

Rewiring Everything: The Impact of GenAI on Jobs, Skills, Labor Market and Human Physiology

The Early Going

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Topic salience

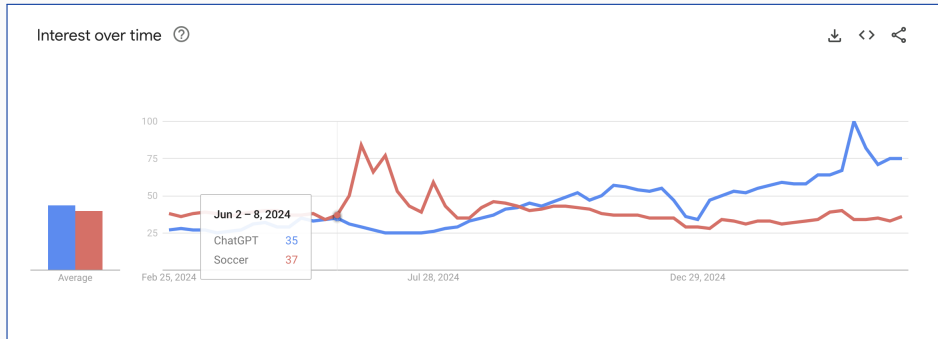


Figure 1: Search Interest for ChatGPT vs Soccer (a strong topic in search) worldwide

Lightcast measures the footprint of genAI in job posting.

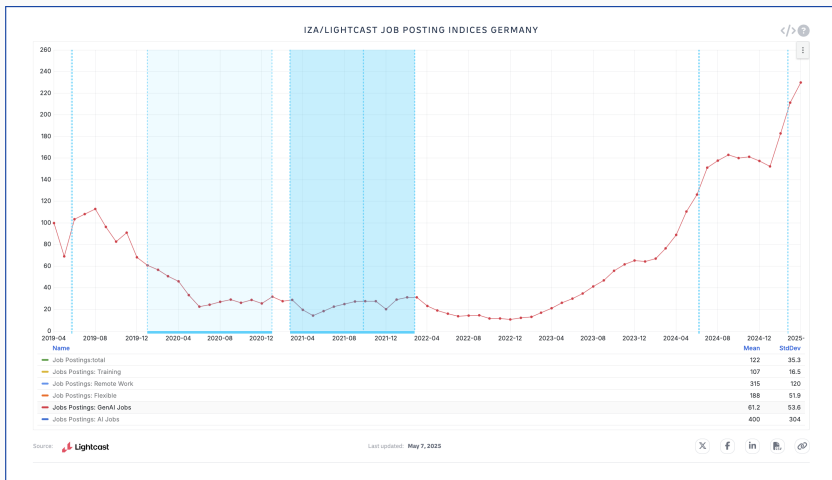


Figure 2: Search Interest for ChatGPT vs Soccer (a strong topic in search) worldwide

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Rewiring Work: Historical and Cognitive Context

- From outsourcing muscle to outsourcing cognition.
- Past parallels: mechanization, writing, printing, computers, social media.
- Google effect: if you can locate it you can forget about it → digital amnesia
- **“GenAI is epistemic outsourcing.”**

- Plato feared writing would harm memory and wisdom.
- *...trust in **writing**, produced by **external** characters which are no part of oneself, will discourage the use of own **memory** within... invented an elixir not of memory, but of **reminding**... **appearance** of wisdom, **not true** wisdom...will read many things without instruction and ... **seem to know** many things, when ... for the most part **ignorant** and hard to get along with, since ... **not wise**, but only **appear wise**.*
- Writing instead rewired how we think and work: it killed **rote memorisation** BUT allowed knowledge transfer across time and space.
- Like outsourcing digestion with cooking shrunk our guts, weakened our teeth and freed our brains, GenAI may reshape cognition.

How GenAI Changes the Game

- LLMs = just **autoregressive prediction** (not with time series but with characters).
- Share same weakness: autoregressive models work perfectly except when you really need them.
- GenAI doesn't just calculate—it **reads, writes, and “reasons”**.
- It alters who **produces, consumes, and evaluates** information and content.
- Implication: a shift in human learning and **value signalling**: authoring a long, polished text used to signal expertise. No longer so.

Learning and the assension Ladder

Early Evidence from Stack Overflow (2019-2024): a parable for the labor market

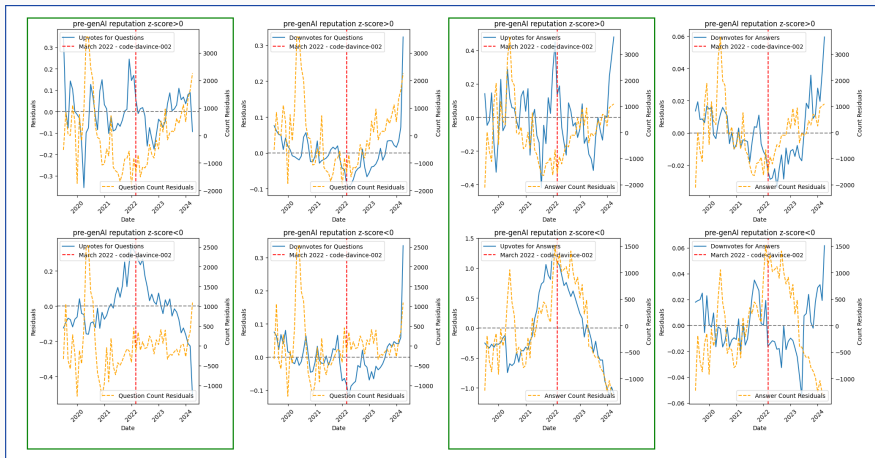


Figure 3: Collapse in upvotes for low-reputation users post-ChatGPT (cols 1&3, row 2). Junior contributors lose visibility and incentive to participate.

On-the-Job Learning at Risk

- Firms may **replace rather than reskill** (economic incentive).
- **Agentic AI** aims to handle end-to-end workflows in all white collar work.
- Big Tech gearing up for agentic AI: e.g. AI programming agents \implies mass lay-offs.
- Meta is targeting 'hundreds of millions' of businesses in agentic AI deployment, CNBC, March 2025
- After warning mid-level IT engineers that AI was going to do their work, now Mark Zuckerberg's Meta plans to layoff 5% of its workforce, The Economic Times, January 2025)
- **Juniors** disappear from pipelines; only **seniors** remain.
- **Danger**: if only high quality content producers survive how can we develop a novice into a seasoned white collar worker?
- Rosen's **superstar economics** emerge.

Signalling Breakdown and Information Collapse

Covert Use and Information Asymmetry

- 2024 Work Trend Annual Report from Microsoft and LinkedIn: Over 75% use GenAI at work. Over half of them for core tasks but **covertly** and 80% bring own AI.
- Workers fear appearing replaceable. Enter: information asymmetry.
- Akerlof's "lemons market" emerges.
- Workers: create human-GenAI complementarities \implies GenAI is a tool.

Text Becomes a Lemon Market

- AI generates and reads most professional text.
- Human signal gets drowned in synthetic fluency.
- Content consumers assume genAI (lemons) producers assume so → genAI proliferates a defect-defect Nash equilibrium.
- Trust, resumes, essays, and documentation lose value → disruption.

Scientific American: GenAI has infiltrated Scientific Publishing

- One percent of scientific articles published in 2023 showed signs of generative AI's potential involvement, according to a recent analysis
- E.g. inadvertent inclusion of “certainly, here is a possible introduction for your topic”
- Key words and phrases (such as “complex and multifaceted”) that tend to appear more often in AI-generated sentences than in typical human writing ([GenAI detectors: perplexity, burstiness etc](#))

Physiological Aspects

- Processed food reshaped our bodies - GenAI may reshape our minds.
- Offloading synthesis, memory, and logic to AI weakens them.
- Obesity \leftrightarrow shallow thinking? What are the mental analogues?
- Think of genAI and LLMs as a know-all-author + giant dynamically written book + locate-all-librarian.

Contrasting Forecasts: Substitution vs Complementarity

Two Visions of the Future

- **Acemoglou et al:** AI imitates humans (Turin test, human parity, AGI) → worker **substitution** rather than human-machine **complementarity**.
- **Comparative advantage:** Humans still fill the costly niches (**opportunity cost**).
- **Policy** can help decide which **equilibrium** we land closer to.
- **Carbon-type-tax** on firms engaging in substitution to fund re-skilling?

Original Human Output Becomes Scarce

- GenAI collapses when trained on synthetic data. [▶ View Graph](#)
- Asymptotics: $\lim_{t \rightarrow \infty} \frac{\text{human text}}{\text{total text}} = 0 \implies$ GenAI stops improving
- Human-generated content becomes the critical ingredient.
- Policy must protect the pipeline of real human knowledge and expression.

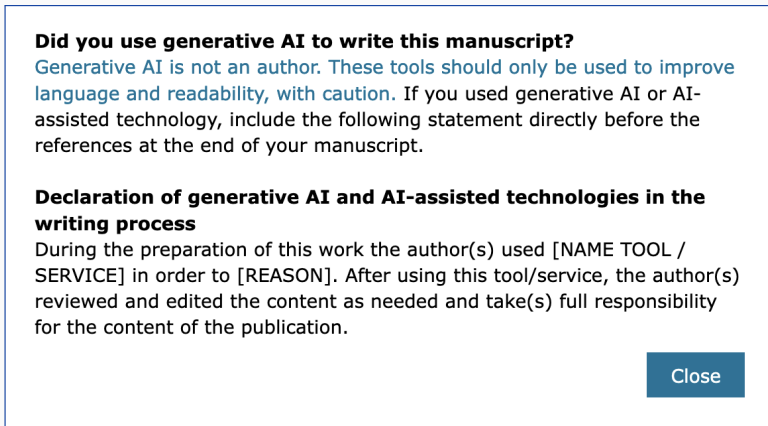


Figure 4: Pop-up on Elsevier's Editorial Manager: "GenAI is not a co-author. If you use it disclose it and make it your own"

- Programmers are the **first** to face the impact of LLM.
- May also be the first to figure out how to **crush that wave**.
- A case to watch closely and design policy as LLMs are coming for us all (“knowledge” workers).
- **Upside** will emerge but **surviving the disruption** will need careful **policy** interventions and in the long run fitting **institutions**.

Thank you!

Questions, comments, or ideas welcome.

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Training on its own output degrades genAI, amplifying own artefacts

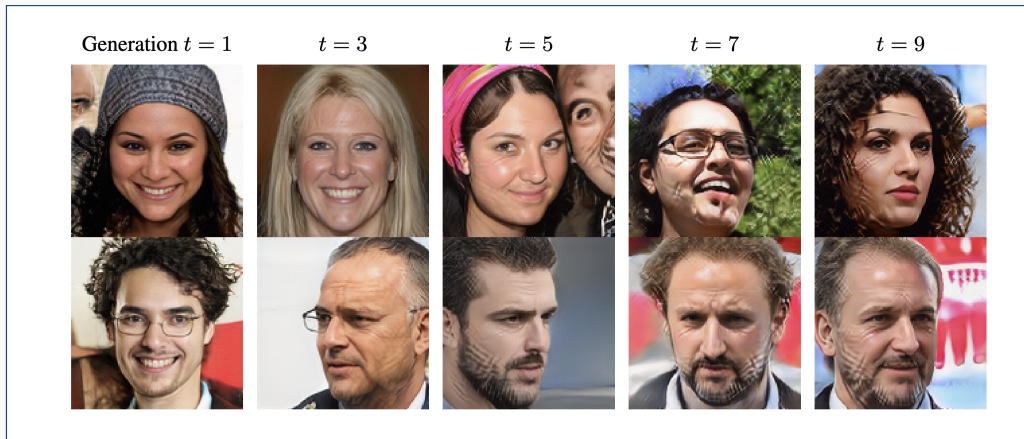


Figure 5: Self-Consuming Generative Models Go MAD (Model Autophagy Disorder) [▶ Go Back](#)