KLEROS

AI-ART'S COPYRIGHT DISPUTES: KLEROS AS A POSSIBLE ANSWER

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With the emergence of Midjourney[1], Stability AI[2], DALL.E 2[3], and other numerous AI art models, a new host of AI-Art related copyright disputes[4] have come to the forefront. Owing to the substantially lower costs and the primarily technology-based and international nature of these disputes, decentralized dispute resolution offers a potentially attractive forum[5] for the resolution of such disputes. Kleros[6], a pioneer in the Decentralized Justice space, could provide an effective forum. This research aims to explore whether Kleros could be a pioneering dispute-resolution mechanism in a sector that remains largely unaddressed, particularly from the artist's perspective[7].

The paper does this by first (I) discussing what exactly are the IPR disputes caused by AI. These are divided into two parts: the infringements regarding input (training data for AI), and infringement in the output (AI-produced content). It then notes current efforts to solve these disputes and their insufficiencies.This section then traces the factors that govern these disputes that would make Kleros an appropriate fit for solving them. The idea is to see if the fuss indeed fits the forum, and not to fit the forum to the fuss[8]. It is shown that the former is the case. The second chapter then (II) traces relevant legal framework for AI's IPR disputes that would be relied upon to imagine a possible AI IPR dispute resolution mechanism via Kleros. This paper relies on various jurisdictions such as the US, EU, Singapore, India, etc. to offer a holistic framework. The third chapter (III) offers an AI Art's IPR Dispute Resolution Model In Kleros. Various stages of this dispute resolution are expanded upon. The paper proposes an integration with Digital rights mechanism based on Blockchain could be initiated as effective evidence and enforcement for this Intellectual Property Dispute. Digital rights mechanism is the management of access to digital content and other legal rights through technological

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[1] Midjourney, Generative AI art model, https://www.midjourney.com/.
[2] Stability AI, Generative AI art model, https://stability.ai/.
[3] DALL.E 2, Generative AI art model, https://openai.com/index/dall-e-2/.
[4] James Vincent, *AI art tools Stable Diffusion and Midjourney targeted with copyright lawsuit*, The Verge (Jan. 16, 2023), https://www.theverge.com/2023/1/16/23557098/generative-ai-art-copyright-legal-lawsuit-stable-diffusion-midjourney-deviantart.
[5] Rahul Pillai, *Decentralized Dispute Resolution for Digital Copyright Disputes?,* (Oct. 14, 2023), https://www.theippress.com/2023/10/14/decentralized-dispute-resolution-for-digital-copyright-disputes/.
[6] Kleros, Decentralized Arbitration Service Platform, https://kleros.io/.
[7] Matteo Wong, *Artists Are Losing the War Against AI*, The Atlantic (Oct. 2, 2023), https://www.theatlantic.com/technology/archive/2023/10/openai-dall-e-3-artists-work/675519/.
[8] Barendrecht, Maurits and de Vries, Berend R., *Fitting the Forum to the Fuss with Sticky Defaults: Failure on the Market for Dispute Resolution Services?* (June 2004). https://doi.org/10.1111/j.1571-9979.1994.tb00005.x.

tools and protection measures known as Technological protection measures.[9] Lastly, Chapter (IV) discusses some challenges of the offered model and the way forward. For instance, though this paper primarily focuses on a use case on AI Art's IPR disputes, the paper also seeks to address overall Generative AI IPR disputes (not merely the ones limited to Art).

[9] Nidhi Khurana, *Digital Rights Management: A Technological Protection Measure for Copyright Management* (Manupatra, 2010) available <https://www.manupatra.com/roundup/328/Articles/digital%20rights%20management.pdf>

CHAPTER I: Introduction

This chapter explains the dispute that this paper aims to solve via blockchain arbitration, current efforts to resolve the same and the insufficiency, and reasoning for Kleros could provide an effective forum to address the same.

1. Contents of the AI Art and Artist's IPR Dispute:

Generative AI Art models are raising two types of IPR disputes: one that concerns (a) infringement in training and another regarding (b) infringement in output.

(a) Infringement in Input: AI art models are trained by web scraping[10] which can lead to a copyright infringement[11]. Web scraping in AI Model training involves picking up data from the web to train one's model upon instead of buying or obtaining specialized licensed datasets for the same. Training a model this way translates into an infringement of Artists' rights because their data (artwork) is being accessed and used (for training) by AI models without their permission[12]. In Copyright, the right to access and use of a creation lies with the copyright owner and an owner needs to be asked before using or accessing his creation. Currently, the Artists are not being asked[13], let alone compensated which is the standard modus operandi for accessing or using someone's artwork for another commercial purpose. In this case, AI art models are using the same for a commercial purpose yet not seeking consent from the owners or compensating them for accessing and using their work. This is termed to be infringement in input because this concerns an infringement at the input stage of the AI lifecycle where the AI is being trained by inputs in data.

(b) Infringement in Output: AI art models are also producing artwork that is seeming to be a copy from other artists[14]. This can lead to an infringement at the output

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[10] Sam Davies, *What is AI image scraping, and how can artists fight back?* (Dazed, 24 November 2022) https://www.dazeddigital.com/art-photography/article/57996/1/what-ai-image-scraping-how-can-artists-fight-back-meta-getty-stable-diffusion.

[11] Norton Rose Fulbright, *Infringement risk relating to training a generative AI system*, July 2024, https://www.nortonrosefulbright.com/en/knowledge/publications/ef8d8cce/infringement-risk-relating-to-training-a-generative-ai-system.

[12] *Supra 12.*

[13] *Id.*

[14] Beatrice Nolan, *Artists say AI image generators are copying their style to make thousands of new images — and it's completely out of their control*, Business Insider India (Oct. 16, 2022), https://www.businessinsider.in/tech/news/artists-say-ai-image-generators-are-copying-their-style-to-make-thousands-of-new-images-and-its-completely-out-of-their-control/articleshow/94894992.cms; Clare Hutchinson & Phil

stage. Copyright also includes the right to copy or reproduce a creation. If a creation resembles another copyrighted creation sufficiently, the same can be said to infringe the latter. In AI Art, these violations have become intentional when users can produce artwork explicitly referring to an artist's work and style. This is the dispute at the output stage of the AI lifecycle where the output (AI's creation) is substantially similar to the infringed artist's work.

2. Current Efforts towards Solving the Dispute and their insufficiency:

Though there have been efforts at solving this IPR dispute, the same have been insufficient. There have been two ways the same has been addressed: (a) legal and (b) non-legal.

(a) Legal Efforts to Solve the Dispute: There is only one legal dispute worldwide addressing these issues, highlighting the lack of redressal for such disputes. This case, a class action lawsuit in the U.S., was necessary because individual artists do not have the resources to pursue legal remedies on their own. This lawsuit, filed by artist Sarah Anderson, Kelly McKernan, and Karla Ortiz in January 2023, exemplifies the barriers artists face in seeking and enforcing their rights due to additional costs. The same was then dismissed in October 2023 on the grounds of a lack of registration of contested copyright materials, amongst more.[15]

In November 2023, an amended complaint was filed which added 7 more artists as plaintiffs: Gerald Brom, Adam Ellis, Julia Kaye, Gregory Manchess, Grzegorz Rutkowski, Hawke Southworth, and Jingna Zhang and added Runway AI apart from Stability AI, Midjourney and DeviantArt as the original defendants. It argued the presence of a distinctive mark such as the Artist's signature ought to preclude the registration requirement.[16] The case remains inconclusive as of now but The court in August 2024 has now allowed key claims to proceed[17], and will hold heavy implications for this field of inquiry.[18]

John, *AI: Digital artist's work copied more times than Picasso*, BBC (20 Jul. 2023), https://www.bbc.com/news/uk-wales-66099850.

[15] Mike Masnick, *Judge Dismisses Most Of The First Of The Many 'How Dare AI Train On My Material' Lawsuits*, TechDirt (Nov. 1, 2023), https://www.techdirt.com/2023/11/01/judge-dismisses-most-of-the-first-of-the-many-how-dare-ai-train-on-my-material-lawsuits/

[16] Carl Franzen, *The Copyright Case Against AI Art Generators Just Got Stronger With More Artists And Evidence*, VentureBeat (Dec. 1, 2023), https://venturebeat.com/ai/the-copyright-case-against-ai-art-generators-just-got-stronger-with-more-artists-and-evidence/

[17] Winston Cho, *Artists Score Major Win in Copyright Case Against AI Art Generators*, 13 Aug. 2024, www.hollywoodreporter.com/business/business-news/artists-score-major-win-copyright-case-against-ai-art-generators-1235973601/.

[18] Sophia Williams, *AI and Artists' IP: Exploring Copyright Infringement Allegations in Andersen v. Stability AI Ltd.*, Centre for Art Law (Feb. 26, 2024),

(b) Non-Legal Efforts to Solve the Dispute:

(i) For infringement in input, the artists have started relying on technological tools such as Glaze[19] and Watermarking.[20] Glaze is a tool that aims at *"disrupting style mimicry"* done by AI art models.[21] It does so by making minimal changes to artworks that create a substantial difference for AI models but remain practically unchanged to human eyes. This ensures that even if the artwork is accessed and used in training by AI models without consent the same cannot be entirely exploited by creating distortions. However, the same also has limitations. For instance, the changes are visible on art with flat colours and smooth backgrounds. Nightshade[22] is another such tool. This phenomenon is being described as poisoning the data to retaliate.[23] However, at the core of it the infringement still remains, the artwork is still being accessed and used without consent of the artist, even though the same is not the original version anymore.

Another technological tool being used by artists is Watermarking.[24] A watermark is a marker that is added to digital art that aids in copyright identification. Watermarks are like a name tag on some artwork. Watermarks usually cannot be removed and show up in the final artwork by Generative AI in some mutilated form should the AI model train on such images. Watermarking helped Getty identity infringement and file for the same against Stability AI, an AI art model.[25] However, the same issue that lies with Glaze also lies here: the infringement still remains, the artwork is still being accessed and used without consent of the artist, even though the same has a watermark.

Another possible solution has been adding a robots.txt file to one's website as an artist. A robots.txt file is used to convey reservations towards having the website's data scraped by web crawlers. However, the same is not of a legally binding nature and is merely an ethical edict. With the advent of AI companies, this basic

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https://itsartlaw.org/2024/02/26/artificial-intelligence-and-artists-intellectual-property-unpacking-copyright-infringement-allegations-in-andersen-v-stability-ai-ltd/

[19] The Glaze Team, *What is Glaze*, Glaze, https://glaze.cs.uchicago.edu/what-is-glaze.html.

[20] Tammy Xu, *With AI Watermarking, Creators Strike Back*, IEEE Spectrum (Apr. 21, 2023), https://spectrum.ieee.org/watermark-ai.

[21] *Id.*

[22] Shawn Shan, Wenxin Ding & Josephine Passananti, *Nightshade: Prompt-Specific Poisoning Attacks on Text-to-Image Generative Models*, https://arxiv.org/pdf/2310.13828.

[23] T.J. Thomson, *Data poisoning: how artists are sabotaging AI to take revenge on image generators*, (Dec 17, 2023, The Conversation), https://theconversation.com/data-poisoning-how-artists-are-sabotaging-ai-to-take-revenge-on-image-generators-219335.

[24] Tammy Xu, *With AI Watermarking, Creators Strike Back*, IEEE Spectrum (Apr. 21, 2023), https://spectrum.ieee.org/watermark-ai.

[25] James Vincent, *Getty Images Is Suing the Creators of AI Art Tool Stable Diffusion for Scraping Its Content,* The Verge (Jan. 17, 2023), https://www.theverge.com/2023/1/17/23558516/ai-art-copyright-stable-diffusion-getty-images-lawsuit.

social contract of internet netiquette is also falling apart.[26] Another downside of using robot.txt for artists can be their visibility. Using robots.txt can also affect their visibility in search engines.[27] This naturally holds concerns for artists who struggle with their visibility and monetization of the art online, and often take years to form an audience.

(ii) For infringement in output, no technological or notable non-legal resistances can be identified from the artists' side for this problem. The only other technological solution currently noted is the employment of adversarial attacks[28] by companies before releasing their AI models to ensure they are not engaging in Art violations. This involves AI model testing itself pre-emptively for any possible violations before such a model is released out in the public. However, the same puts an onus on a sector that is already vehemently engaged in such violations.

3. Kleros' as an effective mechanism for this IPR Dispute:

As explored in the sections above, artists are largely left remediless for their intellectual property violations. The legal route has so far not resulted in any substantial precedent or remedy. The sole case remains inconclusive as of now. The artists are largely bereft of a remedy as their individual efforts have not yielded any substantial result. As discussed above, watermarking and tools like Glaze also remain ineffective remedies. Corporate tools such as pre-release adversarial attacks are barely used. It is in this context of a clearly insufficient justice mechanism or larger dispute resolution ecosystem that a tool like Kleros becomes incredibly pertinent. Decentralized justice could be a highly appropriate fit for addressing scenarios like the one being explored here.

Kleros is a Blockchain based decentralized arbitration platform that resolves disputes in a fair, transparent and efficient manner by utilizing game theory principles, and anonymity to effect an alternative decentralized justice system.

The reasons why Kleros' dispute resolution mechanism could offer an appropriate solution are many. Here are some of the following: (a) the international nature of disputes, (b) costs involved, (c) the uniform and standard nature of copyright, (d) security, (d) convenience, and (e) and speed, amongst others.

Firstly, one needs to consider the undeniably (a) international nature of these disputes. Often artists whose work an AI model is trained on are spread throughout the world. It is also not uncommon for data to be trained in some other country and the resultant model to be sold/supplied in some other jurisdictions to avail economic and regulatory

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[26] David Pierce, *The Text File That Runs the Internet*, The Verge (Feb. 14, 2023), https://www.theverge.com/24067997/robots-txt-ai-text-file-web-crawlers-spiders.
[27] *Supra 14.*
[28] Chumeng Liang et al., *Adversarial Example Does Good: Preventing Painting Imitation from Diffusion Models via Adversarial Examples*, (2023), https://doi.org/10.48550/arXiv.2302.04578.

advantages (varying IPR regimes) based on different jurisdictions. Though instruments such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), 1994 have aimed towards standardization in IPR regimes throughout the globe, undeniable differences – especially towards AI and training still exist. For example, Japan has made explicit an exemption for copyright infringement for all AI training regardless of consent and legitimacy, offering an incredibly attractive venue for training purposes.

Relevantly, Kleros can be said to comply with core principles of due process such as independence, impartiality, jurisdiction, effectiveness and accessibility, liberty, legality, expertise and procedural fairness[29] - making it potentially compliant with the international arbitration legal regime. This becomes especially relevant when considering the enforceability of these awards. A positive example that emerges from the Mexican court which enforced such an award[30] shows Kleros' potential for interacting with national arbitration laws as well. International arbitration relies on national laws to be effective for enforcement, etc.[31] Since Kleros has already demonstrated enforcement interaction with a national law and can arguably comply with the international arbitral regime as well, its application for these international AI art disputes can be appropriate. A possibility for using Kleros has also been contemplated before by previous Kleros Fellow, Paolo Archila where he remarked on the relevance of Kleros as an appropriate international forum for intellectual property rights dispute resolution in the light of the rise of exponential creativity.[32]

Apart from the legal involvement, on a private level as well, Kleros offers ease to international actors who only need to be registered on the Kleros ecosystem on a low cost (discussed below more) to resolve this dispute, as opposed to inequality between the parties[33] that can manifest in traditional international arbitration. Moreover, such a private resolution mechanism in the international intellectual property rights context can also be seen in YouTube's Content ID Copyright Management system. Though the same is not peer to peer, and the appeal system in addition to the overall ecosystem leaves much to be desired.[34] Kleros offers an undeniable advantage over present systems where it offers a robust appeals mechanism, and a peer-to-peer system fostering trust, inclusivity, and accessibility.

Secondly, one of the key reasons for Kleros' appropriateness is the consideration around

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[29] Dmitry Narozhny, *Is Kleros Legally Valid as Arbitration?* Kleros (Jun. 12, 2019), https://blog.kleros.io/is-kleros-legally-valid-as-arbitration/.

[30] Maxime Chevalier 'Arbitration Tech Toolbox: Is a Mexican Court Decision the First Stone to Bridging the Blockchain Arbitral Order with National Legal Orders?' (*Kluwer Arbitration Blog*, 4 March 2022), https://arbitrationblog.kluwerarbitration.com/2022/03/04/arbitration-tech-toolbox-is-a-mexican-court-decision-the-first-stone-to-bridging-the-blockchain-arbitral-order-with-national-legal-orders/.

[31] *The law governing the arbitration agreement: Why we need it and how to deal with it*, International Bar Association, www.ibanet.org/article/699fd751-0bd4-4a15-bf84-e2542a8219c9.

[32] *Supra 5.*

[33] https://www.hfw.com/app/uploads/2024/04/003468-Core-issues-in-international-arbitration.pdf

[34] Bytescare, *Youtube Copyright System is Broken – Copyright Crisis*, BytesCare Blogs, (Dec. 6, 2023), https://bytescare.com/blog/youtube-copyright-system-is-broken-copyright-crisis

(b) economic costs involved in these disputes. There lies a great economic disparity between the alleged infringers (Big Tech AI Art models) and individual small-dispersed artists. Additionally, copyright litigation traditionally is prohibitively expensive.[35] This is why the sole legal action associated with this dispute is in the form of a class action lawsuit. Individual lawsuits for artists are not a financially viable option. It is again against this backdrop Kleros becomes an attractive and possible option. Its financial viability helps increase access to justice which remains strained as of now for the AI art copyright disputes. For reference, an average copyright infringement dispute in a US Court can have $400 as filing fees[36], $200 to $800 per hour for attorney charges[37], and $250 to $1,000 per hour for expert charges[38], whereas an entire Kleros dispute can be $100[39].

Thirdly, another reason for Kleros being an appropriate forum for AI's IPR disputes can be (c) the uniform and standard nature of copyright remedies. Removal of infringing content (takedown), compensation, injunctions, are standard copyright remedies. Some such as providing compensation or royalties can be executed on-the-chain through smart contracts via connecting wallets. These royalties are standard and uniform in the sense that they can include fixed percentages or fees, both of which can easily be done on a chain. [40] However, the rest might require court involvement such as the Mexican example to ensure enforcement. But both remain easily addressed by the current Kleros ecosystem. .

Fourthly, the (d) convenience offered by Kleros over other dispute mechanisms such as the court is a key reason for its appeal. All parties need to do is be registered on the system, file a claim, and proceed with the dispute process. As opposed to lengthy process requirements in traditional copyright disputes. The steps in a traditional copyright dispute such as in the US involve registration, infringement identification, cease and desist, filing a lawsuit, pre-trial motions, post-trial motions and enforcement, all of which also have sub-steps, documentation, costs and delays. Whereas in Kleros, the steps are registration on Kleros of the parties, filing a dispute, dispute resolution and appeal, if needed.

This naturally leads to one of the greater advantages of Kleros over other systems which includes (g) speedier justice. The litigation was filed in January 2023 and is still inconclusive. On average, copyright litigation takes years, while a Kleros decision is

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[35] Scott Alan Burroughs, *Copyright Litigation: Now More Expensive And With More Delay Than Ever Before!*, Above The Law, (Mar. 13, 2019), https://abovethelaw.com/2019/03/copyright-litigation-now-more-expensive-and-with-more-delay-than-ever-before/

[36] Bytescare, Average Cost of Copyright Infringement Lawsuit, June 24, 2024, https://bytescare.com/blog/average-cost-of-copyright-infringement-lawsuit.

[37] *Id.*

[38] *Id.*

[39] Federico Ast, Kleros, a *Decentralized Court System for the Internet (Abridged)*, Kleros (Sept. 18, 2017), https://medium.com/kleros/kleros-a-decentralized-court-system-for-the-internet-abridged-1e415c04604a.

[40] https://www.royaltyrange.com/home/blog/intellectual-property-royalties-everything-you-need-to-know

reduced to days. For instance, an early version totalled merely 84 hours for a decision.[41] This is highly relevant since litigators usually charge clients per hour. Another reason for speedier enforcement is also because of the possibility of on-chain enforcement in Kleros which could be instantaneous for remedies such as royalties or compensation.

[41] Stuart James, *Doges On Trial-Pilot Explainer*, Medium, (Jul. 31, 2018), https://medium.com/kleros/doges-on-trial-pilot-explainer-911492c3a7d8

CHAPTER II:
Relevant Legal Framework for the AI IPR Dispute

This chapter introduces the legal framework that would be relied upon to imagine a possible AI IPR dispute resolution mechanism via Kleros. This paper relies on various jurisdictions such as the US, EU, Singapore, India, etc. to offer a holistic framework. The elements can be clubbed together in different jurisdictions as can be noted below. As discussed above, AI art disputes can be divided into two parts: the ones regarding infringement in input, and the other ones involving infringement in output. The accompanying legal frameworks are delineated as follows:

(I) Infringement regarding input: One of the two main subject matters is a copyright infringement dispute arising from training on various artists' work unauthorizedly for an AI art model. At large, the question here is: Is the use of an Artist's work in training AI models an infringement of their copyright? The common argument regarding this case is that using Artist's work for training AI model falls under fair use or otherwise falls under the much-noted "TDM research" exception for Machine learning and AI (the specifics depend upon the concerned jurisdiction). Another approach is the levying reservations, and a "fine-until objected to" approach, this is in line with the affirmative defense for fair use[42].

1. The Fair Use/Dealing Exception

The first exception is "fair use" in the US.[43] Overall, these principles of fair use are referred to as "fair dealings" in both the UK[44], and Indian context[45]. Similar exceptions also find place in Singapore as well.[46].

Fair use or fair dealing exceptions deal with use of copyrighted works without permission but are allowed to not attract infringement since they hold a larger public interest element while balancing the interest of right holders.[47] Here are two jurisdictions

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[42] Seen in Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569 (1994) for US.
[43] 17 U.S. Code § 107.
[44] Intellectual Property Office UK, *Guidance: Exceptions to Copyright*, (Jan. 4, 2021), https://www.gov.uk/guidance/exceptions-to-copyright.
[45] Archi Jain, *Deciphering the Doctrine of Fair Dealing in the Indian Copyright Context*, Mondaq (Nov. 8, 2023), https://www.mondaq.com/india/copyright/1386520/deciphering-the-doctrine-of-fair-dealing-in-the-indian-copyright-context.
[46] Part 5, Singapore's Copyright Act, 2021, https://sso.agc.gov.sg/Act/CA2021?ProvIds=P15-.
[47] Mihir Wagh,Fair Dealings And Fair Use: Critically Analysing The Copyright Exemption Doctrines In Place In India And The United States, (Aug 29, 2022, Manupatra),

and there analysis:

For the US: Fair use usually involves a determination of four factors to determine whether an infringement could fall under the broader category of fair use and escape liability. These are usually as follows: (i) the purpose and character of your use, (ii) the nature of copyrighted work, (iii) the amount and substantiality of the portion taken, and (iv) the effect of the use upon the potential market (economic analysis).[48]

Before delving into an analysis of fair use, one has to also ensure that no affirmative defence of fair use is levied on the account that there hasn't been a claim against it. For instance, in the US, DMCA claims which do not require infringement claims render the affirmative defense of fair use inapplicable.[49] After this is addressed, the court can move into determining how Generative AI interacts with various fair use factors.

Firstly, considerations about the purpose and character of your use needs to be considered. This is where determinations regarding transformative works are made. Transformative use often adds "new expression, meaning or message".[50] The purpose is usually to promote creativity, commentary and public discourse.

One of the arguments here is that AI essentially makes something entirely new, its offering isn't a mere repurposing or an addition to more expression, meaning or message, but a fundamentally new creation[51] which puts it out of the purview of transformative use; and hence out of purview for fair use. Additionally, another ruling to be considered is that of Warhol v. Goldsmith where the court excluded a use to be transformative on the account of it targeting the same market as the original work, this is significant because the court seemed to blur the lines between first factor of purpose and nature of use and fourth factor of economic analysis.[52]

Though derivative works fall out of the purview of AI Art inquiry in this case, and the article is looking at purely transformative use for a fair use exception, the court's tendency to inflate the two factors holds persuasive implications for our proposition. One of the larger arguments that found favour to exclude the Training, Data and Mining (TDM) exception as well (discussed below) was that of competing with the same market of the content that an AI model was trained on. The same economic consideration will loom large for fair use analysis as well. This newfound primacy of the fourth factor will

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https://articles.manupatra.com/article-details/FAIR-DEALINGS-AND-FAIR-USE-CRITICALLY-ANALYSING-THE-COPYRIGHT-EXEMPTION-DOCTRINES-IN-PLACE-IN-INDIA-AND-THE-UNITED-STATES.

[48] Rich Stim, *Measuring Fair Use: The Four Factors*, Stanford Copyright and Fair Use Center (Apr. 4, 2013), https://fairuse.stanford.edu/overview/fair-use/four-factors/.

[49] Cherie M Poland, *Generative AI and US Intellectual Property Law*, arXiv, (2023) https://doi.org/10.48550/arXiv.2311.16023

[50] Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569 (1994).

[51] Giancarlo Frosio, *Generative AI In Court,* in Nikos Koutras and Niloufer Selvadurai (eds), Recreating Creativity, Reinventing Inventiveness - International Perspectives on AI and IP Governance (Routledge, 2023).

[52] https://www.law.nyu.edu/news/magazine/intellectual-property-art-commerce.

inevitably push the case against AI Art's Copyright Proponents.
Secondly, considerations regarding the nature of copyrighted work also loom large. Open licensed content material such as the one in Creative Commons etc. will not raise any training infringement concerns for AI art models. This is because differently licensed copyrighted material gives different permissions. Open licensed material allows all users to access it.[53] The nature of the alleged material and its licensing and accompanying permissions will decide its infringement concerns.

Thirdly, the amount and substantiality of the portion taken is another metric. This involves the de minimis exception which holds that if the portion utilised is too small or insubstantial there ought to be no violation.[54] This remains rightly irrelevant for the training infringement equation for AI art models, or Generative AI models in general since they need swathes of training data to be effective in the first place.

Fourthly, and perhaps most importantly, is the effect of the use upon the potential market. This refers to the economic analysis that is undertaken while evaluating fair use exemptions. Here, the market analysis for Generative AI training infringement would require comparing the market for works that it was trained on and the work it inevitably produces owing to such training.

Herein lies the heart of the tussle where artists' works have been trained on by AI models and these AI models themselves seem to be replacing these artists. This is also similarly argued by Getty which remarks that its licensing market is being affected.[55]

For the UK: The court have developed two relevant factors[56] to assess fair dealing:

- Whether the use of the work affects the market of the original work; and
- Whether the amount of work taken is reasonable and appropriate, and if the same is necessary to be taken.

The first factor is the same as the US' last factor and the most important one for the AI Art IPR disputes. The question asked in consonance with these factors is: how would a fair minded and honest person have dealt with the work. [57] Depending upon choice of law for the parties, either of these models could be followed.

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[53] LibGuides: Open Educational Resources (OER): What's an Open License?, LibGuides at California State University Dominguez https://libguides.csudh.edu/c.php?g=679215&p=7626572.
[54] Sandoval v. New Line Cinema Corp., 973 F. Supp. 409 (S.D.N.Y. 1997).
[55] Katharina de la Durantaye, *Garbage In, Garbage Out. Regulating Generative AI Through Copyright Law*, ZUM 10/2023, 645-66, (August 28, 2023), http://dx.doi.org/10.2139/ssrn.4572952.
[56] *The Copyright Bargain: Fair use in the United States and the United Kingdom*, Enhelion Blogs (Mar. 16, 2021), https://enhelion.com/blogs/2021/03/16/the-copyright-bargain-fair-use-in-the-united-states-and-the-united-kingdom/.
[57] Intellectual Property Office, Exceptions to Copyright, (Mar. 10, 2021, 11:17 AM), https://www.gov.uk/guidance/exceptions-to-copyright.

2. The Training Data and Mining Exception

Interestingly, apart from a pure fair use analysis, it is settled case law in the US that copying for purposes of TDM is fair use.[58] In Japan, the authorities have been the most liberal in this sentiment. There lies an explicit TDM exception for training AI.[59]

However, the anti-copyright stance for Generative AI noted in the traditional fair use analysis, also extends for TDM in the US. Right holders argue that Generative AI's end purpose of training is to essentially produce a creation which could compete with the training data itself (this purpose is also decried in traditional fair use factorial analysis) – which separates it from Traditional TDM Exception rendering any such application to be arguably misplaced.[60]

The EU does offer a TDM exception but that also requires lawful access first.[61] In this case, an infringement would not occur by training with the data, unlike the US, it will merely occur if it is unlawfully accessed. A way to determine whether the content trained on was lawfully accessed is to compare it to the touchstones under Article 4 in the EU Directive 2019/790 (CDSMD) – which provides an opt-out provision for owners of the concerned data for training and mining. If a reservation so levied is expressed in any manner such as a robots.txt file, it will paint such data as unlawful content for this infringement analysis. Notably, none of these considerations are relevant to the Japanese context altogether.[62]

(II) Infringement regarding output: The other dimension where AI art can infringe the rights of copyright holders is regarding the output it produces. The input stage is focused upon violations largely in the right to access, and modify. The output stage involves violations largely in the copyright owner's right to reproduce by 'copying' the original artwork. This can occur when the output produced by an AI art model resembles an existing art piece. This is similar to general copyright where 'copied' artworks are

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[58] Joshua Love & Lucile Bouhanna, *Text and data mining in US*, ReedSmith (Feb. 5, 2024), https://www.reedsmith.com/en/perspectives/ai-in-entertainment-and-media/2024/02/text-and-data-mining-in-us#:~:text=The%20U.S.%20apprehends%20TDM%20through,use%20is%20deemed%20%E2%80%9Ctransformative.%E2%80%9D.

[59] *Japan's Text and Data Mining (TDM) Copyright Exception for AI Training: A Needed and Welcome Clarification from the Responsible Agency*, (Mar. 10, 2024), https://hughstephensblog.net/2024/03/10/japans-text-and-data-mining-tdm-copyright-exception-for-ai-training-a-needed-and-welcome-clarification-from-the-responsible-agency/.

[60] *Supra 14.*

[61] Kalpana Tyagi, *Generative AI: Remunerating the human author & the limits of a narrow TDM Exception*, Kluwer IP Law Blog (Dec. 13, 2023), https://copyrightblog.kluweriplaw.com/2023/12/13/generative-ai-remunerating-the-human-author-the-limits-of-a-narrow-tdm-exception/.

[62] Hugh Stephens, *Japan's Text and Data Mining (TDM) Copyright Exception for AI Training: A Needed and Welcome Clarification from the Responsible Agency*, (Mar. 10, 2024), https://hughstephensblog.net/2024/03/10/japans-text-and-data-mining-tdm-copyright-exception-for-ai-training-a-needed-and-welcome-clarification-from-the-responsible-agency/.

infringing. The principle of substantial similarity in the 'US' is one such illustration.[63] The rights of artists are violated when the Artwork produced by an AI model is 'substantially similar' to that of the original artist's artwork – here the violation occurs at the output stage.

During AI model training, there lies a constant process of decomposition, abstraction, and remix.[64] Though AI does not 'directly' copy from artworks[65], the same does not make any difference since Copyright infringement violations remain intent-agnostic in many jurisdictions. For example in the US, which views this as a strict liability offence,[66] it is immaterial that the AI model did not directly copy it, the fact that the output is substantially similar to the alleged material, and it can be shown that the AI model had access to the data, it's enough.[67] Here, direct reliance and exactitude are not necessary, merely a 'likelihood of copying'[68] will also suffice.

The infringement lies on the 'protected expression' of a work[69] that is why cases for style violations might not fly owing to the idea-expression dichotomy in intellectual property rights. In summary, to establish an infringement by AI Art model at the output stage, three things must be considered: whether the alleged infringer had access to copyrighted material (Artists' art in training datasets for the AI model), whether the output so produced is substantially similar to the alleged-infringed copyright item (the alleged artists' artwork the model is trained upon) and even if the first two conditions are met, could it still fall under the fair use exceptions via being derivative or transformative work.

3. Access and substantial similarity

Since intent is immaterial, 'innocent' copying does not work as a defence and the focus shifts to proving access to see whether an 'improper appropriation' of a 'protected expression' has occurred. Apart from the US, this line of thinking is also visible in the Indian Copyright Act. Though Section 55(1) provides a defence for 'innocent infringement' the same is to be established by proving that he was not aware and had no reasonable basis that copyright existed, both of which can easily be disproved by proving 'access'. Therefore, overall, the first requirement is likely to be proving that there had been access to the artwork that the AI Art model seems to be infringing.
After access is proven, the second step is to assess whether the output of an AI Art

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[63] Khurana And Khurana, *Scrutinizing Substantial Similarity In Copyright Law*, Privacy (Nov. 16, 2021), https://www.mondaq.com/india/copyright/1132284/scrutinizing-substantial-similarity-in-copyright-law.
[64] Matthew Sag, *Copyright Safety for Generative AI*, Published in Houston Law Review (Dec. 11, 2023), https://houstonlawreview.org/article/92126-copyright-safety-for-generative-ai.
[65] *Id.*
[66] Bright Tunes v. Harrison, 420 F. Supp. 177, 181 (SDNY 1976).
[67] Michael D. Murray, *Generative AI Art: Copyright Infringement and Fair Use* (Aug. 25, 2023), http://dx.doi.org/10.2139/ssrn.4483539.
[68] *Id.*
[69] Daniel J. Gervais, *AI Derivatives: the Application to the Derivative Work Right to Literary and Artistic Productions of AI Machines*, Seton Hall Law Review, Vol. 53, 2022, Vanderbilt Law Research Paper No. 22-12, (Feb. 8, 2022), http://dx.doi.org/10.2139/ssrn.4022665.

model infringes the alleged Artistic artwork. The core of this infringement in the right of reproduction will be determined by noting similarity. This analysis can be seen in US[70], India[71], UK[72], and Japan. The court must ask whether two works are "extrinsically similar because they contain substantially similar ideas that are subject to copyright protection" and "intrinsically similar" from how they are received by the audience.[73] It's also important to see that the similarity is substantial. For instance, the UK in Designer's Guild v Russell Williams notes that similarity must be substantial and the same shall be determined qualitatively and not quantitatively.

4. The fair use/dealing exception

Even if the above two criteria are met: fair use provisions could still ward off liability from AI art models. For instance, three such exceptions could be caricature, parody, and pastiche.[74] A fair use determination in the four-factor determination of (i) the purpose and character of your use, (ii) the nature of copyrighted work, (iii) the amount and substantiality of the portion taken, and (iv) the effect of the use upon the potential market (economic analysis) – would include assessing whether the output could fall under transformative use, especially so[75] for our purposes.

Let's continue with the US as an illustrative jurisdiction, however, basic principles can be seen throughout major jurisdictions. Usually, if a work is substantially similar to another work it's usually not seen to be falling under transformative use[76] under the first factor one of fair use determination regarding purpose and character of use. However, in Warhol v. Goldsmith[77] work was said to not be transformative since it targeted the same licensing market as the original work – which refers to the fourth factor of fair use regarding the effect of the use upon the potential market. For our purposes, if a claimant now proves that the AI art model's output is competing directly with the ones it has unlawfully trained upon, transformative use would be out of the picture, apart from the mere primary first factor and substantial similarity and analysis. This should not be particularly difficult since instances of copying artists' style, and traditional artists being replaced by AI models has been doing rounds for quite some time now.

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[70] US Courts for the Ninth Court, *17.17 Copying—Access and Substantial Similarity*, Jury Instructions, https://www.ce9.uscourts.gov/jury-instructions/node/274.

[71] Khurana and Khurana, *Scrutinizing Substantial Similarity in Copyright Law*, Mondaq (Nov. 16, 2021), https://www.mondaq.com/india/copyright/1132284/scrutinizing-substantial-similarity-in-copyright-law.

[72] Eric Osterberg, *Copyright Litigation: Analyzing Substantial Similarity*, Thomson Reuters Practical Law (2024), https://uk.practicallaw.thomsonreuters.com/5-524-1501?transitionType=Default&contextData=(sc.Default)&firstPage=true

[73] *Supra 34.*

[74] Andres Guadamuz, *A Scanner Darkly: Copyright Liability and Exceptions in Artificial Intelligence Inputs and Outputs*, GRUR International, Volume 73, Issue 2, Pages 111–127, (Feb. 2024), https://doi.org/10.1093/grurint/ikad140.

[75] *Id.*

[76] *Supra 14.*

[77] Andy Warhol Foundation for the Visual Arts v. Goldsmith et al, 598 U.S (2023).

CHAPTER III.
AI Art's IPR Dispute Resolution Model In Kleros

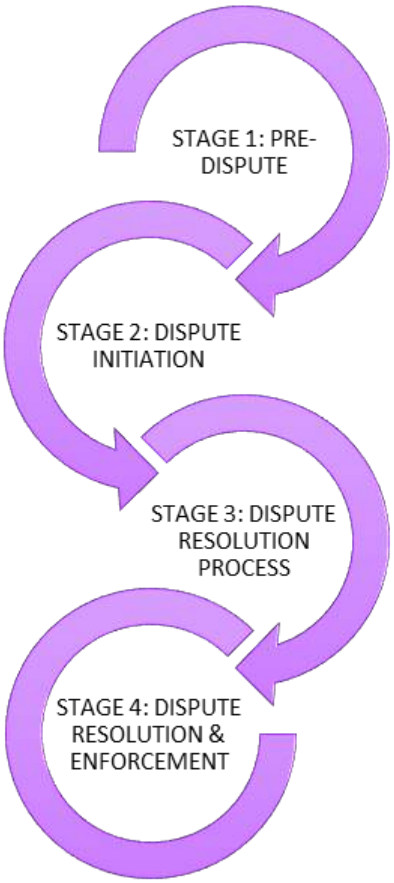

Figure 1: Stages in AI Art's IPR disputes in Kleros

5. Stage 1: Pre-dispute

This stage is the part that arises before a viable dispute is opened in the Kleros ecosystem. This involves mainly concerns regarding jurisdiction, and evidence availability. This assumes that Kleros must have been chosen as a legitimate dispute resolution mechanism for this dispute and also would have the functionality and wherewithal to handle the same as and when it arises. An example of this was seen in the Mexican land dispute case where the agreement specifically called for Kleros as the concerned arbitrator should a dispute arise.[78]

[78] *Supra 34.*

Moreover, this would also assess questions like existence of a valid copyright, without which a dispute cannot be initiated. The shape of the validity cannot be more fluid, since as argued above, registration might not be viable for digital artists in our case. This is also where the first intersection with Digital Rights Management Technologies ("DRM" hereon) begins. DRM refers to the software and hardware that defines, protects and manages rules for accessing and using digital content (text, sounds, videos, etc.)."[79]
Here, the interoperability that can arise from DRM systems based on Blockchain. These systems aim to usher an entirely separate intellectual property and copyright regime. The most common imaginations range around storage and trading on the chain for copyright owing to the excellent record-keeping capabilities of Blockchain and ease of transactions with smart contracts. Smart contracts could be used to maintain automated licensing and remuneration systems. Examples range from code copyright management systems[80][81] to a general one emphasizing for protection and traceability[82]. Apart from that, copyright detection systems[83][84] have also found a note. For instance, One of them makes use of smart contracts to recognise and reject manipulated photographs that are identical to ones that are already available in the market.[85] Another one uses watermarks and blockchain for the same.[86]

Blockchain technology can be a game changer in creator remuneration, an aspect also discussed below the Kleros context for AI Art disputes. Blockchain can play a twofold role in this case: by enabling payments similar to the extant ones through current platforms, and by opening up uses currently licensed through statutory or compulsory licenses and collective rights management schemes to smart contract licensing.[87]

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[79] Bill Rosenblatt and Gail Dykstra, I*ntegrating content management with digital rights management: imperatives and opportunities for digital content lifecycles*, 2003 Giantsteps Media Technology Strategies and Dykstra Research, https://robertoigarza.wordpress.com/wp-content/uploads/2010/03/art-integrating-content-management-with-digital-rights-management-vvaa-2003.pdf.

[80] Nan Jing, Qi Liu & Vijayan Sugumaran, *A Blockchain-Based Code Copyright Management System*, 58 Info. Processing & Mgmt. 102518 (2021), https://doi.org/10.1016/j.ipm.2021.102518.

[81] *Id.*

[82] Zhaofeng Ma, Ming Jiang, Hongmin Gao & Zhen Wang, *Blockchain for Digital Rights Management*, 89 Future Generation Computer Sys. 746 (2018), https://doi.org/10.1016/j.future.2018.07.029.

[83] Zhenhua Chen, Yan Wang & Tao Ni, *DCDChain: A Credible Architecture of Digital Copyright Detection Based on Blockchain* (2022), https://doi.org/10.48550/arXiv.2010.01235.

[84] Zhang Qiu-yu, Guo-rui Wu, Rui Yang & Jia-yan Chen, *Digital Image Copyright Protection Method Based on Blockchain and Zero Trust Mechanism*, Multimedia Tools & Applications 1 (2024), https://doi.org/10.1007/s11042-024-18514-3.

[85] Rishabh Mehta, Naman Kapoor, Soumya Sourav & Rajeev Shorey, *Decentralised Image Sharing and Copyright Protection using Blockchain and Perceptual Hashes*. In: 2019 11th International Conference on Communication Systems & Networks (COMSNETS). IEEE; 2019. pp. 1–6, https://doi.org/10.1109/COMSNETS.2019.8711440.

[86] Ma Zhaofeng, Huang Weihua & Gao Hongmin, *A new blockchain-based trusted DRM scheme for built-in content protection*, J Image Video Proc. 2018, 91 (2018), https://doi.org/10.1186/s13640-018-0327-1.

[87] Balázs Bodó, Daniel Gervais & João Pedro Quintais, *Blockchain and smart contracts: the missing link in copyright licensing?*, International Journal of Law and Information Technology, Volume 26, Issue 4, Winter 2018, Pages 311–336, https://doi.org/10.1093/ijlit/eay014.

DRM on blockchain can help greatly reduce transaction costs and enable effective licensing. Where works have a relatively small value, but have a relatively large number of users and right holders, prohibitively high transaction costs prevent efficient licensing. Transaction costs include identifying and matching rights holders and users, the high costs of monitoring use, the costs of enforcement, and the complexities of setting the price and negotiating the terms of use.[88] In the case of AI art disputes where the use of their artwork in a model is incredibly relatively small and thus compensation and control of the same highly challenging, a system of DRM such as one on Blockchain can be highly attractive.

The DRM systems which can be possible can be either privately hosted or hosted by national or international bodies such as the WIPO. It is remarked that for a registry on blockchain hosted by WIPO, a need for adjudicatory/ dispute resolution side by side is imminent to ensure its effectiveness.[89] This opens a gap for a blockchain based dispute resolution system that is offered by Kleros. All these can be integrated with the larger Kleros ecosystem which is aiming at ushering an under haul of current legal systems overall and becoming more mainstream and real life (see layer 2 kleros)[90]. This confluence of an alternative Blockhead based decentralized justice with Blockchain based DRM (essentially an alternative copyright system as well) can harmonize to mainstream the implications of Blockchain arbitration's current silos. An example of a blockchain based DRM system can already be seen for video context.[91]

How this can operate for this specific use case is by having Kleros checking contested copyright's existence before a dispute is initiated on the same regarding its secondary infringements. This will aid in readiness of evidence relevant for the dispute and also automate a task. AI can also aid this process by its superior identification, recognition and database search capabilities.

Though, some DRM mechanisms also offer copyright detection which can automate one of the aspects of the legal dispute that we have at hand, the same isn't recommended entirely since these applications cannot make for answering nuanced legal questions such as "fair dealing" exceptions[92] which the jurors in the system would be better fit at answering. Regardless, identifying copyright and its existence can definitely occur with the help of these tools and integration.

A connected IPR ecosystem on Blockchain involving copyright and DRM management on blockchain where Kleros (and decentralized justice overall) can act as one of the aspects

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[88] *Supra 92.*
[89] Annabel Tresise, Jake Goldenfein & Dan Hunter, *What blockchain can and can't do for copyright*, Australian Intellectual Property Journal, Vol. 28, no. 4 (Jul 2018), pp. 144-157.
[90] Federico Ast, *Kleros Layer 2*, Kleros Blog (Feb. 8, 2021), https://blog.kleros.io/kleros-layer-2/.
[91] Shigeru Fujimura, Hiroki Watanabe et al, *BRIGHT: A concept for a decentralized rights management system based on blockchain*, 2015 IEEE 5th International Conference on Consumer Electronics - Berlin (ICCE-Berlin), Berlin, Germany, 2015, pp. 345-346, https://doi.org/10.1109/ICCE-Berlin.2015.7391275.
[92] *Supra 94.*

of adjudication will lead to efficiencies and benefits that isolated elements otherwise would and cannot. Though such technologies have their concerns with storage of metadata, network effects, feasibility, etc.[93]contemplating these systems still becomes imminent owing to the myriad of issues plaguing alternative traditional IPR systems.

Moreover, this might not be as far from our specific AI art problem that we suspect. Tools such as Monegraph and Ascribe help in Digital Rights Management and create artificial scarcity by using Blockchain to help artists. In future, these tools bear further relevance and any systems must also be cognized of the same. Kleros and its integrations could decently address the same as well.

6. Stage 2: Dispute initiation

This stage involves questions regarding initiation of the dispute in the Kleros ecosystem.

The first step involves choosing a specific court (IPR court) in this case. A new sub-court that deals with Intellectual Property Matters would have to be selected for the same. This sub-court would ideally be equipped to connect with integrations such as Blockchain copyright management and DRM systems outside of the Kleros systems. The reasoning for this is two-fold: firstly, it will help identify the alleged object on the broader copyright system and secondly, it will help enforce the outcome of the dispute via necessary smart contract integrations. Oracles could be used to determine the status of alleged content. Underlying all this is the assumption that Blockchain Copyright and DRM systems have been implemented.

However, for the time being that is not an effective reality, this court must also have the ability to interact with off-chain dispute mechanisms such as the territorial courts. This can look like the ability to provide a reasoned order that could be then taken into a court of law and enforced owing to the earlier contractual clause that roped Kleros in as the arbitral authority of the dispute.

This step would also include a choice of law clause. Since various jurisdictions have differing IPR regimes regarding the question regarding Generative AI's IPR violations – it is incredibly important to be clear beforehand about the choice of law. Here the choice of law about substantive matter (IPR) and arbitration law (Lex arbitri) would both have to be decided beforehand. This would also involve identifying exactly the dispute. As discussed above, the AI's IPR disputes can be bifurcated broadly into: infringements in input, and infringements in output. This stage would involve identifying the same. Here after paying the arbitration fees, a dispute is initiated, after juror appointment the dispute resolution process begins promptly.

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[93] Alexander Savelyev, *Copyright in the Blockchain Era: Promises and Challenges*, 34 Computer L. & Sec. Rev. 550 (2018), https://doi.org/10.1016/j.clsr.2017.11.008.

7. Stage 3: Dispute resolution process

After determination of the type of dispute that needs to be resolved, the court will naturally have different legal questions to determine. Interestingly, to resolve this unique techno-legal problem, the author proposes both technological tools and legal analysis by jurors for coming to an appropriate answer.

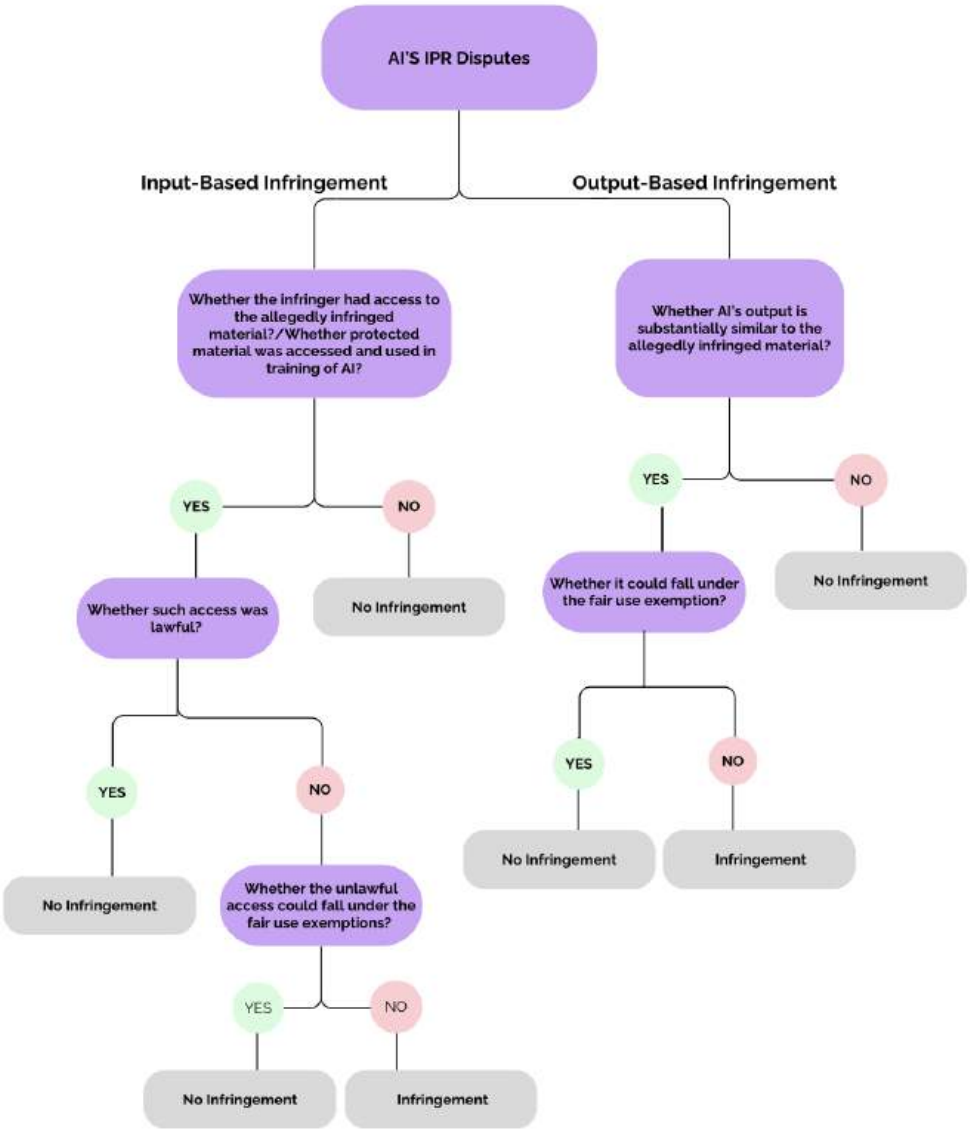

Figure 2: Legal Map of the AI's IPR disputes

Before delving into the process, the legal structure of the entire dispute can be seen in the figure above. This figure is an amalgamation of major legal systems around the world for these disputes, where "fair dealing" for UK and other common law systems can be replaced by the principle of "fair use" seen largely in the US. This discussion can be noted

in detail in Chapter II above.

The dispute resolution process for these disputes involving techno-legal tools is contemplated as follows:

1. **For infringement in input based disputes,** the question is whether the allegedly infringed copyrighted material had been accessed and used in training for the impugned AI Model. Here, employing a watermark detection tool could be employed to answer whether the access was unlawful. For instance, artists are using a tool such as Glaze to discourage being trained upon. This could count as a reservation under EU's jurisdiction and can become a legally relevant fact for answering whether the access was lawful. This is in addition to checking if robots.txt was employed by the concerned copyright holder, which could also act as a reservation and make access unlawful.

   Another question to be answered for this type of dispute is whether there was access altogether, initiatives such as haveibeentrained.com exist to help copyright holders do just that. Since such initiatives have limited success, relying on just that would be incomplete but the court in Kleros should be aware. If Kleros is looking to already integrate into broader DRM systems on Blockchain, any digital ecosystem integration which forms part of the ecosystem should be looked at with an open mind.

   The idea here is to see where legally relevant questions of the dispute could be answered technologically, reliably and objectively. This will help with the overall transparency goal of decentralized justice. However, of course, jurors are irreplaceable in the process. All legally relevant questions cannot be automated via technologically, especially when it comes to Copyright's Fair use Exemption – a factor that remains relevant for this dispute as well. Fair use and its factorial questions would have to be traced in binary for jurors to answer. Harmonizing a possible gap between legally relevant and logically relevant factors would also have to be necessarily worked upon for an effective system.

2. **For infringement in output based disputes,** a similar technology aided dispute resolution mechanism can be employed. Since, for now, a reliable and efficient method which could trace output in an AI model exactly to its inputs remains elusive; we are left to other devices to answer the legal question of substantial similarity. So, we look for analysis of just output in relation to the alleged infringed input apart from its use in the model or otherwise. A tool which aims to do that has been proposed in the musical context[94]. If these tools become effective and widespread, the legal question of determination of substantial similarity will

[94] R.J.S. Cason & Daniel Müllensiefen, *Singing from the Same Sheet: Computational Melodic Similarity Measurement and Copyright Law*, 26 Int'l Rev. L. Computers & Tech. 25 (2012), https://doi.org/10.1080/13600869.2012.646786.

become technologically automated. Apart from that, however, much like the last disputes, the necessity of jurors is still inevitable because the Fair use exemption remains equally relevant here as well.

The traditional intellectual property rights remedies could be injunctions and compensatory damages, Anton Pillon orders (to determine access) in this case. However, other aides can also be noted. Tools such as Stable Attribution and www.haveibeentrained.com seek to determine similarity and access respectively. Both the tools however have their own criticisms and limitations. Perhaps a tool that helps determine similarity could be developed. One such tool is proposed for the musical context.[95] Another paper proposes a tool[96] relying on a partial copyright test but the same remains a theoretical proposition as of now.

8. Stage 4: Dispute resolution & enforcement

After the use of relevant technology is employed and jurors have all come to a Schelling-point-based decision, the dispute's verdict would be released.

The same, if found unfair by the parties, can be appealed via the appellate system available at Kleros. After the jury comes up with a decision in Kleros, any dissatisfied party can then appeal the decision for various instances.[97] In each round, a new jury will be formed with twice as many jurors than the previous instance plus one.[98] The appealing party will be required to make a new deposit in order to pay for arbitration fees.

The type of remedies in both the cases can be as follows: For the US, the remedies for copyright infringement can be: injunctions, impounding and disposition of infringing articles, damages and profits, costs and attorney fees for civil infringement.[99] For the UK, similarly, the remedies can be injunction, damages, account of profits, delivery or destruction of infringing work, and award of costs.[100]

Here is how different remedies can be implemented by the Kleros arbitral award in both off-chain and on-chain enforcement scenarios.

- **Injunction:** One of the most common remedies for Copyright infringement is an injunction, especially in the digital space. Injunctions and their necessity in the digital contexts have given rise to new injunction forms such as dynamic

[95] *Id.*
[96] Yang Zhang et al., *On Copyright Risks of Text-to-Image Diffusion Models* (2023), https://doi.org/10.48550/arXiv.2311.12803
[97] Federico Ast, *Kleros, a Protocol for a Decentralized Justice System*, Kleros (Sept. 11, 2017), https://medium.com/kleros/kleros-a-decentralized-justice-protocol-for-the-internet-38d596a6300d.
[98] *Id.*
[99] Section 501 to 505, https://www.copyright.gov/title17/chapter5.pdf.
[100] UCL, *Remedies (copyright infringement)*, UCL University College London (Jan. 1, 2023), https://www.ucl.ac.uk/art-futures/publications/2023/jan/remedies-copyright-infringement.

injunctions.[101] Injunction is a remedy which involves restraining a person from beginning or continuing an action threatening or invading someone's legal right. In this case, an injunction in the case of infringement in input would mean that the AI company would stop using/accessing the infringed content in its training after such an order is passed. This is technologically quite challenging. Since the portion that would be used might be so miniscule that tracing the same might become incredibly challenging and essentially the entire AI model would have to be discontinued, a better remedy in this case would then be damages instead.

For infringement in output, which would spell infringement on account of copying/similarity, an injunction would involve the infringed content being taken down/ removed from public access/commercial use, or any use or access as desired by the infringed party. This is because hosting such content will continue infringing action which needs to be stopped. On-chain enforcement of the same can be possible in a futuristic scenario where content is hosted on a blockchain registry which makes DRM also possible. This can be a sub-category of ODR, the practical effectiveness of which relies on the underlying technology, rather than on the legal enforceability of the outcomes it leads.[102]

But in the meanwhile, off- chain enforcement is most likely by involving the court in the loop. Here the same model as the cease-desist and takedown system under the DMCA can be followed.[103] Here, the process involves sending a cease and desist letter to the alleged infringer or a notice to the alleged infringer/platform that hosted the same about infringing content.[104] It also provides an opportunity for the accused to submit a counter-notification. [105] The entire arbitral process can count as enough of a cease and desist letter/notice for then a takedown order to be passed by the court, moreover, apart from that as well, the arbitral award in itself can be enforceable by the court. Currently, the online copyright space does operate a lot on self-enforcement such as cease and desist letters, peer dispute mechanisms such as Youtube, ethical edicts such as robot.txt and other TPM mechanisms and DRM mechanisms, so this ethos might be advantageous in this case as well. However, how the courts would exactly react to such orders is yet to be determined.

- **Impounding or disposition of infringing articles/Delivery or destruction of**

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[101] EU, *Guidance on certain aspects of Directive 2004/48/EC of the European Parliament and of the Council on the enforcement of intellectual property rights*, https://ec.europa.eu/docsroom/documents/26582.
[102] Pietro Ortolani,*Chapter 21 Recognition and Enforcement of the Outcome of Blockchain-Based Dispute Resolution*, In *Blockchain and Private International Law*, Leiden, The Netherlands: Brill, Nijhoff, 2023, https://doi.org/10.1163/9789004514850_023.
[103] Ray Panneton, *Using Cease-and-Desist Letters To Stop Copyright or Trademark Infringement*, (June 20, 2024), https://www.hchlawyers.com/blog/2024/june/using-cease-and-desist-letters-to-stop-copyright/.
[104] *Id.*
[105] Archila Valle, E. P., *Kleros and Copyright Disputes in Digital Environments*, Kleros, (2020), https://ipfs.kleros.io/ipfs/QmVpts6ZXSFYTQkUCWxJKJv75F3GhaehLAoJuJEpzWkLRh

infringing work: Another remedy employed in Copyright infringement cases is delivery or destruction of infringing works. This is usually done to ensure the infringing goods are off the market.

As for infringement in input, destruction in the form of reversing training to remove access is again currently incredibly technologically challenging, so employing the same as a remedy is not likely. This is because tracing is currently tracing input in an AI model to its output isn't straightforward or even accurately possible in many contexts, making attribution and thus destruction challenging. Remedies such as damages would be more likely and appropriate here.

As for infringement in output, destruction could be possible by deleting the infringing digital artwork, or ceasing to host it online for access any longer (overlap with injunction). For on-chain enforcement, an oracle could be used to confirm that the same has been removed, or if Kleros is connected to a larger blockchain based DRM system the same could be automatically confirmed and enforced there and then. As for off the chain enforcement, an injunction would practically accomplish the same purpose by involving the court as a destruction would.

- **Damages and Profits/Account of Profits:** Three types of damages are usually awarded for copyright infringement: actual damages, profits of the infringer, and statutory damages.[106] Actual damages are the damages that the infringed party faces but when actual damages are hard to prove a reasonable royalty is used[107]

  Reasonable royalties refers to the amount in royalties that the aggrieved party would have otherwise obtained. Statutory damages are fixed amounts set by law which varies from jurisdiction to jurisdiction. Apart from that, accounts of profits refer to the amount of profit that the infringer made during the infringement on the alleged item. All these combined result into damages that the infringed party is entitled to.

  For on chain enforcement, a smart contract can be encoded with parties' wallets where damages are instantly transferred after adjudication. However, these will require consent, good faith, availability of funds from both parties to be effective. Since these disputes are unlikely to be highly costly, the parties might be open to this. For off-chain enforcement, one would have to approach the court which will ensure this is executed.

- **Award of costs/Attorney Fees:** Similar to the damages, before commencing the

[106] Daniel H Park, *Copyright Infringement: What are the Potential Damages?*, Berman Fink Van Horn P.C. (Nov. 6, 2019), https://www.bfvlaw.com/copyright-infringement-what-are-the-potential-damages/.
[107] Cotter TF et al., *Reasonable Royalties*, In *Patent Remedies and Complex Products: Toward a Global Consensus*, Biddle CB, Contreras JL, Love BJ, Siebrasse NV, eds., Cambridge University Press; 2019:6-49. https://www.cambridge.org/core/books/patent-remedies-and-complex-products/reasonable-royalties/F0ED1D77D32964618EF2EABD4E0E027A

dispute both parties can lock up attorney fees/platform fees/other costs in a smart contract, and the losing party's funds gets transferred to the victor of the dispute.

- **Alternative royalty system:** It is in this arrangement as an alternative solution to this copyright infringement where Kleros can offer incredible benefits. One of the solutions that has been offered for solving the AI art compensation problem is providing royalties.[108] Kleros can come up with an alternative royalties system as a solution to the dispute in two ways: (a) the jurors choose a royalty rate and price thereon, (b) the parties after the initial dispute Kleros mediation bridge[109] to arrive at the same. This is significant because this would not only solve the primary dispute at hand, but also proffer a path forward that eliminates such disputes. It is also significant because at the root of Artist's retaliation against AI art models is a lack of compensation.[110]'

  Here, on - chain enforcement can be incredibly easy to execute in a blockchain based DRM system if connected with Kleros. In a transparent and neutral manner, the smart contract can split up the usage of digital assets between users and copyright holders using cryptocurrency "tokens", such as bitcoins, ether, XRP, etc. This functionality is key for remuneration and payments.[111] Every time the work is purchased or used, a smart contract can automatically pay each copyright owner their share of the ownership.[112] One such example of DRM enables royalties payments via smart contracts through stablecoin.[113]

  This is also highly attractive due to the low amount that would likely be compensated to artists for their contributions. Smart contracts can enable micropayments which currently remain economically un-viable since transaction costs exceed the price itself.[114] This combined with low costs of adjudication in Kleros can offer an alternate regime where AI artists are paid and compensated fairly. However, for off chain enforcement, the courts would again have to be roped in.

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[108] Pablo Ducru, Jonathan Raiman et al., *AI Royalties – an IP Framework to Compensate Artists & IP Holders for AI-Generated Content*, (2024), https://arxiv.org/abs/2406.11857

[109] Robert Dean, *Kleros Mediation Bridge: A Cohesive Approach Blending Traditional Mediation and Kleros Blockchain Arbitration*, Kleros (June 16, 2023), https://blog.kleros.io/innovating-dispute-resolution-a-cohesive-approach-blending-traditional-mediation-and-kleros-blockchain-arbitration/.

[110] Devansh Lnu, *Artists enable AI art - shouldn't they be compensated? Shouldn't They Be Compensated?* The Gradient, (Feb. 11 2023), https://thegradient.pub/should-stability-ai-pay-artists/.

[111] *Supra 97.*

[112] *Id.*

[113] Raffaele Fabio Ciriello et al., *Blockchain-based digital rights management systems: Design principles for the music industry,* Electron Markets 33, 5 (2023), https://doi.org/10.1007/s12525-023-00628-5

[114] Michèle Finck & Valentina Moscon, *Copyright Law on Blockchains: Between New Forms of Rights Administration and Digital Rights Management* 2.0, IIC 50, 77–108 (2019), https://doi.org/10.1007/s40319-018-00776-8

CHAPTER IV:
CHALLENGES & WAY FORWARD

Concludingly, the dispute resolution system offered by Kleros for AI art disputes which would be its highest contribution for the issue would operate on on-chain enforcement, since that will enable dispute resolution for petty claims, micropayments, and globally scattered parties. However, it is admitted that such a system would involve blockchain based DRM and copyright management systems to be effective and this research remains largely hypothetical in its contribution. This is proffered as a forward-looking proposition which would become relevant when Layer 2 of Kleros also becomes an immediate reality. Whether society will shift towards Blockchain to solve and manage IPR would determine Kleros' use and effectiveness for these disputes but the solution offered by Kleros could certainly solve a problem currently plaguing many.

The challenges that can rise from this proposition are also many. Firstly, challenges that concerning Kleros ecosystem would have to be addressed such as juror competence with regards to these complex IPR matters, whether Kleros would be able to integrate effectively with DRM systems, whether the dispute in Kleros can effectively integrate with these DRM systems (there might be technological limitations), how DRM mechanisms might interact with Kleros (for instance, licensing/commercial use/integration prospects with private DRM or restrictions on integrations if its a government maintained registry since Kleros would be performing a quasi-judicial function by using a public service for a commercial use), Kleros' ability to formulate the dispute keeping in mind differences in jurisdiction (for example, even though fair dealing in UK, and fair use of the US are largely the same, there is still some nuance), technological adoption challenges such as Artists not being literature around cryptocurrency, etc.

Secondly, challenges concerning blockchain based DRM mechanisms would also colour the adoption of this solution. Challenges regarding DRM are two-fold: (a) duality of copyright ownership regime where not all material might be on the system, and conflicts on on-chain and off-chain data might arise,[115] and (b) DRM's current inability to accommodate nuances such as fair use exemptions for the purposes of research or study, criticism or review, parody or satire, reporting news, by a legal professional providing advice, or for the purposes of access by persons with a disability, etc. in its functioning leading to its ineffectiveness.[116] Challenges regarding speed and storage of billions of smart contracts and attitudes around cryptocurrency also exist.[117] Thirdly, challenges concerning courts and the extant legal system exist, whether the courts will

[115] Alexander Savelyev, *Copyright in the blockchain era: Promises and challenges*, Computer Law & Security Review, Volume 34, Issue 3, 2018, Pages 550-561, ISSN 0267-3649, https://doi.org/10.1016/j.clsr.2017.11.008
[116] *Supra 97.*
[117] *Supra 97.*

accept and enforce these awards. Though the Mexican case has recognized parties' ability to choose Kleros as an arbitral forum, the validity of the award could still be questioned.

Regardless of these challenges, this connection between Kleros' arbitration dispute system and Blockchain based DRM systems can be highly beneficial for general IPR disputes, especially since most of these are digital. Essentially, the entire process discussed above could just as easily be extrapolated to overall Generative AI's IPR disputes, though Generative AI's Art IPR disputes offer a particularly important example and discussion point. A larger blockchain based DRM copyright management system can usher in a new copyright regime where Kleros, blockchain based arbitral system can play a key role. Overall, hope is abound that the artists will retrieve their lost paint money soon enough. Maybe, finally – through Kleros, and beyond.

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