esimpson60 10/25/2024

Wrestling with AI and the Environment

Instructions: Click on the + sign to add a comment or question about each Digital Citizenship topic below.

Know: What do you know about GenAI environmental impacts?

Energy usage

♡ 1 ◯ 0

Why is fresh water needed to cool servers?

♡ 0 ◯ 0

Not much to be honest.

♡ 3 ◯ 0

Many giant tech companies cannot meet their energy savings goals because of AI

♡ 0 ◯ 0

lots of energy to develop & train models

♡ 0 ◯ 0

Have this screenshot on my desktop.

♡ 1 ◯ 0

Large tech companies are scrambling to find new and vast sources of energy to power AI and are deprioritizing their climate goals

♡ 0 ◯ 0

A lot of ecological costs for uncertain benefits

♡ 0 ◯ 0

Currently reading Kate Crawford's Atlas of AI which covers AI as a technology of extraction.
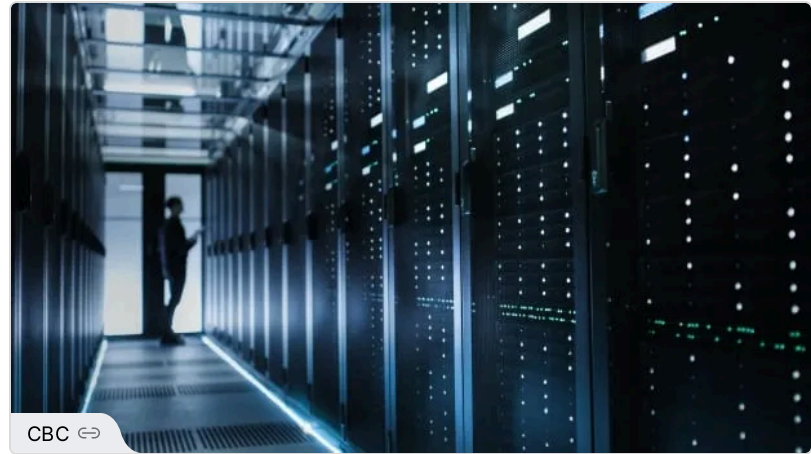
♡ 0 ◯ 0

Data centers and greenhouse emissions

♡ 0 ◯ 0

Nuclear power

♡ 3 ◯ 0

CBC

Microsoft, Google and Amazon turn to nuclear energy to fuel the AI boom | CBC Radio

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Great topic as I don't always appreciate this drain on environment

♡ 0 ◯ 0

Learned that a single AI-generated image can use as much energy as half a smartphone charge!

♡ 0 ◯ 0

Reopening nuclear power plants to power Gen AI

♡ 0 ◯ 1

> Courteous Llama   11/1/24 5:47PM
> https://www.nature.com/articles/d41586-024-03162-2

Electricity generation
Some jurisdictions have increased fossil-fuel generation to support AI servers.

♡ 0 ◯ 0

[Generative AI's environmental costs are soaring — and mostly secret](#)

♡ 0 ⬭ 0

Generative AI's environmental costs are soaring - and mostly secret

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Energy
Huge energy cost to using genAI
due to vast computing requirements

♡ 0 ⬭ 0

Data centers produce electronic waste that
contains hazardous materials like mercury and lead.

♡ 0 ⬭ 0

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exacerbating climate change

♡ 0 ⬭ 0

Not very much. I know it's an energy sucker, but the fact
that was shared about 2 cups of water was shocking.

♡ 0 ⬭ 0

Regardless of how you use it, it is expensive in energy and water usage. Data farms to support these tools will be costly to the environment

https://www.theguardian.com/environment/2024/oct/31/concerned-about-your-data-use-here-is-the-carbon-footprint-of-an-average-day-of-emails-whatsapps-and-more
Estimating how much data your daily activities use is an art not a science, but here are best estimates of how much you are gobbling up online.

- **Listening to a podcast:** 20-100MB an hour
- **Watching Netflix:** 3GB an hour at HD quality
- **Online shopping:** Consider the data size of any images you browse, which can be big, before even thinking of the environmental impact of your delivery
- **WhatsApp text message:** 1-5KB a message, on average
- **WhatsApp voice call:** 400KB-1MB a minute
- **WhatsApp video call:** 2.5-15MB a minute
- **Average pre-AI Google search:** 500KB for a text-based search
- **Average post-AI Google search:** No one knows …
- **Sending an email:** Depends on the size of the message, but about 75KB on average
- **Sending an email with photo attachment:** As above, plus the size of the attachment
- **Downloading an album on Spotify:** Depends on your audio quality, but around 72MB for an hour-long album
- **Playing a game of Fortnite:** Between 45 and 100MB an hour

♡ 0 ◯ 0

The Guardian

Concerned about your data use? Here is the carbon footprint of an average day of emails, WhatsApps and more

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Abusive labour practices

♡ 0 ◯ 0

General info

When Bitcoin was all the rage, the energy required by Bitcoin farms was often discussed in standard media. But AI use and environmental impact is less prevalent in mainstream news from what I've seen.

♡ 0 ◯ 0

Feel: How are you feeling about the environmental implications?

∾ **Depressed :(**

♡ 0 ◯ 1

> **Adam** 11/1/24 6:00PM
> These are such big wicked problems

∾ **millions of people using even for small things adds up**

♡ 0 ◯ 0

∾ **worried**

♡ 0 ◯ 0

∾ Feeling like this is a runaway juggernaut
... what can we do? Digital de-growth?

♡ 1 ◯ 0

∾ **Concerned**
The resources required are greater than I thought
you were going to report. Not good news...

♡ 0 ◯ 0

∾ **Feels like a tech race that needs to slow down
and think about its ramifications, but won't**

♡ 1 ◯ 0

Extremely worried for the near
future

♡ 0 ◯ 0

I think that not enough people understand the environmental
impact. I also think that we are being 'forced' to use this
technology so our chance to have an effect is limited

♡ 1 ◯ 0

It hurts my heart when I see use of AI that is careless
without thought and consideration into the impact of it.

♡ 1 ◯ 0

Distrustful and concerned

♡ 0 ◯ 0

Be cautious when use the tools

♡ 0 ◯ 0

Confused
I can't find emissions data from either OpenAI or Google
about their usage for AI. Where is the data coming from?

♡ 0 ◯ 0

This is scary. I see the need for more transparency, knowledge sharing and policy development from institutions using the technology.

♡ 0 ⚪ 0

I didn't consider any positive points to the environmental consequences of Gen AI, however its proportionality unbalanced.

♡ 0 ⚪ 0

Opportunity in the north where water and coolness is abundant

♡ 1 ⚪ 0

What awareness / regulation of this is being promoted?
Or is this so exciting we're like a kid in a candy store….
Not thinking to long term or rather short term impacts

♡ 0 ⚪ 0

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the negative feedback loop
use more natural resources to try to save natural resources

♡ 0 ⚪ 0

Who is really driving this?
The question is not only are there any benefits,
but rather who benefits most? To what end?

♡ 0 ⚪ 0

Dissociated
It's too easy to be dissociated from the act and the impact. When you drive a car you can smell and

breathe the exhaust and see clearly the impact. With a computer
and a browser - less so. It's at a distance

♡ 1 ◯ 0

Differential impact across the world. The west benefits
and the developing world pays the higher price.

♡ 0 ◯ 0

Do: Start your philosophy of AI use to align with your environmental values.

Just don't. I value my own production too much.

♡ 1 ◯ 0

I rarely use it.

♡ 0 ◯ 0

Short answer: I'm unsure yet how my AI use aligns
with my values but this has been an eye-opener for
me and I'll be reflecting on it for some time to come.

♡ 1 ◯ 0

I hate the idea of AI image generation, personally it's
unnecessary in my work or life. There is enough
human generated creativity for me and I want to give
credit to all those amazing creative humans out there.

♡ 1 ◯ 1

Responsible Barracuda 11/1/24 6:15PM
One issue I'm thinking about is that AI images may now be infiltrating a
number of the sites that I used to go to in order to find human-created
images...now always easy to tell. It's challenging!

Considering the environmental impact, some awkward internal questions have been asked of myself. I'm doing my best, but to be honest when I'm, under pressure for time those values can be a bit squeezed

♡ 0 ⚪ 0

Step 1: develop a sense of the cost of using AI. Maybe a "budget". Track usage enough to get a sense of what resources I am consuming. Without a sense of the impact, it is easy to ignore. For example, everything is "remotely switched". How much does it cost to leave a light on? Per hour of computer use? The environmental impact of this Zoom conference?

♡ 0 ⚪ 2

> **Kind Ladybug** 11/1/24 6:14PM
> some GenAI's do have a cost widget - though I think it is for API set-ups

> **Kind Ladybug** 11/1/24 6:16PM
> and you can prompt for a Ball park figure on tokens to water usage for the conversation

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Personally: do not use
Work: I need to understand it so I can help faculty and students
Work: use only for large data summaries or themeing of data - I am not good at this so it would significantly help. However, will need to strip out identifying information or try to use a LLM that doesn't 'learn' from my data.

♡ 0 ⚪ 0

I would be more conscious of the usage and question myself , every time I am tempted - is it worth 2 cups of clean water? I know I can do this.
I will educate myself on this more and once I understand will share this with colleagues and students.
A lot to unpack.. but at least I am aware.
So, I look at that as a starting point.

♡ 2 ◯ 0

Thank you Emily! I want to say: "Reuse-Recycle-Reduce" is the phrase that first comes to mind. I am going to borrow your draft , with your permission, until I learn more! DB

♡ 0 ◯ 0

First, do no harm.
What is harm? What does harm look like? Ethics. Academic Integrity. The Environment. Privacy. Algorithmic Bias. Digital Equity. Accuracy. My instinct is to reject it altogether, but I keep hearing this "inevitability" narrative.

♡ 2 ◯ 0

Use AI to defend positions contrary to my own.

♡ 0 ◯ 0

Looking after the planet we've got is way more important than generating six-fingered alien-looking images of the humans depending on earth

♡ 0 ◯ 0

Awareness
Raising awareness by sharing some factual data about environmental impact is how I think I can make the biggest difference. I'm already a minimalist user compared to many folks in my community, just like I am in other aspects of my life. But I need to continually reflect and refine that, like you noted Emily.

♡ 1 ◯ 0

Wean myself off AI …

This presentation has me reflecting critically on the types of tasks I've been using AI for. I regularly use it for brainstorming ideas and for feedback. I also use it to enhance my writing. I will consider the audience and why I'm using it going forward.

♡ 0 ◯ 0

If as Emily says GenAI is deeply embedded in structures of power (settler colonialism and racial capitalism) then just using less AI or picking and choosing on an individual level isn't really going to change those power structures?

♡ 0 ◯ 0

I'm not sure yet. One thing I'm thinking about are the institutional conversations about how we need to prepare students to work in contexts were AI tool use is the norm (and as it's embedded in O365 that's almost everywhere).

♡ 0 ◯ 0

Value people having time and capacity to manage and excel in their work rather than seeing AI as a tool for people to be more efficient in their work in the face of limited time and capacity.

♡ 0 ◯ 0

Misuse for me
Anything I can already fine on the internet, ie travel itinerary, art images... or that my brain can create based on my experience and knowledge. Ie don't use it to just find time, I will use AI with specific purpose.... Summarizing reports/documents. Suggest for course goals based on required competencies and requirements.

But I predict this will change over time.

♡ 0 ◯ 0

The challenge/dilemma is that if one doesn't have some familiarity with AI they may be out of the loop.