

A SHORT ORIENTATION

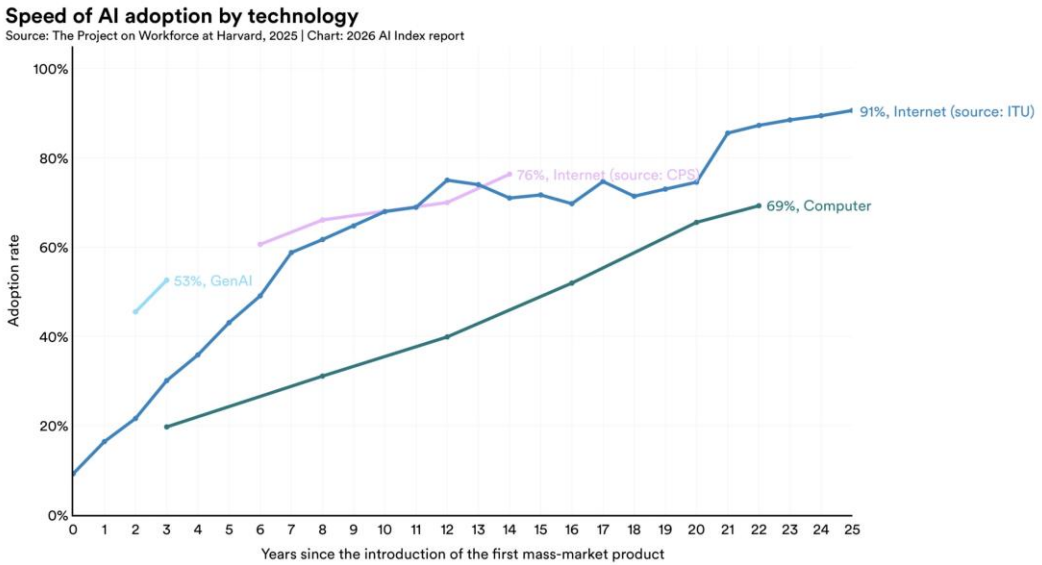
Every generation imagines a new way to pour knowledge into students.



1899 · THE ORIGINAL FANTASY

Jean-Marc Côté

Knowledge poured into students through funnels, books fed into a brass machine. The teacher cranks the handle.



THE PACE · ADOPTION IS OUTPACING EVERY PREVIOUS TECHNOLOGY

Faster than the PC. Faster than the internet.

Population-level

53%

GenAI adoption in three years.

By comparison, the PC took ~12 years to reach 50%; the internet took ~8.

SOURCE · STANFORD AI INDEX 2026

Students

80%

of university students now use GenAI.

Doubled from 40% in 2023.

SOURCE · CHEGG GLOBAL STUDENT SURVEY 2025

Organisations

88%

of organisations have adopted AI.

Up year-on-year, across every sector McKinsey tracks.

SOURCE · MCKINSEY 2025

◆ But adoption tells us nothing about **quality of use.** Only **6%** of teachers say their school's AI policies are clear. Half of schools have no AI policy at all.

A FIELD REPORT

Young people aren't waiting for institutions to catch up.

Users · already mainstream

80% of university students now use generative AI in their studies.

46% of US adults under 30 have used ChatGPT to learn something new.

42% of young professionals have used AI to find their career.

Institutions · still early

64% of careers services cite lack of staff training as the primary barrier.

50% of UK secondary schools have **no AI policy** at all.

1 in 4 careers professionals have received any formal AI training.

AN HONEST COMPARISON

The conversation hasn't caught up with the technology.

THEN · WHAT WE'RE STILL DISCUSSING	NOW · WHAT'S ACTUALLY SHIPPING
Cover letters & CV polish	**Agentic AI completing multi-step tasks autonomously**
Prompting for admin tasks	**National AI strategies treating AI as core infrastructure**
"Will this replace careers advisors?"	**DSIT-commissioned foundation models for careers tooling**
One-off AI workshops	**33% of organisations expect AI to reduce headcount this year**

→ The question isn't *whether* AI transforms careers. It's whether the profession **shapes** that transformation or watches it happen.

A PATTERN REVERSAL · AUTOMATION THEORY

The historical pattern has inverted.

THEN · 1850 → 2000

Industrial automation

Targets **manual labour.** Routine physical tasks compressed by machines.

Education = **protection.**

Get a degree → step out of the path of automation. The professional class was the safe class.

NOW · 2022 → PRESENT

AI automation

Targets **cognitive labour.** Reading, writing, analysis, drafting, summarising, coding.

Education = **exposure.**

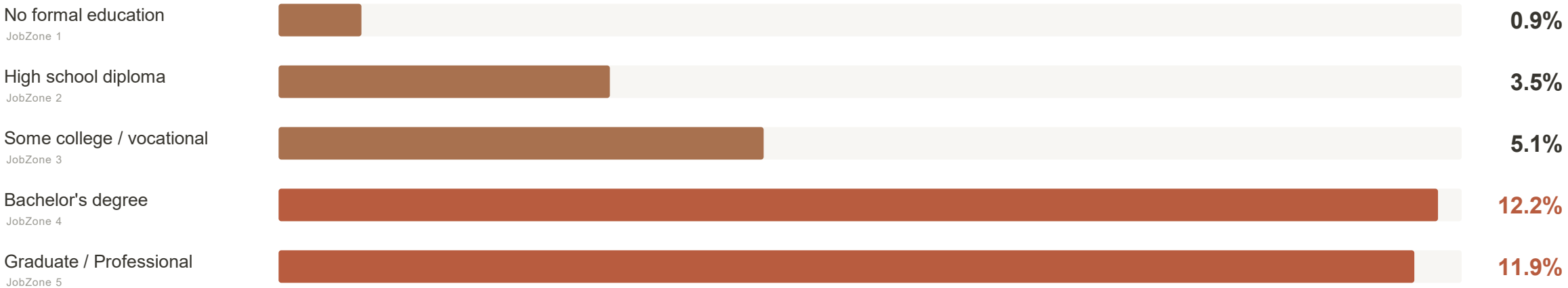
Degree-required jobs face **3.9× higher** AI exposure than jobs requiring no degree. The jobs we trained people for are the jobs most exposed.

Source · Anthropic Economic Index 2026 merged with O*NET data

THE SAME FINDING, BROKEN OUT

AI exposure rises with education level.

Average observed AI exposure by the education an occupation requires.



n = 822 occupations · Anthropic Economic Index × O*NET JobZone data

Bachelor's vs No-formal-education = 13.6× higher exposure

A TROUBLING PAIRING

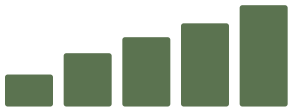
Productivity gains appear where entry-level jobs disappear.

A · Productivity is up

+14–26%

Measurable gains in software development, customer support, marketing copy, and accounting workflows.

Less experienced workers benefit most — AI compresses the skill gap.



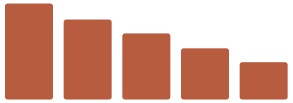
2022 → 2025

B · Entry-level employment is down

−20%

Software developers aged **22–25** employed in the field, since early 2024.

Headcount for senior developers continues to grow. The bottom rung of the ladder is being sawn off.



2022 → 2025

> For careers professionals, the brutal implication: graduates can no longer count on entry-level work to become senior practitioners.

A BEHAVIOURAL PATTERN

Most people are responding in **exactly** the wrong way.

Augmentation

5–10%

of users genuinely use AI to enhance their thinking. The rest use it to **reduce cognitive effort.**

Verification

60%

of employees skip accuracy checks — producing **"workslop"** that costs colleagues downstream.

The illusion

−19%

Experienced developers were **slower** with AI — despite believing the tools helped them.

! Heavy reliance on AI for learning produces what Becker calls **"learning penalties"** - no measurable speed gain, with measurable comprehension loss.

THE AGENTIC SHIFT · 2022 → 2026

From assistant, to agent, to agentic system.

The interface keeps changing. The metacognitive work is the only thing that doesn't.

2022 → 2024

Assistant

Answers questions. Single prompt, single response. The human does all the thinking; the AI generates text.

WHAT YOU ASK FOR

"Help me draft this paragraph."

2024 → 2025

Agent

Takes actions. Breaks a request into steps, uses tools, browses the web, edits files, checks its own work.

WHAT YOU ASK FOR

"Update this document in line with my latest monthly meeting."

2025 → 2026

Agentic system

Manages workflows. Long-running, self-directed, orchestrates multiple tools and models, persists memory across sessions.

WHAT YOU ASK FOR

"Aggregate my monthly KPI report. Email it to my line manager on the first Monday every month."

◆ AI agent task-success on OSWorld jumped from **12%** to **~66%** in a single year. — Stanford AI Index 2026

ANTHROPIC FLUENCY INDEX

What AI fluency actually looks like.

Iterative conversations - not single-shot queries	85.7%
Clarifying goals before starting	72%
Identifying missing context	68%
Providing relevant examples	61%
Acknowledging AI's limitations	54%
Setting terms of collaboration first	30%

- The top behaviours are **non-technical.** They're metacognitive habits - the same habits careers professionals already coach.

Fluency looks like collaboration 0 tinkering, iterating, comparing.

A DEFINITION

Pre-prompting: the work before the prompt.

The metacognitive preparation that happens **before** any AI interaction.

- What am I actually trying to achieve?
- What would a good answer look like?
- What do I already know about this?
- How will I evaluate the AI's response?

Two stances · diverging paths

↗ **Learner stance**

Treats AI as a partner for extending capability. Compounds understanding.

→ **Completion stance**

Treats AI as a shortcut to finished products. Plateaus immediately.

Polish puts a mask on misunderstanding.

A MEASURED EFFECT

The artifact paradox: polish suppresses thinking.

When AI produces well-formatted outputs, users become **measurably less likely** to think critically about them.

Less likely to provide missing context	**−5.2pp**
Less likely to fact-check claims	**−3.7pp**
Less likely to question AI reasoning	**−3.1pp**

! A fluently written AI essay **masks misunderstanding.** The polish creates unwarranted confidence - from the student, and from anyone marking the work.

A REFRAMING FOR CAREERS PROFESSIONALS

The skills that matter for AI fluency are skills you already develop.

AI FLUENCY BEHAVIOUR	ESTABLISHED CAREERS PRACTICE
Clarifying goals before starting	Goal-setting · self-awareness
Providing relevant context	Articulating skills, values, history
Identifying what's missing	Reflective questioning
Questioning AI reasoning	Critical evaluation of advice
Iterating until coherent	Reflective practice · review cycles

↗ AI fluency isn't a new discipline. It's **careers guidance applied to a new context.**

University of Southampton

IN CLOSING

The goal is graduates who **want to think** - not graduates equipped to prompt.

From → To → To

i. Declarative

From **knowing about AI**

ii. Procedural

to **knowing how to think with AI**

iii. Attitudinal

to **wanting** to think with AI

Speaker

Cato Rolea

Head of Digital Innovation & AI · iSolutions · Southampton

Thank you

Get in touch

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Nuffield Foundation

Ada Lovelace Institute

Navigating the future: insights from a landscape review of AI and career guidance for young people

CDI Lightning Conference

29 Apr 2026

Emily Tanner

How
AI tech is being developed and used

Opportunities and risks

Foundations of effective & ethical use

Narrow AI and foundation models

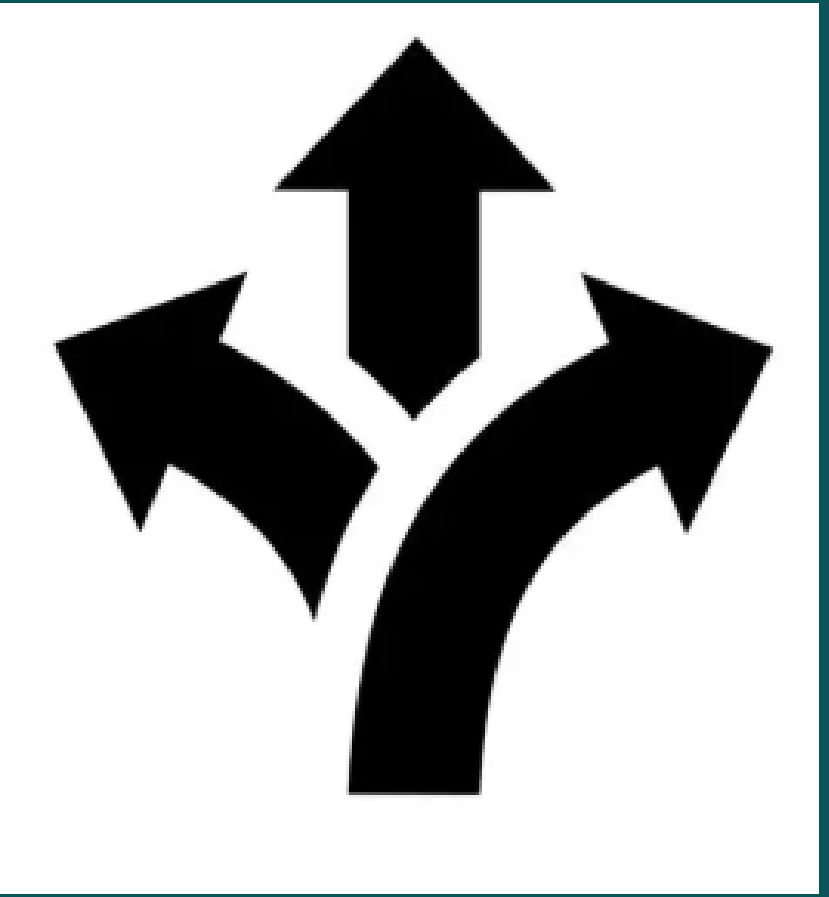
Each of the UK nations exploring AI

accessible
efficient
data-driven
personalised
adapatable
agency

hallucinations
bias
mis-placed trust
skills erosion
inequalities
data privacy

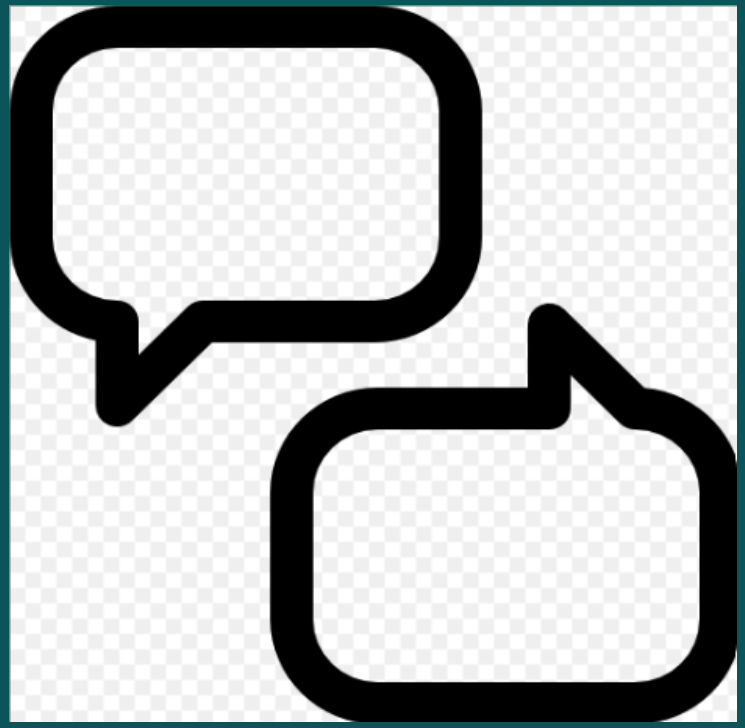
01

Improving access to information about careers and pathways



02

A hybrid approach to careers advice and guidance



03

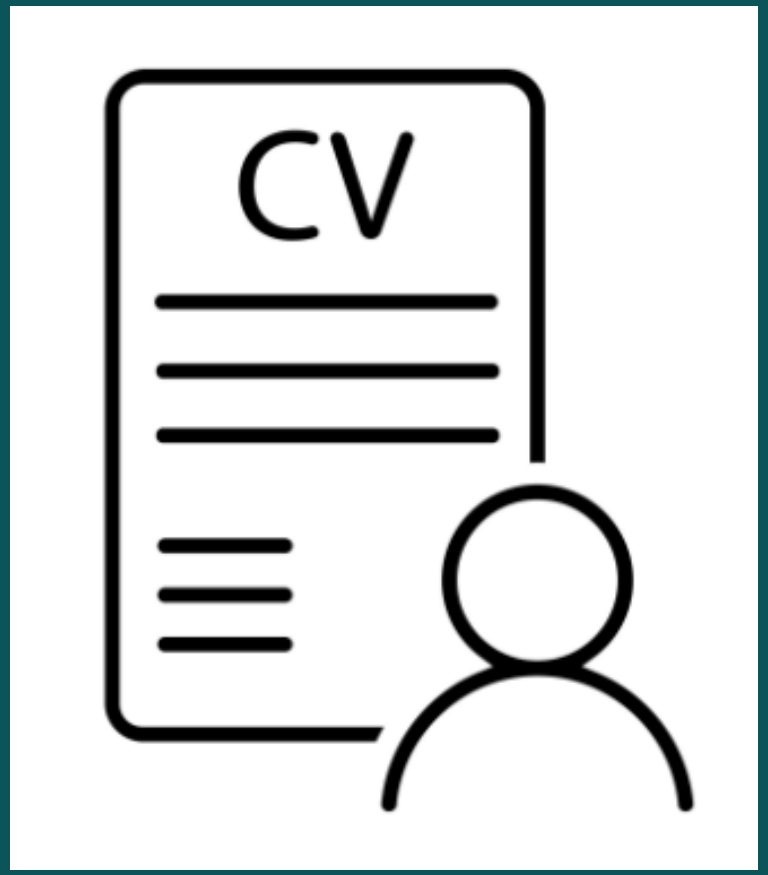
Supporting equity and inclusion

04

Increasing efficiency for career practitioners

05

Widening access to employment



Purpose-led use of AI

Workforce development

Oversight and evaluation

Navigating the future: a landscape review of AI in career guidance for young people

A learning curve? A landscape review of AI and education in the UK

Grown up? Journeys to adulthood - Nuffield Foundation

Trialling an evaluation framework for LLM-powered careers advice - Nuffield Foundation

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