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One of Andres Amador's many artworks in his *Earthscape Art* series

"Nature is my ultimate inspiration . . . I have always been drawn to nature."[1] Those were the words of Andres Amador, a current San Francisco-based artist known for his large-scale works on sandy beaches.[2] He represents the assemblage of artists who have used nature as creative inspiration. However, the current anthropogenic increase in global temperatures, i.e., "climate change," threatens the natural systems that inspire artists like Andres.[3] Climate change, in turn, threatens artistic creations, both existing[4] and future ones.[5]

Despite the dreary planetary forecast, a recent research development called "climate attribution science" provides some hope. By statistically comparing the effects of two worlds, one with and one without human intervention,[6] the development allows us to not only better understand climate change's causal effects, but also determine a specific private entity's probable contribution towards such effects.[7] Its clear implication for climate litigation[8] raises a potential concern: countervailing private interests might attempt to hinder the use of climate attribution science through different avenues, including patenting its modeling systems.

Regarding the question of whether these private entities would successfully utilize this avenue, the likely outcome is "no."

In the case of climate attribution science, the applicable case law is the Supreme Court's two-step test for software patentability in *Alice Corp. v. CLS Bank Int'l*, 134 U.S. 208, 217 (2014). Specifically, the test requests a court to consider (1) whether the claims in question embody a patent-ineligible concept, and (2) if so, whether the concept they propose is an "inventive concept."[9] The technological underpinning of the science is relatively simple; it involves modeling, which involves "looking at thousands of lines of code."[10] This attribute would categorize the underlying technology as software, thereby subjecting it to the judicial test.

Under the first step, the technology behind climate attribution science would likely be viewed as embodying a patent-ineligible concept. A patent-ineligible concept falls within one of the following categories: "laws of nature, natural phenomena, [or] abstract ideas."[11] Extrapolating from past Supreme Court and Federal Court cases, the technology would fall within the "abstract idea" category. In *Bilski v. Kappos*, 561 U.S. 593, 611 (2010),the Supreme Court had found that the claims at issue enumerated a method for the abstract economic idea of hedging, thus satisfying the first step. The Supreme Court in *Alice* used a similar rationale to classify intermediated settlement as an abstract economic idea.[12] In *Intellectual Ventures I v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017), the Federal Circuit determined that the invention with data storage systems was "directed to the abstract idea of collecting, displaying, and manipulating data." These cases illustrate the judicial inclination to distill the idea behind the claimed invention and determine whether it is abstract. The idea behind climate attribution science modeling systems aligns with that in *Intellectual Ventures I* since they both involve "collecting, displaying, and manipulating data."[13] So, the technology behind this attribution science, while narrower in its application, would fall within those general metes and bounds.[14]

Under the second step, climate science technology would likely be viewed as not possessing an "inventive concept." An inventive concept is "an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'"[15] What constitutes "significantly more" is not clear from the construction. Once again, a look at prior judicial decisions is more elucidating. The reasoning for the invention's ultimate patent ineligibility in *Alice* also applies to *Bilski*: the "[use] of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention."[16] The Federal Circuit also used this rationale in *Intellectual Ventures I*.[17] These cases indicate that so long as the technology behind this attribution science remains confined to data modeling systems that could be used in any generic computer, then the technology would continue to ultimately patent ineligible.

While past judicial cases are informative to the patentability of climate attribution science, the patent prosecution process incorporates many variables that could allow the technology

behind this science to be patented. In light of this concern, examiners from the United States Patent and Trademarks Office and judges should be careful in their review of such patents. Their issuance might preempt the development of climate attribution science and thus, negatively affect artists like Andres and their artistic creations.[18]

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1. Margherita Cole, Artist Walks Along Shores to Create Massive Sand Designs Before High Tide Arrives [Interview], My Modern Met (Oct. 10, 2020), https://mymodernmet.com/andres-amador-interview/.
2. Id.
3. See generally Karen Peterson, Saving the West's Most Iconic Cactus from Climate Change, Wash. Post (Mar. 10, 2021), https://www.washingtonpost.com/climate-solutions/interactive/2021/saguaro-cactus-climate-change/ (discussing how climate change is diminishing giant saguaro populations); How Does Climate Change Affect Coral Reefs?, Nat'l Oceanic & Atmospheric Admin., https://oceanservice.noaa.gov/facts/coralreef-climate.html (last updated Feb. 26, 2021) (explaining the mechanisms of how climate change affects coral reefs).
4. See, e.g., J. Huntley, et al., The Effects of Climate Change on the Pleistocene Rock Art of Sulawesi, Nature (May 13, 2021), https://www.nature.com/articles/s41598-021-87923-3 (discussing how climate change creates weather conditions that facilitate the erosion and salt crystallization of limestone rock containing prehistoric art).
5. Climate change threatens future artistic inspiration from nature by removing existing sources that might serve as potential future sources of inspiration. The philosophical debate of whether climate change is good or bad for art in general is not discussed here.
6. Kieran Mulvaney, How Climate Models Got So Accurate They Earned a Nobel Prize, Nat'l Geographic (Oct. 5, 2021), https://www.nationalgeographic.com/environment/article/how-climate-models-got-so-accurate-they-earned-a-nobel-prize ("[W]e have to compare an Earth with no people to the Earth we're living on with humans and carbon emissions. And when we compare those two Earths, we can see how human-induced climate change has altered the duration, the intensity, and even the damages associated with a specific event.").
7. Renee Cho, Attribution Science: Linking Climate Change to Extreme Weather, Phys.org (Oct. 5, 2021), https://phys.org/news/2021-10-attribution-science-linking-climate-extreme.html.
8. Geetanjali Ganguly, Joana Setzer & Veerle Heyvaert, If at First You Don't Succeed: Suing Corporations for Climate Change, 38 Oxford J. Legal Stud. 841, 856 (2018).
9. Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 573 U.S. 208, 217 (2014).
10. Mulvaney, supra note 6.

11. Alice, 573 U.S. at 216.
12. Id. at 217-20.
13. Intellectual Ventures I, LLC v. Capital One Fin. Corp., 850 F.3d 1332, 1340 (Fed. Cir. 2017).
14. While the United States Patent & Trademark Office has since created additional guidelines for the Alice test, especially the first step, the basic abstract idea for climate attribution science technology remains immutable.
15. Alice, 573 at 217 (citing Mayo Collaborative Servs. v. Prometheus Labs, Inc., 566 U.S. 66, 72 (2012)).
16. Id. at 223.
17. Intellectual Ventures I, 850 F.3d at 1341.
18. See Alice, 573 U.S. at 216–17, for a discussion regarding the dangers of preemption to innovation.