Do email signatures really hurt the planet and cost people their lives?

Prague, May 20, 2025 | Author: Jan Moravec (SignatureSatori)

This press release responds to a widely circulated article claiming that email signatures, especially those including pronouns or land acknowledgments, pose a measurable threat to the environment and human health. In our detailed analysis, we challenge the study's conclusions, highlight serious methodological flaws, outdated data, and misleading interpretations. At the same time, we aim to refocus the conversation on what truly impacts the sustainability of digital communication and how companies can implement professional, effective, and environmentally conscious email signatures.

An article from The Conversation based on a study by Joshua M. Pearce has been lately making rounds about the damage email signatures pose to the environment and by proxy to human health. To put it as simply as possible, the study points out that any additional data added to an email increases the energy consumption required to successfully transfer said email. The author then aims to quantify the impact on human lives, specifically looking at pronouns and land acknowledgment proclamations by Canadian email users.

As someone invested in the email signature business, it naturally caught my attention but (spoilers!) the more I looked into it, the more cracks showed up, and now I'm left with more questions than answers.

As mentioned, the study is concerned both with signatures and land acknowledgments. To keep my reaction at least somewhat short, I will only talk about signatures, although most of our points can be applied to both.

The problems start from the introduction, where the author correctly mentions that using pronouns is a relatively new phenomenon. Then he states that "This has been considered a form of reputation signaling used to try to enhance the email sender's reputation," citing a study from 2022. But if we look at the study and read further than just the abstract, we will find in the Discussion section this paragraph summarizing the findings (emphasis by us):

"Finally, across the three studies, we also find that mean ratings of the top items loading on the reputation signaling factor are lower than the midpoint on the scale of 0 (not at all) to 100(certainly) for participants in all conditions, whereas mean ratings of the top items loading on theidentity signaling and norm support factors are above the midpoint for participants in all conditions. ***This suggests that, regardless of the identity of the sharer or the descriptive normativity of pronoun sharing in a given context, people more commonly infer straightforward and collective-oriented motives such as norm support and identity signaling, rather than believing that those who share their pronouns are attempting to enhance their own reputation.*** *The implication of this finding for people's likelihood of pronoun sharing is that people of all genders may feel more comfortable sharing their personal pronouns when introducing themselves if they know they are less likely to be perceived as reputation signaling."*

Given this context, it's accurate to consider Pearce's sentence misleading if not worse. Not mentioning that a majority of people see the utility and benefits of pronouns proclamations and just cherry-picking that they can also be seen as reputation signaling biases the reader from the start against the very idea of including pronouns in emails! But it gets worse…

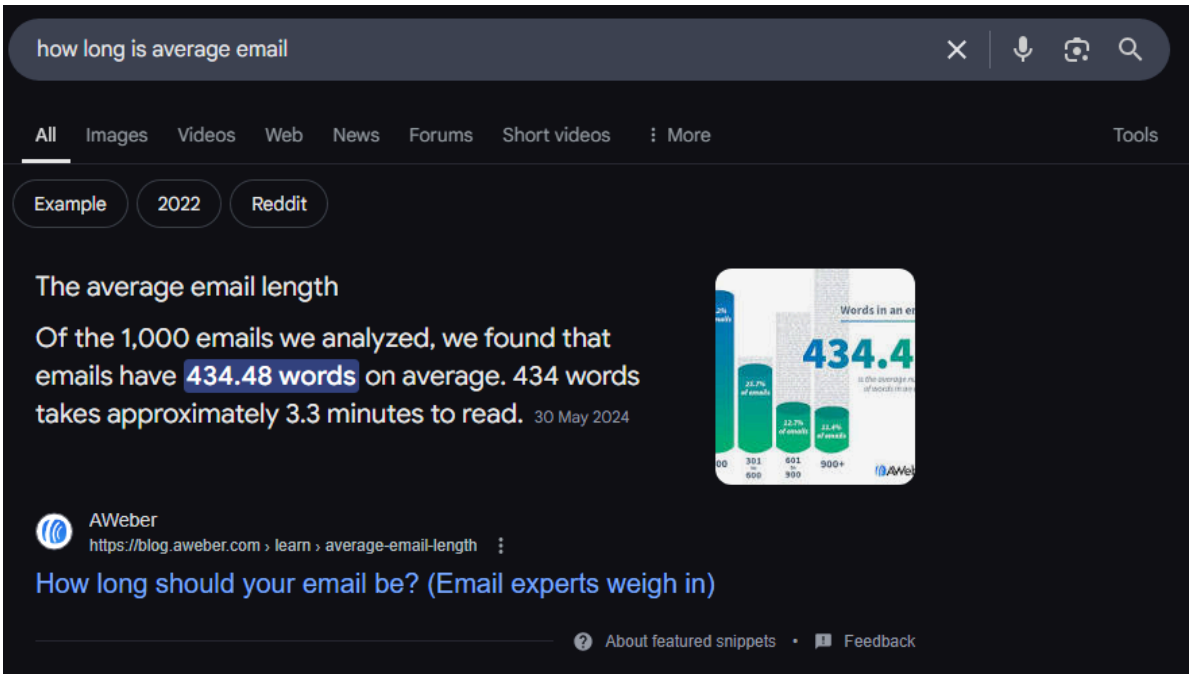
The numbers (don't) lie

Let's skip over the introductory fluff and dive into some data! In the Methods and Analysis section, Pearce concocts a formula that takes the volume of emails sent globally and attributes the number to a country according to a percentage of that country's global population. So if a country is 1% of the global population, they are responsible for 1% of the globally sent emails. This is obviously problematic! Pearce himself mentions this in the Limitations and future work section

"[…]the volume of email sent by richer nations like Canada would be expected to be much greater than poorer countries. In this way, the calculations for the number of premature deaths would be underestimates because the Canadian fraction of the population would undercount actual email use."

So right from the get-go, we find ourselves in a territory of wild estimates. Maybe the responsible thing for a researcher would be to pause and dig for better data than extrapolating global numbers like this, but hey, we're just some guys from a SaaS company and not academics so what do we know.

Further datapoint is "The average length of an email […] is about 434.48 words." This is cited from an article by a marketing company (!) and it's about newsletters and marketing emails, not common, day-to-day email exchanges of email users. It's also probably a coincidence that this article pops up as a featured snippet for a search term "how long is the average email"….

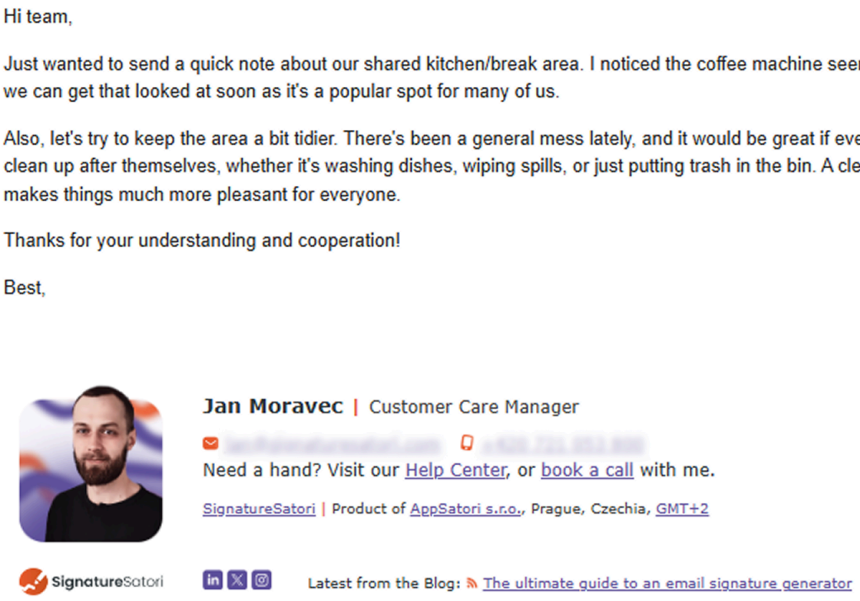


If I labeled the previous datapoint as problematic, now we are firmly in the bulls*it territory.

Looking past this, now it's fair to ask how important the word count in emails actually is. As Pearce himself mentions:

"There are headers on emails that contain metadata that is sent with every email, which includes text with information, such as the sender, receiver, route, timestamps, addresses, and more. Thus, even an email with no information, if sent and opened there would be a transfer of data, energy used and thus emissions. This metadata was not considered in this study."

This implies that metadata is a minuscule part of the size of the email, so let's check that ourselves! Download an email you received lately and open it in the text editor. Now count the characters for the whole downloaded email and just for the body of the email, the text that was actually sent. In my case, the full email had 15,794 characters while the body of the email (including the HTML for formatting, paragraphs, links) had 10,252. This means the actual content of this specific email is ~2/3 of the transferred characters. You can see the screenshot of the full email below. While not very long, it's at least a decent substitute for a common email exchange at work.



Why does this matter? Pearce, in his formula, uses the number for average words (and again, that's for marketing emails and newsletters, not "normal" emails) and adds 3 (his standard example is "pronouns: he/his"). Following from there, he states: "This means that the extra data represents 3/435, which is 0.0069 or about 0.7 % of the average email." Using my example from above, the overall character size of the email with added pronouns "balloons" from 15,794 characters to 15,810 which represents a growth of 0.00101 or 0.1%. That's a big difference!

Let me address some potential retorts to this section:

The email you tested was shorter than in the original study so it doesn't count.

If the email was longer, there would be more characters and the addition of pronouns would increase it by an even smaller percentage.

Characters are not a perfect measure, you need to consider the complete file size of the email to control for encoding, attachments, etc.

This is true! But to be honest, since the data on this is scarce and since Pearce himself couldn't be bothered to use a much better proxy(=characters) for the email size than wordcount, I'm not going to bother. If anything, it would only strengthen the point that pronouns are a much smaller part of the email data-wise than presented. My point stands as is.

What year is it?

Another variable in the formula is the CO_2e production for an email. (At this point, I will take the high road and simply not dwell on the fact that Pearce always speaks about CO_2 and not CO_2e or CO_2 equivalent, an error that would result in a failing grade for a freshman in any climate-related studies.)

Pearce says: "The value of c_e [the variable used in his formula] is the carbon emissions in g of CO_2 emitted per email, which was determined to be about 4 g based on work by Panchal et al.", citing this article.

First, this value was not determined by Panchal et al., they cite in their work a book by "Mike Berners-Lee "How Bad Are Bananas? : the Carbon Foot print[sic] of Everything". Specifically, they cite the 2010 edition which indeed included the 4g figure. The revised version from 2020 scaled down this figure to be significantly lower:

0.03g $CO2_e$ spam email picked up by your filters
0.2g $CO2_e$ short email going from phone to phone
0.3g $CO2_e$ short email sent from laptop to laptop

17g $CO2_e$ long email that takes 10 minutes to write and 3 minutes to read, sent from laptop to laptop
26g $CO2_e$ an email that takes you 10 minutes to write, sent to 100 people, 99 of whom take 3 seconds to realise they should ignore it and one of whom reads it

How Bad Are Bananas? is a very informative and witty book and it's a shame to see it misrepresented. There is no reason for Panchal et al. to use an unrevised number in their survey from 2023, three years after the updated version was available. And it's inexcusable for Pearson to use that value in his article from 2025.

Berners-Lee revised his numbers down since he includes end-to-end energy consumption of an email. To quote him from the revised, 2020 version:

"The footprint of an email comes from the electricity needed to power the kit used at each stage of the process: the device it is written on, the network that sends it, the data centre it is stored on and finally the device that you read it on. The devices at each end are the dominant factors, even if you send big attachments. […] the embodied emissions of a smartphone represent 84 per cent of a short email's carbon footprint. That percentage would be higher still for a laptop, and a step up again for a desktop computer."

This also explains the lower energy number in the updated version - the devices on which we create and consume emails are more energy efficient (and more efficiently produced) than in 2010.

So... what's the number?

The revised figures further complicate our attempt to reconstruct Pearson's formula with 'more correct' numbers. There is no single CO_2e figure per email to work with. We also don't know how many emails are sent by Canadians and the numbers around email sizes and the impact of pronouns on them are muddy at best. It may be unsatisfying to say this but it's also the most responsible thing to do:

It's currently not possible to determine even a ballpark CO_2e figure when it comes to including pronouns (or land acknowledgement declarations) in emails. It's not zero but it's definitely far lower than the numbers proposed by Pearson.

Admitting this means that we don't have to deal with the controversial "The 1000-ton rule", an axiom that Pearson basically co-authored claiming that:

"To quantify the risk of human deaths caused by climate change the 1000-ton rule was developed, which states that a future person is killed every time humanity burns 1000 tons of fossil carbon."

The citation leads to a dead link but here's the study - it looked at works quantifying the impact of climate change on human lives, with results ranging between widely per tonne carbon and basically said that a thousand is kind of in the middle and makes for a good soundbite so let's go with that. I'm also thoroughly baffled by the insistence on using "carbon" instead of CO_2 equivalent. Pearson also, for some reason, claims that 1,000 tons of carbon can be adjusted to 3,700 tons of CO_2. A 1,000 tons of carbon will, in fact, create 3,670 tons of CO_2 and it's irresponsible to transpose it directly this; that's why the CO_2 equivalent is used!

Following his alarmist conclusions, Pearson continues to advise on how to mitigate the imagined impact:

"For example, for those that have androgenous names and simply want people they communicate with to know their gender, they might perhaps add the pronouns to the first time they communicate with someone new. As much email correspondence is between people already well known to each other, this would appear to radically reduce the number of redundant pronoun information."

Well, here's some good news! Gmail not only stores the full signatures in cache so it doesn't have to be loaded from a server for every email extra, it also truncates the messages, hiding repeated content. By hiding the whole signature in replies, much more energy is saved than just by omitting pronouns.

Next, he states:

"Second, for those that are using one or both of the email signature additions as reputation signals primarily, they could replace that information with a hyperlink to their signature. This method has the advantage for reputation signalers to add far more information – perhaps a longer statement about their views on gender or indigenous land rights and history.
More importantly, this second strategy has the advantage of being useful for far more than for reputation signaling. It could be used to reduce much more redundant information common in email signatures like titles, addresses, phone numbers, etc."

Given what we learned from Berners-Lee, including a hyperlink wouldn't really help - it's not really the transfer of the email itself that is energy demanding, it's mostly about the consumption of the device used to create the email and to consume it. Adding a hyperlink doesn't really solve this problem and specifically in the case of pronouns, a link will likely be longer than the pronouns.

One of the questions the study raises but doesn't answer is why it deals with pronouns and land acknowledgement specifically, when there are far bigger ills plaguing the platform. The author clearly cares about the environment but to be honest, I can't help but see this article as a cudgel against people with socially progressive ideas.

However, there is also something that we can get behind:

"Given the human mortality of even a few extra words amended to an email when scaled across even a small nation, it is intuitive that unnecessary [sic] email use should be minimized as should the lengths of necessary emails. In addition, all extraneous or seldom used
information (e.g., fax numbers) should be removed from email signatures and email users should take efforts to avoid the temptation to embed images or pictures in their email signatures that are responsible for enormous amounts of data (emissions) when compared to plain text."

There's a popular saying "This meeting could have been an email", pointing at the frequent unproductivity of personal meetings (and e-meetings as well). I would go further and say that some emails could have been, well, nothing. If there's no progress, is it really necessary to send an update? Is it really necessary to include all those pictures in your signatures? Even if we look past the environmental burdens, a cluttered signature looks unprofessional and diminishes the impact of your intended message. At SignatureSatori, we provide companies with an environment to create and roll-out signatures that fit their needs and actively help them design those to ensure they get the maximum out of them.

I will leave you with Berners-Lee's paragraph that he used to finish his chapter on emails in the 2020 book version. It contains more accurate numbers and is far more thought-provoking while being grounded in reality than the whole Pearson's study:

"If only email were taxed. Just a penny per message would surely kill most spam. The funds could go to tackling world poverty, or even renewable energy. The world's carbon footprint would go down by 2.4 million tonnes, the average user would be saved a couple of minutes of time every day and there would be a £480 billion annual fund. If 1p turned out to be enough to push us into a more disciplined email culture – with perhaps half the emails sent – the anti-poverty fund would be cut in half, but our lives would still be significantly better. The (small) carbon saving would be an additional bonus."

SignatureSatori

SignatureSatori is a centralized email signature management tool designed to help organizations using Google Workspace to create, deploy, and maintain consistent, professional, and brand-aligned email signatures across their entire workforce. Developed by AppSatori s.r.o., a Czech company founded in 2010, SignatureSatori integrates seamlessly with Google Workspace, allowing for efficient management of email signatures without the need for manual updates by individual users. The platform is trusted by over 900K+ users in more than 100 countries worldwide and boasts an impressive rating of 4.8/5 on the Google Workspace Marketplace.

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He handles customer support across technical, functional, and occasionally commercial areas. In addition to assisting clients, he writes and maintains the company's knowledge base and help desk articles, and takes part in application testing to help ensure product quality.