PUBLIC COMMENT TO THE US COPYRIGHT OFFICE'S ARITIFICIAL INTELLIGENCE STUDY
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(*Participating member of the Writers Guild of America's AI working group, although these comments are my own personal views, not the official views of the WGA).
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"The Work of Art in the Age of Artificial Reproduction"

To the Good People of the U.S. Copyright Office:

Before I begin, I wish to affirm that every word here represents original work by myself – John Lopez – and at no point did I use ChatGPT, Claude, Bard or any other Large Language Model or any form of Generative AI to assist in any way with this document. I feel it's important to assert that up front in our new AI age as the first use-case of this technology has been to exponentially increase the generation of spam.

I'm a journalist, filmmaker, television writer and member of the Writers Guild of America. I also served as a member of the Writer's Guild of America's AI working group. In the wake of OpenAI's release of Chat GPT, we were convened by our guild to study the impact of AI on our industry. As such, we delivered a report to our Board that helped them formulate what AI regulations to fight for as part of our collectively bargained agreement with the corporations who employ us (represented by the Alliance of Motion Picture and Television Producers).

We felt our demands were fair, necessary, and respected the needs and rights of authors, both as professionals and as artists, without stifling innovation or technological progress. We sought not to outright "ban" AI but to make sure its real-world use would be well-regulated and fairly applied. However, when these demands were presented to the AMPTP, it initially rejected them, and the WGA declared a strike that lasted 148 days. Very quickly it became apparent that all levels of our membership felt deeply AI regulation was an existential issue, one that struck at the very heart of our profession, our craft, and our ability to make a living doing what we love. Every time I walked the picket lines I found myself answering questions, confronting fears and listening to outrage about the process by which Large Language Models like ChatGPT had been built. Many actively asked if they would have to abandon the career of writer, and if there was no one who would object to the unauthorized use of our work to compete with us.

We ultimately secured notable and necessary protections after a grueling strike that has been well publicized worldwide. While our new 2023 agreement with the AMPTP secured many protections, there was one outstanding issue we were unable to resolve: a ban on the use of our scripts as training data in Generative AI systems. We ultimately had to kick the can on this crucial issue because it raised difficult questions even for our employers, the studios. The fact that AI systems require the fuel of our work has profound implications both for us as individual writers, as well as for the studios and producers of filmed entertainment. So, I hope you all

understand how the decisions you make at the Copyright Office could very well determine whether or not, and in what form, the 100-year-old industry of Hollywood survives.

As for me, they will determine if I can make a living writing. Fortunately, your initial finding that purely AI generated works do not have enough human involvement to merit copyright gave everyone breathing room to properly consider what role AI can and should play in any artistic process; what is due the original authors and artists whose work has been used without consent to create these systems; and what the commercialization of these systems by the companies that made them mean for the future of artistry, not just in our country but worldwide.

Obviously, the U.S. Copyright Office is beholden to the Constitution and must not service only one segment of society, even it's one that gives my life profound meaning -- and one I believe is responsible for much of the progress and justice our Republic has achieved throughout its existence. That said, I feel your initial instincts were correct, and I beg you to be extremely conservative in changing your interpretation of copyright regulations to benefit the AI industry. As a lowly, individual artist I cannot compete with the resources they are expending to frame the conversation around AI in ways that are monetarily beneficial for them. All I have is my time and my passionate belief in the truth of my message, so I hope you take that into account. At times, the corporations who created Large Language Models like Bard, ChatGPT and Claude have made certain claims about learning and human artistry that I want to dispute. While I am not a computer scientist, nor a copyright lawyer, I am a writer and artist. It's what I've done my whole life, and in using these products, and learning about them, I feel a visceral distinction between human learning and "machine learning." Furthermore, I think this visceral distinction is fundamentally related to the legal concept of "transformative difference."

I've heard from many writers who intuitively feel this way, too. However, I do not speak from a place of reactive ignorance. By luck, I have friends and colleagues connected to both OpenAI and Anthropic who educated me on the history and creation of LLMs, as well as their technical functioning. In fact, I first played with GPT3 during the pandemic on a trip to San Francisco. They've schooled me in the general principles of neural nets, backpropagation, and gradient descent. I'm a former journalist, so this sent me on my own investigation, reading primary sources, academic articles, other papers from experts in the field and discussion with researchers and scientists in both Natural Language Processing and AI in general. As a science-fiction writer, it behooves one to become technically versed, and I brought this attitude to my investigations of AI, as well as a love of and profound respect for mathematics.

While I could not build a Large Language Model or Neural net on my own, I feel comfortable discussing their mechanisms and the principles behind them. As a writer I've experimented extensively with Bard, GPT4, Claude, Midjourney, and Runway. I do not fear the technology simply by virtue of its complexity. If anything, I find the math behind it fascinating. As a filmmaker, I love how technology can help one tell audiovisual stories in a more compelling way to communicate truth, meaning, and hopefully joy to audiences. This is my personal mission as a storyteller. While developing my craft in my youth, I was excited about the development of

digital cinematography and advances in CGI. I want to be clear that I am often enthralled and excited by new technologies: but none have put me in as great a moral quandary as AI.

In their current form, I have yet to find the Large Language Models useful in the act of creative writing. (I'm not alone: even early adopting AI writers have come to question whether or not they are helpful or harmful to the writing process. [a]) I've learned LLMs are most useful in editing documents: often as a TV writer, you will prepare summary documents to "pitch" an idea. The key is often brevity, but it can be hard to edit a document when you as the writer are so aware of how important every single detail is to a given story. I've heard Claude and GPT4 have been useful in allowing others to do an initial edit pass on their own work to reduce length. That this is the use-case I hear most often from other writers, and it speaks, I feel, to the fundamental nature of these programs as a form of compression technology.

Others claim they might be useful in "idea generation." I have found that less true. As a writer, it also raises an uncomfortable feeling. The fear in screenwriting is that you will write anything "we've seen before." While stories share many universal features, and tropes and cliches are an inevitable part of writing, you are constantly battling their gravitational pull as a storyteller. In my experience, generative AI magnifies that gravitational pull– if you understand the math behind AI, this is not very surprising. Large Language Models are above all statistical pattern matchers, trained to predict the next "most likely" token. As such, they often generate lists of material that is often eerily similar to, or an outright rip-off, of others' material and ideas.

The brainstorming, scene-writing, and script generation I've tried with all LLMs has also given me pause. I'll give you a concrete example: the day OpenAI debuted GPT4, I signed up for the service. On my lunch break, I wanted to see how fast I could write a script with GPT4. I chose the 30-minute sitcom format and tried to coax a TV pilot from GPT4 about an alien that lands on earth. As I steered it, prompt by prompt, through individual scenes, GPT4 produced a pilot that more and more resembled the 80s sitcom ALF. After about 25 minutes, I had a 30-page draft. But one that felt so remarkably close to ALF that I could not in good faith call it my own work. (The quality was not particularly good, but I don't have a crystal ball and I can't determine if that will change as larger and larger amounts of compute are used to generate these systems, or if it's an inherent limitation of the architecture.)

This raised a red flag for me. Other members of the AI working group experienced similar issues of ChatGPT producing work similar, sometimes identically so, to previously produced material. But unless you were familiar with the material at hand, you might not otherwise suspect it. Or rather, the changes were *just different enough* (without being different in essence or meaning) that someone could attempt to claim this material as their own, possibly evading a narrow and overly technical reading of copyright infringement, while at the same time violating the spirit of the law. We have a word for that in the writing profession: plagiarism. Out of this experience, we in the AI working group came to view even the most sophisticated LLMs as "plagiarism machines" – albeit the best engineered, most sophisticated plagiarism machines ever imagined.

By this point, I knew that OpenAI – and all LLMs – had been trained on a vast corpus of written work that included countless copyrighted works. While OpenAI has not publicly disclosed its "training data," enterprising journalists at The Atlantic (b) have uncovered that extent to which pirated copyrighted work powers it. Of course, as we now know, their belief was that this was fair use because GPT3 was created for "research purposes." But subsequent history has proven that OpenAI was determined to monetize their research. As of this writing it is estimated that OpenAI will make over $1 billion from commercial exploitation of ChatGPT this year alone. (c)

OpenAI and others justify building these models (which to me intuitively feel like "derivative works" of their underlying training data) without attempting to license copyrighted work by equating machine learning with human learning. I believe this is a false analogy that is closer to marketing than science. The concept artist Karla Ortiz has posted on her blog a thoughtful (d) refutation of this point, which I suggest you read. However, it feels intuitively obvious to me if only because no human needs to read (let alone, can read) the quantity of material an AI must ingest in order to function. In the group, we came to the consensus that "Machine Learning" rhetoric often intentionally anthropomorphizes a mechanical tool in a bid to give it -- and the corporation that owns it -- rights and privileges legally reserved in the Constitution for humans.

George Orwell wrote in *1984* about how language can be distorted to propagate deception. While he was warning of a centralized government authority doing this in the name of legalized oppression, today we have a centralized industry doing the same thing as it argues for the unhindered ability to monetize other people's work, grab profit through rent-seeking from other industries (such as journalism and entertainment) and further homogenize the fountains of diverse thought responsible for the success of the American experiment. At this point, the only thing constraining them appears to be U.S. Copyright law. Which is why I have told every writer I know that this collation of public comment you are creating may well be the most important public document on art in the history of human civilization. I fear much of the AI rhetoric and corporate-sponsored research they will use to argue their position does not represent disinterested and objective science, but has the implicit aim of re-imagining copyright law to justify their monetization of the ideas, work, labor, and expression of others' without consent.

I think a more useful description of LLMs has been offered by the award-winning writer Ted Chiang. (e) He immediately analogized the mathematical functioning of Large Language Models (and other forms of AI, including diffusion models) to compression technology. Computer scientists have long linked compression algorithms to AI – the Hutter Prize for innovations in compression was even founded with the intent of promoting AI research. Further research by independent academics not affiliated with Meta, Microsoft or Google (and thus not incentivized to make sweeping claims by a profit motive) have found the compression analogy holds even more directly: while Ted Chiang initially characterized LLMs as "lossy" compression machines, LLMs can easily be converted to "lossless" compression devices (f) that then re-extract the information of the training data verbatim. Some AI pioneers like Melanie Mitchell (g) argue it in no way resembles sentience, original thought or abstract reasoning. AI seems smart because of the "humans" in the loop. In the end, the researcher Alison Gopnik (h) has argued LLMs are best thought of as imitation engines: imagine an automated library of sorts that can be easily

searched with natural language, which then interpolates/mixes its different source text according to the criterion of the user's search prompts.

But if this is an automated, self-decompressing library, what are the books? They are all our words and thoughts contained in the training data. And while the great boon of libraries is their ability to allow knowledge to spread, even a library is required to purchase its contents – accruing money to the original writers of the material they contain. No one in building these LLMs ever attempted to do this, despite well-established precedent and the fact that these economics are critical to the authors of original ideas to survive and innovate. It is their time, sweat and thought that powers these machines. I would argue this is a form of mass theft requiring remuneration and legal remedy, and we have seen authors as varied as George R. R. Martin, Jonathan Franzen, and Sarah Silverman take up this fight in the courts. (i) While the Copyright office's decisions are separate from the legal rulings of the courts (likely to be decided by the Supreme Court), I still hope you all realize that your decisions here bear weight there as well. These are areas of undecided law: areas for which the law was never even conceived because technology capable of this level of data ingestion and blending has been up until now inconceivable. There is no precedent, and your decisions will set that precedent.

Undoubtedly, clarifications of law may be needed, but I think the original mission of the Copyright Office, granted to it by the U.S. Constitution remains the same: protect and incentivize the creators (artists/writers/thinkers) of original material to continue expanding the boundaries of knowledge and creativity. And there is one decision that lies fundamentally within your domain: whether AI generated material is eligible for copyright, and thus can be exploited commercially. In general, I believe these models are derivative works of their training data. (To that end I encourage you to consult with and do a deep dive into the writings of Neil Turkewtiz[j] – in fact, I would like to quote his pithy summation (k) of why the economics behind AI and copyright are so concerning: "The problem isn't that AI will replace authors because they can produce literary works of equal value. The problem is that "good enough" will end up being "good enough," devastating our cultural milieu & placing authors in even greater precarity.")

While AI industry professionals argue that AI models have "learned" facts and ideas, I argue that their "training weights" – which are just vast matrices of numbers – represent a re-encoding and sorting of the data they've ingested and been trained on. While the original copies of the data used to do a training run may be discarded eventually, the source data is retained in a translated form by the weights. If it wasn't, AI models couldn't be transformed into lossless compression machines. Obviously, LLMs can generate material that's not an identical copy of the underlying source material. But they do so by functioning as "interpolative look up tables," (k) wherein the training data is indexed, cross-referenced and then blended in a random process bounded by the prompt. They match a prompt to its most statistically likely set of expressions in the latent space formed by the training data, then re-combine this mélange of sources into something that mimics sense. I believe this qualifies these technologies as a form of derivative work. Just as a novel can be adapted into a film or play, a different medium for a new and varied expression of its underlying content, an LLM (or any other generative AI system) does the same thing through linear algebra. As you're certainly aware, derivative works require obtaining underlying rights.

For this reason, I believe that AI generated text cannot and should not be eligible for copyright protection without obtaining the consent of *every author* of *all* underlying material that could conceivably fall under copyright protection – even if said author has not yet registered that copyright with the office. I say this as a former blogger because over the course of time I have written countless pieces of short material that it was simply too laborious for me to register my individual copyright in. Had I known one day such a machine would be invented or its inventors would claim by failing to register my work, I somehow gave implicit permission to exploit it for their financial gain, I obviously would have taken greater efforts to register it – though given the nature of my creative expression this may not even have been a viable option. (Imagine for example an underlying musician who attempts to copyright all the songs they create). Purely as a writer, I find offensive the idea that someone could prompt an LLM to extrude language that would be considered plagiarism if a human wrote it, then passed it off as their own, copyrighted it and profited off it. To me this is a moral issue: just as we banned child labor, despite cries from sweat shop owners that it would impede economic progress, I think we owe it to creators of original material that they are due credit, compensation and consent from any builder of generative AI models who seeks to exploit that work for commercial gain – otherwise the entire edifice of copyright that your office was conceived to protect will collapse.

The AI industry will argue that this is impractical because there is simply *too much* training data necessary to obtain the consent of all authors. However, one cannot rationalize theft by claiming the scale of that theft makes justice impractical. I would also say, if this presents a problem that requires a technical solution, then it is up to the AI industry to create that technical solution if for no other reason than they created the problem. When automobiles allowed human beings to travel at speeds far faster than any biological organism had previously, creating scales of death and harm previously inconceivable, it was up to the automobile industry to create and implement technologies like seat belts and airbags. In doing so, the industry both created economic growth and saved lives. The AI industry should be no different: the liability for the harms of their product resides with them. If even a fraction of the resources dedicated to the dubious ends of crypto currency had gone to solving this problem, perhaps a solution wouldn't seem so hard now. Until this solution is found, it only makes sense to ban the copyrighting of AI-generated text – or other creative works of expression – if only so that it does not harm the artists and writers whose blood, sweat and personal tears go into their work.

Because to me, this is the fundamental difference between what a Large Language Model (or other computational mechanism derived from machine learning and neural nets) "learns" – and how a person "learns" to write. Generalized under the term AI, these methods aggregate massive amounts of data, translate it into mathematics, and re-mix that data. But it does not add to the underlying training data. As a human being, however, when I read other authors' works as I learn to write, I am adding something of myself to my work. While I am inspired by other authors' work, I add my own perspective, life experience, and judgements. I communicate myself to the broader world. That is what makes any human-derived work "transformative." An LLM or other AI device has no "self" to add. If anything, it takes the fossilized remains of others' work and allows someone who did no work to wear that as an expressive costume. An AI artist's

work is not their own, it's a mix of the expressions of everyone else who's work was tagged and sorted in the model's training weights as "similar." And while there is nothing wrong with collage, you must still get permission when deriving work from another artist's work.

As to AI-generated text, I hope you bear especially scrutiny on the bar necessary to copyright AI-generated text. Because authorship is not simply the act of generating text. As any working writer will tell you, the most painful part of the writing process is staring at the blank page. I have heard AI scientists tell me LLMs have solved the "blank page" problem, and I tell them that's a grave misunderstanding of what it means to write. The "blank page" isn't the problem, it is the necessary requirement for authorship. To stare, to think, to struggle and to understand: to write, rewrite, revise and clarify – on a sentence by sentence, word by word level. Often as a writer, you'll know you have finished when you are down to the level of shifting commas around to be precise. That's the level of control we bring to the creative act of writing. That is a level of control impossible through an LLM's prompting interface. Through the entire act of original writing, I take whatever research material that has informed me, whatever works have inspired, and whatever real-world experience I know to be true personally, and turn it into an original expression of my point of view about this life, this world, and this existence that is common to all of us, and from which we weave our societies and our dreams.

This is my most fundamental philosophical point, but there is a second point that is almost more vital in how the use of Generative AI will practically impact society and artists on a day-to-day basis: the Copyright Office must protect authors and creators when their work is used as training data. Specifically, it must always be the writer who owns and retains the right to "train" on their work. The reason why is simple: the economics of making a living as a writer or artist do not work if you are forced to compete against yourself by a machine that essentially duplicates your work or your style. All artists need full and inalienable control of that right of duplication: training cannot happen without actively contained, opt-in consent, meaningful consultation and professionally negotiated compensation. This is not an abstract danger: it is happening now while you in the Copyright Office make your determinations, and it will only increase rapidly with time. What all forms of AI and Machine Learning excel at is pattern matching: and whether it's an artist or writer's style, a singer's voice, or an actor's likeness, these are all patterns to the machines built by OpenAI and others. As more computing power and more data is used to build the latest iterations, their ability to "mimic" and "deepfake" a style or even an identity will increase the current damage exponentially.

As a screenwriter this is particularly urgent because like many other forms of professional artists, I work under contracts that designate my writing as works for hire. In its current MBA, the WGA argued forcefully (and we believe rightfully) that these work-for-hire contracts do not grant any data training rights to the studios who own our screenplays. While this may ultimately have to be fought in arbitration or the courts, we desperately need the U.S. Copyright office to speak up on this matter. There is a massive power disparity between individual writers seeking to make a movie or television show and the studios who have the means to finance and distribute it. The strike by SAG-AFTRA has unearthed countless stories of studios forcing day players to sign away ill-understood rights to likeness for a few hundred dollars, just to be a

background player. Unfortunately, the vast majority of us barely make a living at this profession. We do it because we love it. That said we still need to survive. But when you need to eat today, it is hard to say no to exploitative contracts that will take away your ability to earn a living tomorrow -- unless government organizations like yourself step in.

Unfortunately, the WGA was not able to get the studios to agree to what we feel is a moral right because they feel the need to compete with technology and AI companies like Meta, Microsoft, Google, and Amazon. They may even understand that legally they have as much to lose from not protecting their intellectual property in courts, but the so-called potential of AI is so intoxicating that they are loathe to relinquish any means at their disposal, however damaging to their artistic partners, unless it is explicitly controlled by legal and regulatory bodies.

The practical result is that unless training data is meaningfully regulated, it will threaten the livelihood of all future writers and artists. Right now, entry-level writing jobs are being lost, limiting the ability of future writers to grow. Even with issues of copyright up the air, I think the AI industry is burning through future potential in the pursuit of present profits. In the same way that sturgeon populations collapsed because we harvested their eggs for caviar, future artistry is being damaged by AI enterprse now. I myself would never have made it as a professional screenwriter if I hadn't been given the opportunity to learn professional practices by writing short pieces of journalism for publications and websites – as well as the small but desperately meaningful sums that helped me live. This work helped me grow as a writer, advance in my profession, and think more creatively. These are exactly the jobs that corporate media is seeking to replace using plagiarized material generated by LLMs. I worry that the ladder of advancement is going away for future generations. I am saddened by the idea that young, diverse and talented writers will never have the opportunities I had: their voices might be lost in a sea of synthetically generated text that is of inferior quality but overwhelms through sheer quantity.

Because future writers and artists are the true font of creativity. They are the ones through whom progress and meaningful change in our world happen. Without them, I fear a future of stagnation, derivation and sclerosis. I beg you, Members of the U.S. Copyright Office, in your findings and your work, do your best to protect their ability to think, to create and to live.

As to your specific questions, I would like to do my best to answer them in order here below:

1.) As I just mentioned, I think we are beginning to see massive risks to the economic livelihoods of individual writers, especially emerging writers who are losing the opportunities necessary to advance their careers and produce new, original work. I think there could be some theoretical benefits when it comes to generating boilerplate – or spam – but the risk to creative writing is hard because many industries don't care as much about quality as quantity. In a creative industry like Hollywood this is particularly dangerous because speed and efficiency can often be inimical to good work. However, in the long run, innovation and creativity are necessary for the health of the industry. I worry that as synthetic text fills our informational ecosystem, it can drown out more vital

work. And copyright holders themselves risk losing financial opportunities as derivative knock-offs of their own work flood markets that previously supplied their livelihood.

2.) Hollywood is profoundly impacted by the increasing use and distribution of AI generated material. While this has been held at bay by the ongoing labor actions, it is beginning to create profound job loss. More importantly, the ability of anyone (including executives) to generate the kind of repetitive, cliché-ridden material that AI generates could make it harder for original, creative ideas to be heard by drowning the marketplace with sameness. Because screenwriters do not hold their copyright directly, the ability to "train" on our material means screenwriters may be forced to compete against remixes of their old work without compensation or credit.

3.) Here is a link to a study by Goldman Sachs on job loss through AI (I): https://www.forbes.com/sites/jackkelly/2023/03/31/goldman-sachs-predicts-300-million-jobs-will-be-lost-or-degraded-by-artificial-intelligence/?sh=7a658b0782b4

4.) I think the Copyright Office should look at the EU AI Act and particularly its emphasis on transparency of training data. I think international consistency in respect to copyright is essential because art knows no boundaries.

5.) I think in general an expanded right to likeness that SAG-AFTRA has sought may need to be encoded in Federal legislation. Again, an AI algorithm sees all forms of likeness: voice, style, and direct likeness as a pattern that it can copy. It can copy and remix all of them.

6.) I'll let others address this – especially in the wake of The Atlantic's reporting on the massive datasets of pirated books that form the basis of virtually all corporate Large Language Models. Investigative reporting has also highlighted how for-profit companies made agreements with non-profit academic institutions, allowing them to do a form of "data-washing" that hid their collation and collection of pirated data behind a front of "research purposes" when it was always intended to be commercially exploited.

7.) Well, I am not a technical AI builder, I would object to your use of the word "inferences" as a descriptor of how an AI system "learns." As it becomes apparent these systems are sophisticated forms of compression, I think you need to describe the data as being "encoded" in a mechanism that allows for blending and fuzzy, mosaic-like recreation of the underlying data. As scientists like Gary Marcus have repeatedly pointed out the "concepts" that any given AI "learns" are often brittle and small changes can impede its ability to generalize beyond what has been composed by the training data. Of course, to fully understand that we all need access to the underlying data sets of the models.

8.) I will leave to lawyers the relevant case law, I believe no unauthorized use of copyrighted works to train AI models constitutes fair use if those models will in anyway be used for commercial exploitation. I do not think the quantity of data used – which is of course immense – affects that fair use analysis. Under the fourth factor of fair use, I believe that all competing outputs of an AI – wither it be a particular work, a body of works by the same author, and the market for that general class of work – should be considered. These all affect our ability to survive as authors and artists.

9.) Copyright owners should have to opt in through well-negotiated licenses. Opt-out mechanisms are practically and fundamentally untenable for any individual author. The way models, especially open-source models, are derived from each other means that an author would have to police a hydra-like variety of AI developers – a task impossible for

one human and barely possible even for large professional organizations. Opt-In is the only way to begin to allow for training. Furthermore, if an individual writer does not own the copyright in their material, they must have the wright to object to an AI model training on their work. This may have to be done through professional organizations such as the Writers Guild of America and the Authors Guild.

10.) Licenses may need to be collectively obtained, but I have heard of several concepts for using blockchain technology to allow for automatic payments to underlying rights holders. I would also look to the music licensing industry for inspiration. Having worked in Business Affairs as a young writer, I handled music licenses for film, and I saw a successful, functioning market that fairly remunerated artists for small portions of the work being use in derivative works like film and television. It has worked for decades, allows for creativity, and creates fair market value for artists. This is eminently possible and can be done if the AI industry is forced to do it. Licensing regimes most likely will have to be specifically tailored to individual media to account for the practical differences between visual, audio and written media.

11.) Whoever seeks to commercialize an AI model in anyway should be responsible for seeking the licensing. At all steps, a chain-of-title attached to training data must be transmitted so that even synthetically derived data has provenance and the underlying rights holders are appropriately compensated.

12.) It is currently difficult to identify the degree to which an individual work contributes to output from a generative AI system. However, this is an area of active research called Mechanistic Interpretability: basically, it researches ways to let us more clearly read the weight activations in any given neural net process. I believe mandating a license regime could incentivize the necessary work in Mechanistic Interpretability to solve these problems. Furthermore, this would have the added benefit of helping with AI safety. There are dangers well beyond unfair exploitation of copyrighted works in the heedless promulgation of AI systems, dangers that include the risk to human life and social systems. Advances in Mechanistic Interpretability could help us avoid those dangers, as well. I suggest you in the copyright office look into the works of Christopher Olah at Anthropic. (n)

13.) I think requiring licensing would be an economic boon, allowing the proceeds of AI to flow more fairly to those whose work powers it, as well as creating jobs in Mechanistic Interpretability and licensing. While those who have a vested interest in developing AI may balk at this, I think the financial allure of AI systems of all kinds is so vast and overwhelming that this minor (but fair) requirement will not meaningfully impede development of these systems. Instead, it will allow for a more equitable sharing of future profits with those who create the original, underlying material.

14.) Fundamentally, the right to train must remain with the original creator of the work – and sale of this right must be actively negotiated with them through opt-in licensing. The vast majority of working writers and artists survive through work-for-hire contracts, and many likely would never have allowed the language for training in such contracts had such a thing ever been conceivable.

15.) AI developers and creators of data training sets must absolutely be required to retain and collect and disclose records. It's essential. (In fact, the very act of training

requires a base level of record keeping so they likely already have this.) We need fine-grained specificity (15.1), and wherever possible, I think disclosures should be made to professional entities like the WGA that safeguard their members interests (15.2). The same obligations must be required of developers who incorporate models from third parties (15.3). Specifically, I'm thinking of the open-source AI movement, sparked by companies like Meta. Open sourcing without this requirement would have the *de facto* effect of putting all copyrighted material in *any* training data into the public domain.

16.) There must be an absolute and irrevocable obligation to notify both copyright holders, as well as the original authors if they do not hold their own copyright, that their works have been used as training data.

17.) My understanding is that the Berne Convention likely applies to this.

18.) With regards to Large Language Models and text generation, I do not see how a person using the prompt process can contain sufficient control over the thought generating process to be considered the "author" of the material. LLM text-generation in particular too closely resembles the process of plagiarism to achieve this. I think excluding copyright in this case should be considered. The only exception I could see is if a person generated an original draft of material and then ran it through an AI system to "compress" it to a shorter length. This is similar to the process of editing that a professional journalists or author goes through with a human editor. In that case, the editor is not considered the party to whom copyright instantiates. I also do not think the "selecting of material" is enough to confer authorship, unless you have authored the material you are selecting. I think the same argument could be made more generally of visual and audio material as well.

19.) As I'm not an expert in the Copyright Act, I cannot fully answer this other than to affirm that so far the US Copyright Office's interpretations have felt fair and intelligent. I would highly suggest brighter legal minds than I look at the Copyright Act and AI systems generally through the lens of "derivative works," i.e. that these systems and their outputs are all derivative works of all the material in their training data.

20.) I do not believe legal protection for AI-generated material is desirable as a policy matter: a well thought out licensing regime where anyone wishing to incorporate AI-generated work into their work has obtained permission is the best approach. The market incentives will then allow for the responsible and fair use of AI. Anything else is simply justifying mass theft and will disincentive or make impossible new, creative and original work from authors and artists.

21.) I do not think the copyright clause permits copyright protection for AI generated material if only because this type of material generation was so far from the domain of possibility that the founding fathers couldn't imagine it. As for promoting the progress and the science of the useful arts, I do not think copyright protection is essential in that regard because AI systems simply remix and regurgitate the underlying material. I think they can be useful as general "research tools" in the way the internet is; but ultimately the hard work of "progress" requires the human powers of judgment and creativity. There is no shortcutting this, and creating a protection for AI generated material may in fact have the opposite effect: incentivizing derivative work over original work. I have no objections to someone using AI – so long as they understand the mathematical

regression to the mean that these systems imply and impose on intellectual labor – but the work of making any work one's own is where the originality and creativity that promotes the progress of science comes from. If these systems can be at all useful in helping artists, it will only be when those artists add such immense original thought, intent and judgment as to have effectively transformed these works. Unfortunately, I know of no other way to measure that than time and thought. You gotta do the work somehow. As complexity theorists and computer scientists say, there is no free lunch.

22.) AI generated inputs can absolutely implicate the exclusive rights of preexisting copyrighted work, such as the right of reproduction and the derivative work right. Essentially, any given AI output – whether text, video, audio, or image -- is a form of derivative work of its underlying training data. Time and time again, generative AI will output infringing work without the user necessarily even being aware of which work is being infringed. Further, recent research has shown that generative AI models will almost always be able to be hacked to produce lossless copies of the training data.

23.) Unfortunately, the substantial similarity test is no longer adequate to address claims of infringement due to the nature of the technology. All AI outputs are in some way derivative of the underlying training data. They are an interpolated, remixed copy. But done at such a fine-grained level that it can be hard in many cases to disentangle which of many multiple works have been infringed in each case. Until Mechanistic Interpretability gives us tools to de-mix any given output to understand the underlying works it draws on, licensing of *all* copyright protected material in the training data is the only fair way to ensure an author or copyright holder's rights haven't been violated.

24.) Unless an AI developer maintains and makes available records of what training material is used, it may be impossible for copyright owners to prove in a legal sense the element of copying.

25.) The developer of any AI system must ultimately be directly liable, with the end user being secondarily liable. Open-source models further confuse this matter by separating the person doing the fine-tuning of the underlying weights from the original developer. That original developer must always bear the core of responsibility.

26.) I suspect these systems were either intentionally or unintentionally created in violation of 17 U.S.C. 1202 (b) because much of the material they were trained on was derived from pirated data. Investigations must be undertaken to prove this and AI developers much allow full transparency into their training data to prove otherwise.

27.) Again, I would ask the Copyright Office to realize that AI guardrails implemented by AI developers are often riddled with holes and patches. It seems likely that any given guardrail can ultimately be circumvented easily with AI hacks. Thus, initial licensing of the training data is the only protection copyright holders can expect to have meaningful impact.

28.) AI labelling should be mandatory. The end-user needs to disclose it publicly and what model was used. It should be part of specifications of any AI generated output. If possible, developers should be made to create "watermarks" in the generated output because otherwise identifying this will be impossible. There should be legal liability – both jail and fines – for violations because this amounts to fraud. (Also it will always be easy to remove such watermarks so there must be legal threat to disincentive such a bad

faith use of AI generated material.) There are so many unimagined knock-on consequences to "deep fakes" and AI generation that we haven't even begun to understand, that this is essential to help mitigate them going forward.

29.) Identifying AI generated material with third party tools has to my knowledge been very problematic and largely unsuccessful, often inadvertently punishing innocent users, such as authors writing in a language that they are not fluent in. This argues for both the necessity of AI watermarks, and some legal liability for evading this.

30.) I would recommend the US Copyright Office consult directly with SAG-AFTRA on this matter as this speaks to the core issues of their ongoing strike.

31.) Congress should absolutely establish a federal right to likeness, similar to state laws. It should set the floor. However, the right to likeness should be expansive as likeness within the arts starts to blend into questions of style when examined through the lens of AI. I.e. "likeness" is the same as writer or artist's style or a musicians voice. All deserve protection from AI because they are all treated as patterns to match.

32.) There should be a total ban against imitating style. All people should be eligible for this as a general right to privacy.

33.) I unfortunately do not have enough experience in sound recording law to weigh in here: I simply wish to reiterate my point that licensing regimes for sampling and re-use of musician's material have been effectively deployed in film and television for years and have meant much financial gain for the underlying artists of the works sampled. A system like this such be protected and may serve as a model for how we approach all data – especially as regards to a person's likeness, right of celebrity or style – in an AI future. It is all the same to a neural net.

34.) My only final point is that in reading your definition of "training weights," as simply "inferences." I would urge you to consider them as a re-encoding of the underlying training data and avoid all language that anthropomorphizes the functioning of these digital machines: they are not reasoning or acting in the way a human being does, and claims to that effect are increasingly being shown to be a mirage. The training weights creates the latent space and what allows an AI to create an image that is eerily close to a given original example in the training data – or with proper finessing to reproduce with sufficient fidelity the underlying materials as to result in direct copyright infringement.

INDEX OF LINKS CONTAINED HEREIN:

a - https://www.wired.com/story/confessions-viral-ai-writer-chatgpt/
b - https://www.theatlantic.com/technology/archive/2023/09/books3-database-generative-ai-training-copyright-infringement/675363/
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f - https://arstechnica.com/information-technology/2023/09/ai-language-models-can-exceed-png-and-flac-in-lossless-compression-says-study/

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n - https://colah.github.io/about.html
o - https://hai.stanford.edu/news/ais-ostensible-emergent-abilities-are-mirage