
ARTIFICIAL INTELLIGENCE
(Opinion Essay)
The Luddite's Lament — I

A defence against the use of general purpose 'thinking machines' (including LLMs) in learning, research, and work

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1 The Premise

1.1 This Multifaceted Problem

- The topic of this open letter is that of the ever growing emphasis and push to use LLM software in most/many domains of human work and activity.
- This issue has implications and ties to technology, metaphysics, philosophy, religion, psychology, economics, and many more subjects.
- Therefore it is absolutely absurd to evaluate only one aspect of this issue if we are to make a judgement in response to this new technology and economic climate.
- This subject cannot only be seen through the lens of productivity, technological development, and the economy. The potential impacts of it reach far into what it means to live as a human within society, where it ultimately forces us to ask where we can find real value in our individual lives, as well as in our societies.
- And so, I hope to explore as many aspects and angles as possible here in order to support the idea that it is incredibly reasonable to be cautious of and resistant towards the adoption of this technology as a general purpose tool.
- This is not because it is inherently dangerous in and of itself, but because it undermines fundamental aspects of human formation individually and societally.
- The majority of problems I point to here in this document are problems that still stand, even if we assume this new technology is actually effective/efficient/“intelligent”. But, remember that there is no hard evidence for this in the general case nor the long-term.
- If there is evidence that this technology is not actually efficient, effective, or “intelligent”, then my points only gain weight.
- Finally, I emphasise in this document the domains of learning and research here due to what I can only see as a true danger, at the heart of what should be human endeavours at their core involving nothing less than our full cognition.

1.2 What I’m Specifically Talking About

- I am pointing out the issues of general purpose, natural language (human language), LLM (Large Language Model) tools/chatbots such as ChatGPT and Claude – made by OpenAI and Anthropic respectively. This also includes LLM tools made by Google, Microsoft, Meta, and X, but to a lesser degree since they are less used.

- This means I am not talking about more purpose-built LLM technologies (or more accurately, Small Language Models) that are given well-defined, structured, isolated, and controlled tasks, where the user fully understands the actions being done as well as the decisions being made at a macro level. This is in every way opposite to a tool that resembles a ‘black box’ (a tool which you do not understand).
- Therefore, I do not deny the existence of areas where LLM technology can be meaningfully useful.
- However, when it comes to the way this technology is being used as a general purpose tool in life and work, not only do I think it is ultimately detrimental, but also that it is incredibly wasteful.

1.3 The Structure of This Opinion Essay

- Given the several aspects of this topic, it is incredibly hard not to refer to one aspect or another without repeating my points or themes elsewhere.
- Therefore, I will approach this issue in a more “snapshot angle” approach.
- This means that each section will take a “snapshot” of the topic through the lens of a particular “angle” (concept), in full knowledge that there will likely be crossovers later on.
- By the end, there should be enough “snapshots” to provide a full picture, even if there is repetition here and there.
- Finally, I will try to use questions (correctly pointed) in order to get my points across, simply because I want you to also engage in this as much as possible.

2 Technological Aspects

2.1 Grounding Ourselves

- We are told so many things about new technologies in general that it's often hard to keep track.
- This couldn't be more true with regard to computers and LLMs (Large Language Models – typically termed “AI” in today's climate).
- Therefore, I want to be sure that we understand this technology properly, especially in relation to knowledge.
- Before we jump into the starting points, here are some brief definitions for clarity:
 - LLM (Large Language Model): The specific kind of “AI” utilised today by all/most companies.
 - Neural Networks: The key piece of technology behind LLMs. The idea is that digital “neurons” are connected to mimic the behaviour of human brain neurons.
 - Machine Learning: The broader field within which Neural Networks are developed within.
 - Statistical: In other words, dealing with probability/chance. E.g. if I will “statistically” win a game, it means that on average I have won more times before than I have lost. But the fact remains, in this example, I may lose since that is still *possible*.
 - Deterministic: In other words, dealing with causes and effects that are certain. E.g. if I lose a game, then I will pay £20 to my friend because of our bet. No arguments, no probabilities, no “maybe”. If ‘*x*’ happens, ‘*y*’ will happen.
 - LLM Training: The process of instilling human data/text into an LLM model, such that the LLM model is able to infer the statistical output for any given input text. The quality of output is dependent on the amount and quality of training data. For example, if an LLM model is trained on Lord of the Rings, it would give output confined to the text of that story.
 - LLM Infrastructure: The data centres needed in order to power LLM models such as ChatGPT and Claude.
- So let's now begin my points regarding the technology.
- All LLM technology is built with/using computers.
- All computers work on information in the form of digital symbols (binary numbers under the hood).

- In essence, holding information in the form of these symbols is no different from a dictionary (albeit a very complex and good one) holding words.
- Whilst a dictionary holds all words and their meaning, it cannot read itself.
- Neither can such a dictionary obtain an understanding of a word's conceptual meaning in the real world.
- And so, we have the following distinction:

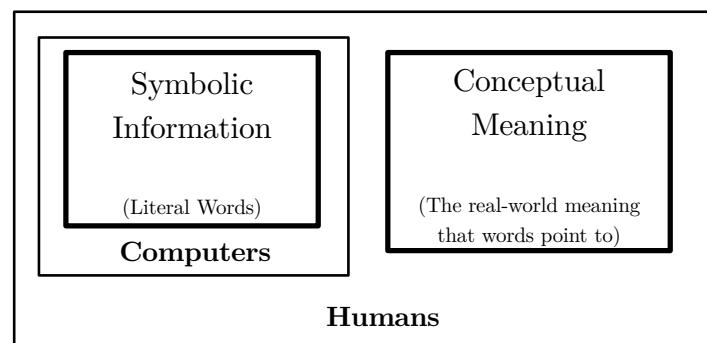


Figure 2.1: The domains of knowledge that computers and humans are able to comprehend.

- Computers cannot even understand what numbers *mean* (e.g. a computer cannot comprehend “5” as possibly meaning 5 *objects*), besides the fact that one number is different from another (has a difference symbol).
- The binary digits “0” and “1” are themselves represented by the absence and presence of electrical voltage within a circuit. That is all – but of course the circuitry is incredibly complex.
- And so, Figure 2.1 provides us with the absolute, unbreakable domain limit of the information computers can hold and work on.
- And yet, we are seeing today the anthropomorphising of computers like never before such that we are trying to offload cognition to them in the general sense – as has never been seen with any technology before.
- Let us remember that even with calculators, we are inputting the actual solution to an equation, whereby the calculator provides a simplification of that expression. I do not doubt the effects of dependency are present in the use of a calculator, but the nature of the dependency we are seeing with LLM tools is at a completely different level.

2.2 The Nature of LLMs

- The underlying nature of LLMs is undeniably statistical. This is what enables them to actually work with various inputs without simply crashing. However, it does mean that the possibility of connecting words incorrectly is inherent.
- Based on existing written training data, they basically are able to predict statistical relationships between words and ultimately sentences.
- For example, since all/most sources (data) state that “strawberries are red”, an LLM can predict that the word after “strawberries are...”, will be “...red”.
- Furthermore, sentences such as “unripe strawberries are...” would result in a prediction of “...green”.
- In this case, the modifier “unripe” has changed the whole relationship between “strawberry” and “green” to be a very strong one due to existing textual data.
- If you expand this process in a very large and complex way, you get LLM tools (in essence) that are able to answer whole questions in essentially the same way.
- Please note though, that nowhere in this process is there an actual understanding of any conceptual meaning on the part of LLMs – they simply look at the statistics of symbolic information (words) and how they connect to each other as shown through their existing usage.

2.3 Technological Efficiency

- From an efficiency standpoint, general purpose LLMs make little sense also.
- People use such LLM tools to do specific tasks. This is universally true.
- Therefore, why should such a tool need to include all non-relevant information for such specific tasks? For example, why would such a tool need information on Shakespeare, if I’m asking it to spell check an email?
- How much energy/computation is wasted due this dead weight within the neural network (inside an LLM), during the stage at which queries are executed?
- Would this large size and usage scope of general purpose LLMs not precisely increase “hallucinations”?
- This is because erroneous connections between words are more likely (the connection web/map is bigger).

3 The Human Impact at Different Social Levels

3.1 Individual Use – A Steelmanning Exercise

3.1.1 Assumptions

- Regardless of what we know from the above, let's assume the following as a little exercise for now:
 1. LLM tools are *exactly* like having your own human servant capable of all text-based tasks.
 2. These LLM tools ("servants") do not hallucinate – so they basically never give weird or unexpected outputs.

3.1.2 The Problems

- Even with the above assumptions, which cannot be argued to be anything other than ideal, there are several problems within learning, research, and work in general.
- Firstly, is not the point of having such a "servant", precisely to offload your own cognition?
- Just how often would you have to use your "servant" for someone to say "Well then, what exactly are you doing?"
- Even with the idea of having a human "servant", isn't there something to be asked about who would have power in the relationship, if one party constantly has cognitive control of tasks?
- How can you learn to do things without doing/trying them yourself?
- How often do you have to use your "servant" until you become dependent on them?
- How can you make good evaluative decisions regarding the results/outputs of tasks, if you have not thought through what processes the tasks actually involve?
- How can you thoroughly understand such tasks, without actually doing them?
- Let's say you tried to be "efficient" in using your "servant", in order to spend more time on solving other/higher problems yourself. Just how many people have you instructed, that have never misunderstood your tasks, or have never taken a long time to understand the task? For complex tasks, would you even be saving time due to the trouble of communicating the problem?

- Even if your “servant” is Einstein, you are responsible for the tasks at hand and for actually understanding the output of your “servant”. And so, is it not true that you are the bottleneck?
- So then, are we not back to square one in terms of efficiency? In other words, even with your “servant”, does efficiency not simply boil back down to your own capacity to understand the problem being solved, or in this case, being reported to you?

3.1.3 The Impossibility of the Assumptions

- The above points I set out are exacerbated greatly as soon as we remember the assumptions we made.
- Assumption 1 is impossible, since if we bring Section 2 back into the picture, computers cannot handle conceptual meaning, and therefore cannot be equal to human thinkers.
- Assumption 2 is impossible due to the statistical/probabilistic nature of LLMs. In essence incorrect output is always possible – no matter how unlikely.
- Also, since LLM tools always have a chance of getting something wrong, there is a problem of a “verification paradox” for serious work. If you can never *fully* trust an LLM tool, then the responsibility of verifying an LLM’s output lies on you. But in order to verify the output, you have the answer the question you gave the LLM anyway. Therefore, so long as there is a chance of output being wrong, the requirement for verification would render any use of LLMs almost pointless in terms of time-saving.
- This whole situation is made worse by the fact that logical thought regarding conceptual meaning can never be done by LLM tools.

3.1.4 The Absurdity of the Ideal

- Since when did cognition become a task to offload in the general sense?
- Is it not the point of the human endeavours of learning, research, and work, that we should use our cognition and other talents to their fullest ability?
- Since when was learning deemed to be so burdensome/inefficient that we desired to offload it?
- The nature of the ideal that the assumptions above aim for is absurd, if not repugnant.

- And yet, remember, this ideal is often what is sought today by the tech companies at large – without the consent or input of the vast majority of people.

3.2 Organisational Use

- I’ve talked about the issues with using general purpose LLMs at an individual level.
- I will now address the fundamental problems with organisational use.
- A lot of these issues are very basic, but nonetheless very important.

3.2.1 Companies

- If a company’s staff heavily uses LLM tools to do their work, to what degree is that company *reliant* on those LLM tools?
- How much do individual staff members have to heavily rely on LLM tools, for them to be fully replaceable in a company?
- How many staff members of a company have to rely on LLM tools, for the company as a whole to be *reliant* on those LLM tools/companies?
- We know that companies are already heavily reliant on outsourced software products like Microsoft 365.
- This kind of reliance is far less of an issue, since for example Microsoft 365 is a platform for a company’s operations. The actual cognitive work is still done by the company.
- For many companies, the value of their work is based on their ability to make good decisions, and create solutions to problems. These types of companies are largely the ones that are able to “benefit” from the use of general purpose text-based LLM tools.
- However, if all/most of this work is offloaded onto LLM tools, what is the actual value of such companies?
- Just like how a staff member who is overdependent on LLM tools is replaceable because they don’t contribute anything themselves, is it not the same with companies? Could the presence of LLM tools actually monopolise the market as opposed to strengthening companies? Is this a risk worth taking?
- What even is a company for? Is it not to provide higher quality work, services, and products than other companies/entities? Of course, there are other aims, but is this not primary?

- If so, and if every company ends up using LLM tools for their work, wouldn't the *only* distinguishing factor of companies be the quality of their staff?
- Does this not take us straight back to square one? Does this not take us back to precisely how we ought to develop businesses and companies to begin with? That is, by uplifting the excellence of *people* (staff)?
- Can such a staff member be trained and developed in the work that they do, if they are reliant on LLM tools? Recall what I said about using these tools at an individual level previously.
- In this way, it seems like any company who relies on LLM tools to offload their collective cognition (work), will fail at the long-term goal of developing their staff in actual company work. Since companies are (and will always be) a product of their quality of staff, such companies will be doomed to fail.
- To what degree then would the companies behind those LLM tools have control over the companies that use those tools?
- What is a company, if not a group of people doing a particular scope of work as a service to other people.
- Do you think we have forgotten this today? It certainly seems so.
- Furthermore, if a company is overdependent on LLM tools for the work that they do, what happens if those tools are discontinued for whatever reason?
- Would reliance on LLM tools pose a serious resilience risk for such companies?
- Would this risk not be high, simply because the thing being offloaded/outsourced is the cognition required to run such businesses?
- There is also evidence of data breaching on the part of frontier LLM companies accessing user prompts. Is this data risk worth it for companies?

3.2.2 Universities (and Schools)

- Universities, as well as schools, are very unique organisations that I think are more at risk than companies in general.
- I shouldn't need to explain much about why this is, but in a nutshell, the point of these organisation is precisely to develop the people/students that go through them.

- For universities, it seems right that good research should only be considered as a “side-effect” of having properly developed and trained students. By this, I mean that the primary aim of universities should be good, effective, and fruitful teaching. It is from there that good research can develop.
- What happens if teachers begin to be overdependent on LLM tools for their teaching?
- Can a teacher be a good teacher, if they themselves do not possess the skill to teach well?
- If a teacher delegates anything to LLM tools, or even to other co-workers, what does that make students think about such a teacher? Surely it would make them think that such a teacher doesn’t care about them? (Because they aren’t putting in effort where they could).
- If a teacher or human examiner doesn’t read what a student writes, why should a student care about what they write?
- Would this affect a student’s motivation to progress into the field that such a teacher is in?
- Is this a risk worth taking for so-called “efficiency”?
- Even if a teacher uses LLM tools (even if just digital automation tools) for administrative tasks (registration and the like), doesn’t that have a similar effect due to the teacher *choosing* not to interact with students in this basic way?
- If students could get all they needed from LLM tools themselves, why would they be motivated to learn from a teacher at a university who simply offloads their teaching to any degree onto LLMs? Again, would it not be universities which retain quality of staff that succeed in keeping good teaching quality and student motivation?
- Also, in a similar way to companies, the offloading of cognition poses a serious risk to universities in the long-term.
- However, I would say that the risks are far larger when we consider how vital cognition is to research within universities, compared to companies. It could be said that the single key resource that universities have available to leverage is their in-house cognition (the staff, professors, doctors, researchers, etc.).
- Would it therefore not be incredibly risky for a university to offload/outsource the sole thing that enables that university to carry out research (which is their only tangible “output”)?
- Again, if all universities utilised LLMs for research, would not the distinguishing factor for universities be the quality of their staff? How could such quality be developed without a particular focus on the independent abilities of such staff?

- Likewise as with companies, what would happen if the LLM tools being relied upon were to be discontinued?
- Could a university be resilient enough to preserve the unique cognition of its staff?
- Could such preservation of cognition be possible if it is being outsourced at an individual/organisational level? Could this be controlled, or is it too easy for any outsourcing at all to lead towards over reliance at an individual level (the addiction risk factor)?
- There is also evidence of data breaching on the part of frontier LLM companies accessing user prompts. Is this data risk worth it for research?

3.3 National Use

- It matters first here to address what country actually is.
- Is a country not simply a very large and complex group of people of all ages and abilities, tied together by a common land? I don't think in countries like the UK we can call upon a shared culture, which is why I leave that out.
- Could not all my points above regarding organisational use of LLMs also apply to a country as a whole?
- Is not a country's strength derived from the quality of its people?
- Is not the quality of a country measured by looking at the satisfaction of its people in their daily lives?
- Is not this satisfaction of people within a country borne ultimately from a sense of social value within that country (at a micro and macro scale)?
- In other words, surely a country is "doing well" only if the people within it feel like they are justly supported and cared for by the other people within their country (just like any group of people).
- From the perspective of the individual, is not our view of our "country" simply the sum of all human interactions we have within our shared land?
- What does economic performance in a country matter then, if it is disconnected from the betterment of our human interactions (society) and state of living?
- Does it not seem that governments (simply a smaller group of people we trust to run a country) today are largely concerned with economic progress no matter how that relates to the betterment of societal function and living standards?

- When governing a country, should we not be prioritising the development of the quality of human experience within a country through societal interactions and standards of living?
- Just like a company that prioritises profits is doomed to fail, it seems a country operating on the same economic basis will eventually fail too.
- For example, it seems an economic downturn is inevitable in the future for my country at least (the UK).
- So then, what seems to truly matter is not just the wealth we have (which is all too easily lost), but primarily the quality and abilities of the population that have the capacity to increase wealth/standards of living. This means that the skills and means which all people have across the board are what make a country resilient.
- So when it comes to the use of LLM tools, would not over-reliance on them weaken the abilities of the population?
- Especially if the LLM tools are not fundamentally controlled within the respective country, wouldn't that mean there is an over-reliance of a country on another country (that supplies LLM tools)?
- If the populace is too reliant on LLM tools for general purpose work, would that not mean the country is bound to lose the ability to function at a general level according to its own strength/abilities?
- If LLM tools were to then be discontinued or made unavailable for whatever reason, would it not cause the country to fail if the population is too reliant on such tools?
- Is the above situation a sensible risk for any government to take? Has it not always been the case that technological tools will always fail at some point or another?
- Is it not a priority of the government to ensure that the general operations of the country are resilient enough so that its people do not suffer in the face of foreseeable disasters?

4 The Issues Within Various Activities

4.1 Learning

- There are obvious problems with delegating your cognition in any way, during the time when you are supposed to be learning.
- Many of these problems I have shown in the previous section(s). However, I will be more specific here in terms of focussing on the act of learning in and of itself.
- What is true learning, besides being able to understand (see the building blocks of) something? I can “learn” a fact, but if I do not understand it, I have not truly learnt it (although maybe I can remember it).
- This is well established in the field of education as being a valid distinction.
- If understanding is the aim, then how is this developed? As said above, understanding seems to be the ability to see how a concept or thing is built, with respect to its simpler or more fundamental parts.
- To give a tangible example, let’s look at a building. No one (hopefully) is unable to understand the premise of a building. We have, since birth, seen countless examples of how objects can be stacked on top of each other. And so, when we look at a building, we can *understand* how it stands up. Brick stacked on brick. Thing stacked on thing. I think we can also understand the premise of a building falling down also, from countless childhood experiences with objects and attempted block-building.
- Conversely, we cannot understand something that we cannot see the “building blocks” of. For example, if you are not familiar with mathematics, I could say the word “differentiation” and you would not understand it. However, those of you who do understand it are able to, because you know what it *involves* – either in terms of what you *do* in differentiation, if not only in terms of what it *means* to differentiate a mathematical function (conceptually).
- Therefore, if you can decompose a new topic into simpler building blocks that you also understand, then you can say you have understood that topic.
- And so the process of understanding and learning as a whole can be seen through this lens of decomposing a new topic into simpler building blocks, and repeating this process until you find yourself on a firm foundation.

- And not only that, but it is important to know how to go the other way also. Not only do you have to link the new topic with simpler concepts, you have to also be able to see how the new topic was arrived at from those simpler concepts. This is after all, how the new topic/concept came to be in the first place when it was discovered.
- Putting these two actions into concise words, we have “decomposition” and “composition”.
- So now I can begin to relate learning to the use of general purpose LLM tools.
- First of all, are not “decomposing” and “composing” both skills unto themselves? They are actions that our minds undertake. Therefore, would they not be things that require practice in order to get good at?
- If you are delegating this process of composition/decomposition whilst you are “learning”, then surely you cannot actually be learning, since you are not carrying out the process that learning involves.
- When you read a book that gives an explanation of something new, you are not passively reading. You are composing the ideas and conceptual meaning that the book refers to, and building up to the new concept that you are learning about.
- If you are going through education and delegating homework and the like to LLM tools for example, naturally you are not engaging in the process that enables you to learn. I dare say this needs little explanation.
- A key problem with using general purpose LLM tools as opposed to books, is that the LLM tools present you with a never ending temptation to “just get the answer”.
- Especially for students who are measured based on their output, this temptation is far too great.
- Granted, a student can copy an explanation from anywhere and not actually seek to understand anything. However, I think it is worth arguing that general purpose LLM tools simply do not help this situation at all.
- In the end, even if students use LLM tools to explain things, LLM tools by their nature just regurgitate explanations from elsewhere online. Therefore, is there not a point to be made whether this new technology has any incredible new value at all? At the very least, is it an efficient use of technology if students just use it like a search engine anyway?
- For learning, the bottleneck is and always will be the student/user.

- Their capacity to compose/decompose concepts is that bottleneck.
- If students do not practise this skill on their own, then they are not truly developing their ability to understand/learn.
- It is also often said that learning is a life-long activity. This is not wrong.
- And so all the more, this skill of composing/decomposing concepts is something useful not just to students, but to all. Therefore, we should all be careful that we don't lose such a skill.

4.2 Research

- Research can be considered as being a kind of job/work, whereas learning is far closer to being a fundamental skill.
- This means that there are likely more people in research who are tempted to use LLM tools, since they are measured more on their work's output than students.
- In this regard, the aspect of efficiency and productivity comes under more focus.

4.2.1 The Nature of Developments in Research

- It seems that developments in research are gained from either:
 1. Discovering and understanding new concepts
 2. Discovering and understanding new links/relationships between existing concepts
- This is simplified, but hopefully accurate enough.
- A deeper understanding of LLM tools will reveal that they can only identify patterns between symbolic information, but only appear to find patterns in conceptual meaning (since we instil meaning when we read the output of LLM tools).
- The truth is that these patterns are never between the actual conceptual meanings of words/things, but only between their symbolic information via "training" and "inference" processes of the LLM.
- The nature of LLM training means that patterns between pieces of symbolic information are the statistically most likely links between them, according to past training data.
- Therefore, by their nature, general purpose LLMs are not oriented toward finding new links between symbolic information, let alone conceptual meaning at all.

- Even if an LLM outputs a new link between symbolic information, there is no guarantee that there is a link between the actual conceptual meaning of those things, and vice versa (which means it could be impossible with symbolic information alone, to find links within conceptual meaning for some concepts).
- Treating LLM tools as if they can operate on conceptual meaning is just bad, as their “notion” of the real world is at best a literal estimated guess, dependent on how much human text is in the training data.
- Furthermore, looking at effects on research, it is obvious that the surge in blind LLM infrastructure build out (data centres) has caused various important computer part prices to jump up.
- And so, just how much research has been hindered because students and staff are unable to obtain/afford standard computers?
- When you look at the time scales of things as well, it has only been 3 years maximum in which general purpose LLM tools have existed in their current form.
- And yet, all of a sudden many seem to think that using them is absolutely *better* than not using them. Should we not remember that there is roughly 300 years worth of evidence in modern science that says doing research *without* any such cognitive tools has worked well?
- There is no evidence to say that *not* using LLM tools in research negatively impacts overall performance, and yet many if not all people seem to imply that there is such evidence.

4.2.2 Skills in Research

- Let us assume that, naturally, no serious researcher would simply offload all/most of their tasks to LLM tools.
- In this case, textual document checking, and overarching literature review would be such low level usage examples. Let’s consider just these only.
- Now, let’s assume further that LLM tools are actually good at all such tasks of these kinds. I.e. there are no hallucinations.
- There are still problems.
- Firstly, if your writing is checked (grammar, spelling, sentence structure etc.), what is it checked against? Is it not compared to the statistical average of all literature within the particular genre? If so, then doesn’t that mean your writing is limited to the average aggregate quality of literature by default? Is this always good? If you always check your work against an LLM, when are you actually

checking your own work? Which is the easier/more tempting route? Will your communication skills actually develop?

- Secondly, with literature review, a similar problem can occur (unknownst to the user) from biases in summarisation from statistically averaged content. Furthermore, the available literature that an LLM can access is largely determined by the training data. Even if an LLM agent is simply pulling updated results from Google, would it not be cheaper and more efficient to just pull sources from Google yourself?
- Lastly, though these two things above are specific tasks, we haven't addressed the obvious fact that these tasks are skills also. How can you gain the ability to spot textual opacity/contradictions if you never actually seek to do so yourself? How can you learn how to filter and sort through sources if you never seek to do so yourself?
- If there are problems with these two relatively simple use cases in the long term for developing skills in research, how many more issues would there be with more complex use cases also?
- How would the quality of researchers as people change with these things ascertained? Would the quality of researchers (the people) be likely to increase or decrease if general purpose LLM tools are used?

4.3 General Work

- In addition to the above factors, there are some general points to consider regarding work.
- How can you get good at a job if you delegate the work?
- If you delegate your work to an unreasonable degree, are you actually doing your work?
- Why are you doing the work/job you are doing? Did you choose it because you enjoy it to some degree or find it fulfilling?
- If so, then why would you want to delegate it to something/someone else?

4.3.1 Points from the Human User Perspective

- LLM tools are not just things to be evaluated in and of themselves.
- There is a huge dimension of aspects in terms of how we interact with them.
- As a human, what is the response to something that appears to give you all the right answers?

- Would it not be a mixture of awe, respect, trust, and a lack of motivation to solve things yourself?
- Would it not simply be addictive to try and get the right answers for anything, if you had constant access to this thing that seemingly gave right answers?
- If you did this, would you not at least feel more disconnected from the problem – if not actually be so?
- If you are disconnected from the problem and yet trying to solve it, wouldn't you have less confidence in any answer you obtain? Would this not increase your level of anxiety/stress?
- Yes delegation existed before LLM tools, but someone somewhere always had an opportunity to be in touch with any aspect of the problem they wanted at large within a scope of work. This is not the case when LLM tooling is pushed, since managers will just say “Don't do that, there's no point, let AI do it, you do something else”. And so it is only with LLM tools that we see scopes of work simply becoming inaccessible for people, even if they want to do the work.
- Is it not the whole point of LLMs, that they are seen as “magic genies” for any scope/size of a problem? What is the point in using them if they are not?
- Therefore, on an emotional basis, how does it make you feel to be working alongside a “magic genie” all day? Would you feel fulfilment when “you” solve a problem (with the assistance of LLM tools)? Or will you feel like you were just dragged along for the ride?

5 Current Affairs

5.1 Productivity

- There is no need for me to prove that the main motivation in pushing LLM tools is to improve productivity and efficiency in the workplace. Everyone implies/knows this is the driving force.
- In the past year (at least), we have seen LLM tools more or less plateau for general use at work. I.e. they have been “good enough” for a while.
- And yet, there is zero sizeable evidence to say that meaningfully valid productivity has increased by a large amount for any organisation at all. The case may be made for those few organisations that are either so small, or so directly tied to LLM generated content regardless of validity, that LLM adoption directly ties to revenue. However, such companies are unsustainable as they only survive because of the “hype”.
- Any large, “thought-work”-based organisation has unclear productivity metrics to begin with, let alone saying that productivity has increased or not.
- A recent report by Anthropic of tech companies (500 of them) during 2026, stated mixed views on productivity after using Anthropic LLM tools.
- Even for those responses that were positive, there was zero evidence provided for any productivity increases stated, and no quantitative data given.
- Overall, this report provides a picture where at best, some companies most relevant to LLM tooling (tech/software companies), may be somewhat more productive. By how much? Who can say. According to who in the respective companies (CEOs or people on the ground)? Who can say.
- If all of these metrics are so vague for tech companies, then it must be yet more vague for universities in research like I discussed earlier, since rigorous thought processes are even more important in research, and output metrics are far less clear (if not arguably far less important than the development of the people/institutions themselves).
- And so it must be made clear again, there is still - even now - zero sizeable evidence to say that LLM tools improve meaningfully valid productivity individually or for organisations at a broader scale, and even less evidence and reason to suggest any such productivity survives in the long term.

5.2 The Situation of General Purpose LLM Companies

- The media has often implied that frontier general purpose LLM companies (OpenAI, Anthropic) are, or at least will, obtain huge profits.
- The fact remains that there has not been a financial quarter where, either through press releases or leaked financial documents, these companies have reported an actual profit. They have consistently been running at large losses, and growing debts.
- These companies have been running for around 3 years, with no actual profit, constantly promising that they will reach god-like AI at some point in the future.
- If you ignore any statement that these companies make about the wishy-washy future, then there is very little actual value being created by them. Can you think of a single use-case or product that they have made, which concretely generates lots of value like a “killer app”? The same can be applied to finances – what are any of these companies saying about *current* revenue or value creation?
- The above statements call into question the capacity of these companies to make any substantial revenue (in order to offset costs) – all of which you can simply Google about. But we haven’t talked about their costs yet.
- In short, the costs that these companies have are absolutely huge, and more or less the whole data centre build out is dependent on debt contracts from one company to another, often leading to something looking very circular.
- The reports are so numerous on the poor financial situations of these companies that I don’t have the energy or time to repeat them here, so please look at them if you have time.
- There is also the legal dimension that is still unresolved.
- People have been spurred to commit suicide, and kill others by LLM tools. There are still unresolved questions regarding the “fair use” of material for training data, not least because this “fair use” amounts to outright theft. The fact of the matter remains, that the degree of legal responsibility that these companies hold is still in question.
- If any of these incredibly serious legal issues were to go in a negative direction for these companies, their survival is even less likely.

5.3 The Current Economic Climate

- The economic situation with the current wars and oil bottleneck is just bad.

- The economic future also looks pretty bad with the current trajectory.
- With that in mind, the financial situations of the frontier companies (OpenAI and Anthropic) looks *seriously* bad.
- The increase in inflation affects bond prices as well as the underlying debt that is currently needing to be paid off by these companies. Again, bad.

5.4 Data Centres

- I already mentioned the financial situation of the data centre build out as being bad, but here I'll add a bit more.
- Most if not all these data centres are financed based on the assumption that LLM companies will be wanting to use them, and that there will be sufficient end-user demand.
- The time frame for most data centres being complete is roughly expected to be around 2030.
- Therefore, if the actual demand in years to come is anywhere less than the current expected demand, the financials are not looking good.
- However, this actually assumes these data centres are getting built on time. But just how many building projects are, based on your experience? Let alone the fact that these building projects are some of the largest and most ambitious to date.
- The fact that there is public push-back and energy/water supply problems means this picture gets darker and darker for all companies involved, since time is of the essence in avoiding a worsening economic climate and increasing interest payments.
- I'm no accountant at all, but that's the general gist. Nothing about this is good, and it seems we are already seeing the cracks with cancelled data centre projects.

5.5 Software Engineers

- Software engineering is on of the handful of job roles currently being seriously affected by the presence of LLM tools.
- Tech companies are outright laying off many such engineers due to "AI". Whether this is actually true or not no one will know, since it is highly likely to be a convenient cover-up for cost cutting.
- But in any case, the remaining software engineers have often been forced to use LLM tools.

- Therefore, software engineers serve as a good tangible measure of the effects of LLM tools in work.
- Output of code has undeniably gone up with the use of LLM tools within companies.
- However, the quality of that code has never been proven by such companies.
- You need only recount your own experiences of computers and software. Has software gotten better or worse in the last 5 years?
- Nonetheless, there are several testimonies of software engineers on places like YouTube, who talk about the negative effects of having to use LLM tools in work.
- Many talk about their own reduction in skills/abilities due to cognitive offloading. Their jobs have become dull and full of angst due to the heavy “multitasking” expected of them.
- They became software engineers to solve problems. Now their bosses and managers expect them to do no problem solving, in the name of “efficiency”. It shouldn’t be a surprise that such people became unfulfilled.
- And yet, we are seeing no software company have anywhere near the profit increases that were promised years ago. I don’t know any statistics, but I am certain that if any company even doubled their profits due to LLM tools, we would never have heard the end of it.
- All this is to say, that software engineers were without a doubt considered to be “fully replaceable” by LLMs. But there is not a company under the sun that has fully replaced their software engineers, simply due to the expectation being a lie. There is no evidence that *meaningful* productivity has increased by any large amount, if at all. Even if there are some gains, the question of long term risks and costs come into play.
- Software engineers were also expected to “benefit the most” from LLM tools, but many are reporting LLM tools are getting in the way, or just sucking the life force out of them. There seems to be no evidence for them benefiting from LLM tools in their work to the degree that was promised. This is undoubtedly because their work is not just about “writing stuff on a screen”, but includes thinking about the underlying problems conceptually.
- The organisational risks of technological debt (pieces of software no one understands) and cognitive debt (no one in the company knowing about some particular thing) also become large.

- If all of this is true for software engineers, again who are considered the most “replaceable”, or most able to reap the LLM “productivity gains”, then just how many more problems are there for other roles (from the employers or employees perspectives)?

5.6 “Don’t Be Left Behind”

- People have often been saying that if you don’t adopt LLM tools, you will be “left behind”.
- This is pure speculation.
- The consequences of cognitive offloading as well as the risks of the company deteriorating are not worth forgetting about.
- Also, it has only been 3 years since LLM tools became useful in the general sense.
- The only people I can imagine being left behind are those who offload their cognition unreasonably to anything/anyone, and therefore lack the skills to do meaningful work.

5.7 Mathematicians

- Recently, mathematicians have made the spotlight by talking about LLM tools solving mathematical problems.
- It would be pointless to repeat their words in full here, so please look up Steven Strogatz and Terrence Tao, and you can find many videos on what they have said regarding LLM tools affecting their fields.
- What you will find ultimately, is that mathematics (like many other human endeavours) is not done for the sake of outputs (proofs) alone, but also for the sake of the human research groups and dissipation of knowledge that result from such work.
- The fact that LLM tools might be able to solve a hard mathematical problem not only has questionable utility given the huge costs in doing so, but it also cuts short the growth in the field that would have been possible if humans were to solve the problem.
- The *seeking* of the solution is often the valuable part and leads to the most development, and indeed that is the point being made by these mathematicians I mention above..

5.8 Art

- Art is an area that has come under attack from LLM technology, where artists have notably and rightfully pushed back.
- It is obvious why art should always be produced by humans, and it is because only we are able to instil the conceptual meaning that lies behind all forms of art.
- As said before, computers can never even handle the conceptual meaning present in real life, since they are limited to symbolic information.
- Therefore, it is easy for us to say that using LLMs within art is fundamentally disgusting (from an art point of view), because the viewer knows straight away that there *is no conceptual meaning involved or implied*.
- But what I will ask is this: what is the difference between an art, and a skill?
- Because if a skill can be considered an art, then work also can be considered an art in general, since it is done via a skill.
- If this is the case, then it could be said on the grounds of art, that using LLM tools within work is equally “disgusting” in the same way, since it implies that such work did not involve full consideration of its real-life conceptual meaning.
- I don’t mean to make a proper argument from this, but it is interesting to consider.

5.9 Public Schools and Children’s Education

- I will be brief here because I think the problems of using LLM tools in this environment are obvious.
- In what world is decreasing the exposure of children to genuine human interaction a good thing in their education?
- If teachers are experiencing strain in their work due to high numbers of students, is not the solution to hire and train more teachers – or adapt the framework for teaching roles such that not only permanent teachers could teach, but industry professionals also (with the right training and support – though this is just an idea)? I don’t mean to be naive, but surely there is no short cut here, and we simply have to solve this problem the hard (yet proper) way.
- Again, how much respect for teachers would be lost if they simply delegate their teaching to LLM tools? I don’t think this would lead to students being inspired in any meaningful way.

5.10 “The Genie Is out of the Bottle”

- The implication here is that because LLM tools have been released, their usage can never recede.
- I will give a simple counter argument: Nuclear weapons. Yes, since they came out, everyone *knows* about them, and no one will ever *not* know about them. However, I am very glad to see that their usage has reduced. We have decided to not use such weapons, at least to some large degree, and so as an international pseudo-community, we haven’t been using them in situations where we could.
- Another example is social media. It would have been often said back in the 2000s that “now social media is here, people won’t socialise the same ever again”. This is a half-truth. The fact of the matter is that yes, social media changed how we interact. However now, we are realising that this is not for the better. And so, several governments are forcing a reduction in their usage for children. And so here also we see the permanent *awareness*, yet reduced collective usage.
- In both examples above, we can see that no one will ever *not* know about the technologies involved. However, that does *not* mean we cannot collectively reduce or ban that technology’s usage, if it is considered bad for some or all use cases.
- Summing up, “the genie is out of the bottle” is not a useful thing to say unless to simply mean “people will now know about this forever”.
- The power to decide whether we should or should not use anything will always remain with us.
- There is no excuse to give up such a decision at any level, individual or organisational, simply because something seems too big to handle.

5.11 “If We Don’t, Our Enemies Will”

- This is often pushed so that the LLM companies have an excuse to frantically develop their technology at whatever cost.
- The fact remains that the “enemies” from the American perspective pretty much surmounts to Chinese companies.
- If you look at how China is doing with regards to LLM development, it’s pretty easy to see that they already have a solid grasp of the technology, and seem to have far greater independence in their supply chain.
- Purely from a technological development standpoint, America and China cannot be said to be that far apart, if at all (to a meaningful degree). The only advantage the west would have (it seems), is the

ability to tie together existing western software products (Microsoft laptops, Google software, Chromebooks etc.). But this is not to do with LLM technology itself, but as a product.

- Bringing general economic health of the countries into the picture however, it certainly doesn't *seem* like the US is on a better path than China. But then again, I don't have the full picture of both countries.
- Regardless, I think the case can be made easily, that there is no evidence that the *whole* health of a country depends on its grasp of LLM development.
- It is absurd to blindly chase one aspect of development whilst seemingly ignoring fundamental infrastructure like food, water, and manufacturing.
- This certainly seems to be happening in the US at any rate, and seems to be the case in the UK to an unnerving degree too.
- Just how much are we willing to ignore other areas of development for the sake of attaining AI or technological “paradise”?
- The cost of outsourcing manufacturing has become clear to us now, as we can't even make the things we rely upon within the UK. Do we have to now outsource even our services to LLM companies? What actually is there then that we can sustainably create within our country, without needlessly relying on other nations?
- Even if we are reliant on other countries, which may be inevitable to some degree, do we even have a proper back up plan actually in place? For example do we have infrastructure to manufacture vital chemical products (soap, fertiliser, etc.) if needed – even if these facilities are not currently active? I don't think we do in the UK, since I heard reports that our chemical manufacturing capacity is close to zero. We absolutely need to address this, as opposed to any fanciful terminator scenario that may never happen, and is looking less and less likely given all the “regular” problems the world is facing (war, climate issues, etc.).

5.12 “Intelligence Will Be Like Infrastructure”

- There is no evidence that this will be the case.
- As said before, LLM tools only deal with symbolic information, not conceptual meaning that is involved in actual human intelligence.
- Like so much rhetoric, “intelligence will be like infrastructure” is in the future tense as a hypothetical – yet treated as some sort of given.
- But if you understand it, it holds these implications:

1. You will not hold intelligence (since you require it like a utility)
 2. Every time you need intelligence, you must beg the supplier (the LLM companies)
 3. Everyone will basically do the same thing (since everyone will access the same source of intelligence for whatever purpose)
- I won't even delve into the economic effects of such a situation.
 - But in what world are the above points a good thing?
 - It seems suicidal to aim for it.

5.13 Current Assumptions About Neural Networks

- It is assumed that since the human brain is made of neurons, then it is theoretically possible to replicate human intelligence with artificial neural network technology.
- The truth of the matter is that we don't even know where the human capacity to deal with conceptual meaning comes from, much less replicate it.
- Therefore, to say it is possible to replicate a brain physically might be something valid, however it still cannot be said with any evidence at all that in doing so, you replicate a human person.
- I just want to highlight that we do not know, and maybe can never know, what it is that makes us conscious beings capable of comprehending the universe in the way we do. We cannot even say that this must be down to a physical factor, and therefore accessible by science.
- The assumption that our physical body makes us wholly who we are as people and intelligent beings remains, funnily enough, an assumption – let alone the hypothesis that it is only our *brain function* that makes us fully human.
- And so it should never cross our minds that a piece of software is at all comparable to a human.
- It should never be forgotten either that there is still no real evidence to say that we are *not* the most intelligent beings within the universe, capable of insight and creation that cannot be replicated by an inanimate object.
- To say otherwise seems like an insult to humanity, and depending on your beliefs, most certainly an insult to our creator. If we are going to engineer really good tools, let us never be deluded enough to think that they are anything more than tools.
- And finally, let us remember that people should always be treated with higher status and priority than objects.

5.14 “Rogue Agents”

- The ability of these frontier companies to flabbergast me knows no bounds.
- Earlier and throughout this year, the frontier LLM companies (OpenAI and Anthropic) as well as many others developing LLM agents (Google, Meta) openly admitted in press releases/articles that their agents were responsible for several hacking felonies.
- The media, and many people in general, took that to mean that these agents were so independent and autonomous that they went away and hacked third parties themselves of their own “will”.
- Certainly, every company developing LLMs wants that to be the story so that their technologies seem really capable (of crimes?), and ultimately that they chose to commit felonies as “conscious” parties. OpenAI’s breach of the company Hugging Face is most notorious.
- But I want you to remember, that currently there is no underlying evidence in any of these cases to suggest that these hacks were not caused by simple mismanagement by the companies or contractors involved themselves.
- The whole “innocence” of these companies is based ultimately on the “consciousness” and therefore uncontrollability of LLM agents.
- However, what was never seriously talked about was the simple failure of the companies to sandbox their software properly (such as to “air gap” LLM agents from the network – basically disconnect them completely from the internet). How something so basic couldn’t be down should shock us.
- What is also wild, is the fact that basically all of these companies have advertised their hacking felonies, and yet none of them have been prosecuted because of these incidents.
- Regardless of whether the LLMs are “conscious” (which they are not), it only takes a brief glance at things to reach the conclusion that none of these companies can be trusted to develop these kinds of LLM tools.
- Keeping in mind the basic notion that these companies have products that have been known already to cause severe harm to others, allows us to clearly say that these companies are culpable and are yet to pay the price for their misconduct.
- LLM agents are not rogue, they are not conscious, and they will not do anything you haven’t allowed them to do by setting up the right protection. We are talking about software (no matter how complex) – this is absolutely definite, and this definite fact is all that is needed to provide a legal basis for prosecution within existing law. We are not

talking about conscious “genies” that can willingly choose to disobey commands. There is currently zero evidence that this is the case, please remember this.

5.15 Anthropic's Particular Delusion

- Anthropic has become particularly notable in the many statements that have come out from the company this year.
- Employees, as well as the company at large, has basically said that their technology could destroy humanity in the near future, quoting several percentage chances as if they were pulled from a hat.
- How a piece of cloud software could legitimately end the whole of humanity is certainly questionable, unless someone is stupid enough to tie together an LLM with the world's nuclear codes.
- But regardless, it seems clear that many/most of the employees at Anthropic are deluded enough to believe this. Either that, or they are simply liars for the sake of marketing.
- And so, if they genuinely believe what they say, then we have a whole new can of worms because pretty much all of those same employees *go to work the next day*, making the supposed humanity-ending-machine stronger.
- The level of stupidity and/or moral depravity is unfathomable.
- Furthermore, Anthropic have released statements describing the action they will take, if any user of Claude (their LLM tool) uses needless abusive language towards the LLM. The reason for their proposed restrictions is the key part here: they are citing that they should protect “model welfare”.
- They are not saying that people shouldn't use harmful language because of token cost, because they want to maintain a quality of input prompts in order to train off of (bad enough though this is), or even because psychologically it isn't helpful for human users to do so. The reason that they give is that their piece of cloud software may be *conscious* and harmed.
- It is this that flabbergasts me – that they would seemingly care more for their complicated toaster, than they would about the people affected by their own technology, the hacking felonies (which they even publicised), the job displacements that they acknowledge, and the local communities that are being put under pressure because of their data centres.
- As a company of people, I can't see a glimmer of moral responsibility in Anthropic no matter how hard I try. And OpenAI is no better. The cultures of these companies are as pure as mustard gas.

- So far they have kept on showing the world why they are some of the least responsible people that should ever develop cloud software of any kind, and it astounds me that they are still able to do so.

5.16 General Purpose LLM Technology “Is Inevitable”

- This is just a prediction like many others, upon an open sea of hypothetical fantasy – yet to be based in any strong evidence.
- No, this technology isn’t inevitable – and in fact we may be currently seeing more evidence to show that there are cracks with the viability of this technology – not only with its financial instability, but also in its questionable capacity to be meaningfully valuable in its current general-purpose form.

5.17 “AI Can Cure Cancer”

- Let us remember that every LLM company has had 3 years already to develop cures for cancer (since supposedly they can).
- We have seen nothing sizeable at all. That is a fact. What we have actually seen being produced amounts to children’s toys compared to any kind of product that could cure cancer.
- Furthermore, there is no evidence to say that LLM technology specifically (which deals with text) could ever get us to a cure for cancer as opposed to other artificial technologies which may deal with other forms of data that more directly mimics and simulates cell behaviour.
- And yet, all funding has gone into LLM companies specifically, with some implication that their technology could benefit humanity, such as by curing cancer.
- Such a claim requires evidence, and there is no sizeable evidence. Not only that, but just to prove my point, if there was such evidence, do you think any of these companies would shut up about it?

5.18 Winding Back the Clock

- I also think that the money being spent on LLM development is absolutely unjustified.
- So far, in the last couple years, approximately 1-2 trillion dollars has been spent on LLM development (“AI”) at least.
- To put that into perspective, the UN has said “Ending hunger by 2030 would cost just \$93 billion a year,” which means that the current LLM infrastructure spend could end world hunger around 10-20 times.

- I can say with absolute certainty that if this money was to be spent in *any other way* (although maybe not militarily), the world would have benefited far greater.
- What if each country relocated the funding for LLMs into education, healthcare and hospitals, adult social care, public transport infrastructure, sewage infrastructure – take your pick.
- The Crossrail project in London cost £19 billion – a drop in the ocean relatively speaking. It would be conceivable that the total LLM development spend so far could have given every city on earth a sizeable metro system (or an extra few metro lines).
- But in reality now, we have a piece of software that *might* help us at some point in the future? It's just ridiculous. Don't get me wrong, LLM technology can be useful, but what we have been sold for the past 2-3 years is not only a lie, but legitimately harmful for the overall development of the world's population's living standards.
- It is borderline despicable that we have found ourselves in this situation.

6 A Brief Look Back at History

6.1 How “Human Knowledge” Is Viewed

- When people have talked about how LLM companies have incorporated the “corpus of human knowledge” into their training data, I think we are missing something quite basic regarding how we view this knowledge.
- The knowledge being referred to is the bulk of human written content at large.
- However, I think we need to just pause for a moment. What is the nature/meaning of written text in general?
- It seems surprisingly simple: the words of people.
- And so, this “corpus of human knowledge” is simply the words of thousands and thousands of people, both alive and dead.
- And yet, it is implied that this corpus is simply an object unto itself that we have every right to twist and extract as we see fit.
- Fundamentally, I think LLM companies need to adjust the way that they see the overall written information of humanity – since they treat it solely as an object to bend to their will.
- For example, Anthropic have been scanning old books to train their LLM models, in such a way that completely destroys the books’ binding/spines. And so the books are ultimately destroyed, and no human eyes (supposedly) can ever glance on those words again.
- The audacity astounds me, and I think is rooted in this disconnected way of viewing the written corpus of humanity’s knowledge.
- As soon as we see this corpus as simply the words of living people, most of whom now happen to be dead, I hope that we can begin to see that we have a responsibility to preserve their words.

6.2 An Insult to Our Ancestors

- As a consequence of the above, I think we find ourselves in a situation where the future of LLM tools as the “infrastructure of intelligence” becomes even more restrictive than I supposed before.
- The future being aimed at with these LLM tools, is one where they hold the whole corpus of written human information, and that those words are processed and used to construct answers according to particular prompts.

- One thing that has come to mind, is that if this is realised, most of this corpus of human information will not be in the same form as the words spoken/written/thought by the original authors.
- LLM tools will automatically summarise, combine, and meld written information according to prompts, and the thing is, LLM tools would *have no value* if they did not do this.
- Therefore, LLM tools *need* to alter the corpus of human information, in order to best match the input prompt. Otherwise, if LLM tools regurgitated information verbatim, then they would be no better than web search tools.
- But it is here that I have a qualm. Since the corpus of human information is the collective speech of past people, it is as if we are saying to them, “Your words as you have spoken them, will never reach the ears of people unadulterated” – which is absolutely wrong.
- Because it is the *purpose* of LLM technologies to summarise and manipulate textual information, it seems nothing but an insult to our ancestors to bar the corpus of human information in this way.
- This is ultimately because it means, that if all information is kept behind such a tool, that our ancestors’ words will be by default inaccessible in the way that they were spoken/written.
- Imagine if you wrote a book or important work that was taken and fed into LLM tools as training data. What LLM companies are basically saying to you is this: “We will extract what we want from your work, and in the process, the words you chose and the words you said in this work will never be glanced upon by human eyes as you intended.”
- That is precisely what frontier LLM companies are saying to all the previous people that have committed their sweat, time, and often blood, to writing the works that they have written.
- And this is precisely what is being aimed for, if intelligence is to be “infrastructure” – since it is inconceivable that these frontier LLM companies would allow any “intelligence” to be accessible by other means (books) in the longer-term future.
- Again, the audacity astounds me.

6.3 Time Scales

- The last thing I want to remind you of is the nature of the time scales of general purpose LLM tools in their current form.
- Please, do not forget that it has only been *3 years* since this software became a usable product in the general sense.

- And yet, almost everyone assumes that this technology must be used in every corner of work and life, when these two things have not had their nature changed fundamentally for at least thousands of years.
- The whole modern world is built on the work produced by people who have developed their own skills and knowledge.
- Why on earth should we say that such an approach is all of a sudden not effective? Why should we now all of a sudden say that we must offload our own cognition, in order to achieve what we were already on track to achieving without LLM tools?
- We seem to have convinced ourselves that 3 years of general purpose LLM tools is enough to say that our thousands-of-years-old approaches to working with regular tools and with each other should all be uprooted.

7 Personal Notes

- Here I just want to give some final notes on a bit more of a personal level.
- I myself am currently a part-time PhD student as well as a private tutor.
- If I offloaded my own cognition in any way within any subject I want to improve within or teach, I know for a fact that my skills would not develop in the long term.
- I know that I will not be a better teacher or researcher if I do not work in order to understand things from first principles (as much as possible).
- In the end, when I produce some work, I want to simply be proud of the work I have done. I want to be able to say that I did a good job. If I am not actually doing the work, how can I say that?
- Even if I make mistakes in the work I do, I want those mistakes to be mine, so that I can actually understand their importance and correct them. What good is a mistake that you can't feel the impact of?
- Furthermore, I don't think I could teach any student under my responsibility about something that I myself haven't put in the work to understand. Who am I to say to them that "you must learn this", if I myself haven't done so properly.
- And so for me, the notion of being able to always offload cognition through general purpose LLM tools feels absolutely unnerving, because I can directly see the devolution it can cause in human skill, interaction, and quality of work. We are seeing this already with technology that isn't "intelligent". How much worse would it be with a technology that is thought to be so (regardless of if it is).
- The world that general purpose LLM companies are aiming for seems also to be bleak at best, and economically/societally destructive at worst (simply because of the fact that improving human lives and interaction plays no part in these companies' plans – not because some terminator will kill us all). And so, I really don't want to touch their software products with a 10-foot pole if I can help it.
- I feel like the media along with many people in general, seem to assume things that simply are not proven nor true – which is a large part of why I felt compelled to write this.
- But anyway, whether I'm right or wrong in all that I've said, I think we have every right, and that there is every reason, to simply *slow down* as communities and nations at large. This is so that we can hopefully get all of our priorities straight, align the interests of communities

(solving real problems), and keep in check those interests that would seek to erode peoples' lives *after evaluating them properly*.

- I wonder, how much of the last 30 years has been a senseless rush towards a goal that appears no more material nor meaningful than a ghost proving itself to be a gust of wind.
- And with that, I'll end.

Thank you for reading.

END