



Beyond the model: considering the equality dimensions of AI use in research

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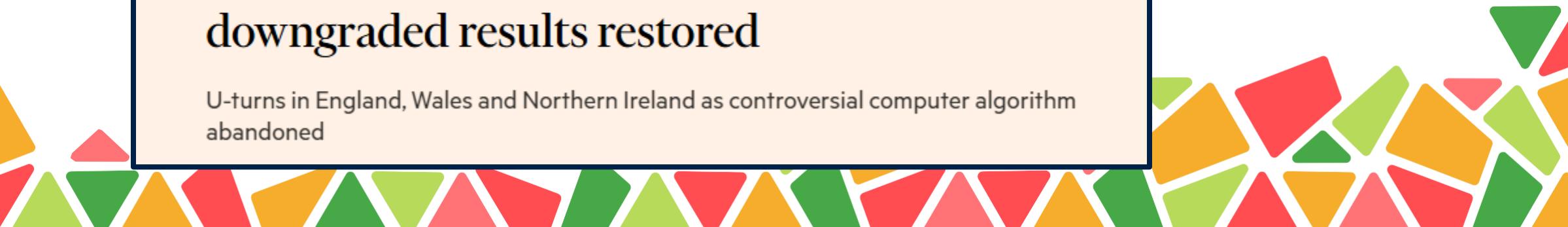
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Thinking tool: Equality 'stress-test'

1) Data & absence

Who is missing from the data underpinning the AI tools we use - and does that absence shape or skew our claims?

2) Judgement & efficiency

What forms of human judgement or nuance might be reduced or reshaped in exchange for efficiency?

3) Scale & impact

If AI-driven findings are applied at scale, travelling into policy or practice, who benefits - and are there specific groups who might be inadvertently disadvantaged?





Research case study scenario

A cross-departmental research team secures funding for a large-scale study exploring the relationship between environmental noise and chronic physiological stress across a city. The aim is to generate evidence that can inform future urban planning and public health policy.

To manage scale and cost, the study adopts a “bring your own device” approach. Participants download a smartphone app that samples sound levels and frequency patterns at regular intervals throughout the day. To protect privacy, raw audio is not stored; instead, an on-device AI classifies sounds into broad categories such as traffic, construction, speech, and nature, retaining only summary data.

Stress is measured using cortisol levels derived from hair samples collected partway through the study. During analysis, automated cleaning rules exclude data recorded during irregular hours or periods of high movement, focusing the analysis on residential exposure. The AI-supported workflow significantly reduces analysis time and helps the team prioritise which patterns to explore further.

The final output is a city-wide heat map identifying areas associated with higher levels of noise-related stress. The team plans to share its findings with local authorities, with the intention of supporting targeted “quiet zones” and noise-reduction interventions.



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Equality Act (2010)

The Equality Act 2010 legally protects people from discrimination in the workplace and in wider society.

The following characteristics are protected characteristics:

age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race;

religion or belief;

sex; sexual orientation.



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