



is proud to announce

*The First Shamnad Basheer Essay Competition on
Intellectual Property Law (2020)*

Entries adjudged by:

Justice (Retd.) Prabha Sridevan, Former Chairperson of the Intellectual Property Appellate Board (IPAB)

Ms. Jayashree Watal, Former Counsellor in the Intellectual Property Division of the World Trade Organisation (WTO)

Prof. Siva Thambisetty, Professor at the London School of Economics (LSE)

III Prize

Purvi Nema

National University of Study and Research in Law, Ranchi

purvi1621@gmail.com

For the essay

“Can Copyright Law Combat Deepfakes?”

CAN COPYRIGHT LAW COMBAT DEEPAKES?

Purvi Nema

| | |
|---|----|
| I. Introduction | 1 |
| II. What is Deepfake? | 2 |
| III. Intersection of Deepfakes with Copyright law..... | 5 |
| IV. Can copyright infringement be claimed against deepfakes?..... | 5 |
| V. Can deepfake imagery be copyrighted? | 9 |
| VI. Conclusion..... | 12 |

I. Introduction

Digitisation has made our everyday life so much more easy and exciting than it was a decade ago. But with increase in scope, scale and sophistication of digitisation, the line between fake and real is blurred. In the recent years, digital disinformation has become a new normal on internet. Digital disinformation in the form of fake news or morphed pictures/videos spread like wildfire on internet and especially on social media. Owing to the avid technology and vast connectivity on the social media platforms, it becomes very difficult to check the authenticity of the news and control the spread before it reaches hundreds and thousands of people.

Adding to the list of false information are Deepfakes. Deepfake stems from combination of ‘deep learning’ and ‘fake’ and is product of artificial intelligence applications that merge, combine, replace, and superimpose images and video clips to create fake videos or pictures that appear authentic.¹ Deepfake is not a mere application to swap faces but has high potential to create photorealistic results which makes it very difficult to differentiate between fake and reality.

Deepfakes gained publicity in 2017, when a Reddit user posted fake porn videos displaying famous celebrities, using existing celebrity video footage and artificial

¹ M.H. Maras & A. Alexandrou, *Determining Authenticity of Video Evidence in the age of Artificial Intelligence and in the wake of Deepfake videos*, 23(3) International Journal of Evidence & Proof, 255, 256 (2019).

intelligence algorithms.² As of September, 2019, 96% of those videos are non-consensual deepfake pornography.³ Since then deepfakes are extensively used at political front in many countries including India. What followed after that was an app named Fake App on Reddit which provided cheap user interface for the Deepfake algorithm allowing users with limited knowledge of programming and machine learning to create deepfakes and several other versions such as Face2Face App and Open Face Swap were developed.⁴

With the vast amount of image and video data as well as deepfake programming applications easily available on internet, there will be rise in number of deepfakes used by miscreants. Deepfakes raises many legal alarms including threat to privacy, cyber security, right to publicity, forgery, defamation, criminal intimidation, sedition, sparking riots, copyright infringement and the list continues. There is no single law that entirely ameliorate the damages that deepfakes can cause.⁵

The concern of this essay is to understand the copyright issues embroiled in deepfakes focusing majorly upon the Indian law. It is clear from the deepfakes that have become viral, that they indeed morph or fabricate some of the copyrighted content. One of the possible legal action that can be taken by the person or persons who own the copyright to the original video is to claim infringement based on the modification and republication.⁶ The result could be injunction or damages for the loss occurred to the copyright owner. But is the copyright claim an effective remedy for this digital crime?

II. What is Deepfake?

² R. Chesney & D. Citron, *Deepfakes and the new disinformation war: The coming age of Post-Truth Geopolitics*, 1 *Foreign Affairs*, 98, 147(2019).

³ Rob Towes, *Deepfakes are going to wreak havoc on Society. We Are Not Prepared.*, *Forbes*, May 25, 2020. Available at: <https://www.forbes.com/sites/robtoews/2020/05/25/deepfakes-are-going-to-wreak-havoc-on-society-we-are-not-prepared/#f355cbd74940>. (Last accessed on June 23, 2020).

⁴ Marissa Koopman, Andrea Macarulla Rodriguez & Zeno Geradts, *Detection of Deepfake Video Manipulation*, Proceedings of the 20th Irish Machine Vision and Image Processing Conference, 1-16 (2018).

⁵ Megan Farokhmanesh, *Is it legal to swap someone's face into porn without Consent?*, *The Verge*, January 30, 2018. Available at: <https://www.theverge.com/2018/1/30/16945494/deepfakes-porn-face-swap-legal>. (Last accessed at June 29, 2020).

⁶ *Ibid.*

Deepfake algorithms employ deep learning models such as auto-encoders and generative adversarial networks to examine facial expressions and movements of a person and synthesize facial images of another person making analogous expressions and movements.⁷ Researchers have identified that deepfake content majorly falls into three categories: (i) Face Swap, in which the face in a video is automatically replaced with another person's face; (ii) Lip-sync, in which a source video is modified so that the mouth region is consistent with an arbitrary audio recording; (iii) puppet-master, in which a target person is animated (head movements, eye movements, facial expressions) by a performer sitting in front of a camera and acting out what they want their puppet to say and do.⁸

To curb the nefarious outflow of deepfakes on the social media, Alphabet Inc.'s YouTube and ByteDance's TikTok released statements (separately) that they will remove manipulated videos that may pose a serious risk of egregious harm or are misleading.⁹ Further, Facebook Inc. said that it would remove deepfakes and some other manipulated videos from its site but would not outlaw videos meant for parody or satire.¹⁰ Recently, Twitter under its new policy will similarly apply a 'false' warning label to any photos or videos that have been significantly and deceptively altered or fabricated added that the content could be removed if the text in the tweet or other contextual signals suggested it was likely to cause harm.¹¹ Moreover, US signed its first federal legislation The Deepfake Report Act, 2019 related to deepfakes.¹² Also,

⁷ T.T. Nguyen, et.al., *Deep Learning for Deepfakes Creation and Detection* (2019).

⁸ Shruti Agarwal & Hany Farid, *Protecting World Leaders against Deep Fakes*, CVFR Workshop Paper, 38-45 (2019).

⁹ Peter Suci, *TikTok's Deepfakes Just The Latest Security Issue For The Video Sharing App*, Forbes, January 7, 2020. Available at: <https://www.forbes.com/sites/petersuci/2020/01/07/tiktoks-deepfakes-just-the-latest-security-issue-for-the-video-sharing-app/#12bc287f70a2>. Matt O'Brien, *YouTube: No 'deepfakes' or 'birther' videos allowed in 2020 election*, Press Herald, February 3, 2020. Available at: <https://www.pressherald.com/2020/02/03/youtube-no-deepfakes-or-birther-videos-allowed-in-2020-election/>. (Last accessed at June 29, 2020).

¹⁰ Tony Romm, Drew Harwell & Isaac Stanley-Becker, *Facebook bans deepfakes, but new policy may not cover controversial Pelosi video*, The Washington post, January 8, 2020. Available at: <https://www.washingtonpost.com/technology/2020/01/06/facebook-ban-deepfakes-sources-say-new-policy-may-not-cover-controversial-pelosi-video/>. (Last accessed at June 29, 2020).

¹¹ Katie Paul, *Twitter to label deepfakes and other deceptive media*, Thomson Reuters, February 5, 2020. Available at: <https://in.reuters.com/article/us-twitter-security/twitter-to-label-deepfakes-and-other-deceptive-media-idINKBN1ZY2OV>. (Last accessed at June 29, 2020).

¹² Wilmer Hale, *First Federal Legislation on Deepfakes Signed Into Law*, JD Supra, December 24, 2019. Available at: <https://www.jdsupra.com/legalnews/first-federal-legislation-on-deepfakes-42346/>. (Last accessed at June 29, 2020).

Virginia, Texas and California declared creating or distributing deepfakes illegal, to prevent spread of misinformation among the voters ahead of US 2020 elections.¹³

On the other hand, this new artificial intelligence technique does have many legitimate and creative prospects such as protecting real patient privacy by creating virtual patient thereby removing the need to share personal data of real patients,¹⁴ generating live-action animation and interactive simulation,¹⁵ recreating classic scenes in movies, creating new movies starring long-dead actors, making use of special effects and advanced face editing in post-production, improving amateur videos to professional quality in movies,¹⁶ transforming e-commerce by turning consumers themselves into models for improving sale,¹⁷ and there can be various other additions to this list.

More recently, major digital effects studios have used artificial intelligence to convincingly map a famous actor's likeness onto another performer's to add value to their stories, as well cut down production time and costs.¹⁸ For example, *Guardians of the Galaxy 2* (2018) showcased a de-aged, 1980s version of star Kurt Russell, while *Rogue One* (2016) re-created Peter Cushing's Grand Moff Tarkin character from *Star Wars: A New Hope* (1977), despite the fact that Cushing died in 1994.¹⁹

¹³ Kari Paul, *California makes 'deepfake' videos illegal, but law may be hard to enforce*, The Guardian, October 7, 2019. Available at: <https://www.theguardian.com/us-news/2019/oct/07/california-makes-deepfake-videos-illegal-but-law-may-be-hard-to-enforce>. (Last accessed at June 29, 2020).

¹⁴ Geraint Rees, *Here's how deepfake technology can actually be a good thing*, World Economic Forum, November 25, 2019. Available at: <https://www.weforum.org/agenda/2019/11/advantages-of-artificial-intelligence/>. (Last accessed on June 23, 2020).

¹⁵ James Kobiulus, *Deepfake Technology Loses its Stigma Amid Socially Redeeming Uses*, Futurum, March 5, 2020. Available at: <https://futurumresearch.com/research-notes/deepfake-technology-ecosystem/>. (Last accessed on June 23, 2020).

¹⁶ John Brandon, *Terrifying high-tech porn: Creepy 'deepfake' videos are on the rise*, Fox News, February 16, 2018. Available at: <https://www.foxnews.com/tech/terrifying-high-tech-porn-creepy-deepfake-videos-are-on-the-rise>. (Last accessed on June 23, 2020).

¹⁷ Katie Baron, *Digital Doubles: The Deepfake Tech Nourishing New Wave Retail*, Forbes, July 29, 2019. Available at: <https://www.forbes.com/sites/katiebaron/2019/07/29/digital-doubles-the-deepfake-tech-nourishing-new-wave-retail/#10a3cc604cc7>. (Last accessed on June 23, 2020).

¹⁸ Patrick Shanley & Katie Kilkeny, *Deepfake Tech Eyed by Hollywood VFX Studios*, The Hollywood Reporter, May 4, 2018, <https://www.hollywoodreporter.com/news/deepfake-tech-eyed-by-hollywood-vfx-studios-1087075>. (Last accessed on June 23, 2020).

¹⁹ Carolyn Giardina, *How the 'Guardians of the Galaxy' VFX Team Made Kurt Russell Bleed Blue*, The Hollywood Reporter, February 6, 2018, Available at: <https://www.hollywoodreporter.com/behind-screen/how-guardians-galaxy-vfx-team-made-kurt-russell-bleed-blue-1081894>; Carolyn Giardina, *'Rogue One': How Visual Effects Made the Return of Some Iconic 'Star Wars' Characters Possible*, The Hollywood Reporter, December 16, 2016, Available at: <https://www.hollywoodreporter.com/heat-vision/rogueone-how-grand-moff-tarkin-peter-cushing-returned-957258>. (Last accessed on June 23, 2020).

Though we cannot ignore the menace deepfakes are creating through revenge porn and manipulative political campaigns, yet banning them may not be a solution given its many legitimate uses, instead the policy shall target cases where it is used for specific malicious purposes. One of the many areas where the attention of policymakers is urgently required is the Copyright Law.

III. Intersection of Deepfakes with Copyright law

On the request of Information Technology and Innovation Foundation (ITIF), US Patent and Trademark Office commented that a key question arises for policymakers as to the intellectual property connection to cases where a deepfake is derived from copyright-protected material, as it would be infringing these rights given it's an unauthorized modification and republication.²⁰

By far it is seen that deepfake algorithms require a large image and video data to train models to create photo-realistic images and videos that are unreal. It is important to note that most of this input data is intellectually protected or to be specific copyrighted under law which is used in an unauthorized manner. So, the output photo or video infringes upon the rights of the copyright owner. On the other hand, the acumen of this new found technology can be used for many other beneficial ways for the betterment and development. This shall raise the issue as to whether the deepfake output is entitled for copyright protection as it changes the dynamics of 'authorship'.

IV. Can copyright infringement be claimed against deepfakes?

A copyright confers an exclusive right on the owner, for a finite period, to prevent others from exploiting its subject-matter, an invention, a design, or a literary or other

²⁰ Information Technology and Innovation Foundation (ITIF), *Request for Comments on Intellectual Property Protection for Artificial Intelligence Innovation*, Available at: https://www.uspto.gov/sites/default/files/documents/ITIF_RFC-84-FR-58141.pdf. (Last accessed on June 23, 2020).

artistic work.²¹ Thus, copyright may exist in, *inter alia*, text, images, music and video files that are transmitted via the medium of the internet, which would come within the ambit of the term 'work' for the purposes of copyright protection.²²

Under Copyright Act, 1957 of India, any work of visual recording or any sound recording accompanying such visual recording is part of cinematograph film.²³ Generally, the author is the first owner of the copyright except where a photograph or cinematographic film is made for a valuable consideration then such person and in case of author's employment, employer is the first owner.²⁴ Author in relation to a photograph is the person taking the photograph,²⁵ and in relation to a cinematograph film or sound recording is the producer.²⁶

Section 14 provides that the copyright owner of a cinematograph film and sound recording has the exclusive right to do or to license making a copy of the film, including photograph of any image forming part thereof or making any other sound recording embodying it, respectively.²⁷ Also, the copyright owner has the exclusive right to do or to license storing of it in any medium; or to sell or give on commercial rental or offer for sale or for such rental, any copy or to communicate it to the public.²⁸

Section 51 of the Act lays down acts that lead to copyright infringement of the protected work. Thereby any person(s) or organisation(s) attempting to make deepfakes of photographs, visual recording or sound recording and publish on internet without any authorisation of the copyright owner shall be liable of copyright infringement. Where copyright in any work has been infringed, the owner of the copyright shall be entitled to all remedies by way of injunction, damages, accounts and otherwise as are or may be conferred by law for the infringement of a right.²⁹

Presently, the deepfakes are used to fabricate the videos and photographs for all the bad reasons including revenge pornography and manipulating political campaigns

²¹ RODNEYD RYDER, *INTELLECTUAL PROPERTY AND THE INTERNET* 64 (Lexis Nexis Butterworths, 2002).

²² Sumreen Siddiqui & Sonali Mathur, *Liability for Copyright Infringement on the Internet*, 5 Law Rev. GLC 147, 148 (2006).

²³ The Copyright Act, 1957, Section 2(f).

²⁴ The Copyright Act, 1957, Section 17.

²⁵ The Copyright Act, 1957, Section 2(d)(iv).

²⁶ The Copyright Act, 1957, Section 2(d)(v).

²⁷ The Copyright Act, 1957, Section 14(d) and Section 14(e).

²⁸ *Ibid.*

²⁹ The Copyright Act, 1957, Section 55.

that have the potential to tarnish the image of the author. Apart from the copyright, the author has moral rights in his work recognised under the Act that subsists even after the work is assigned either wholly or partially to another person. The moral right of the author was also recognised by the Delhi High Court in *Amarnath Sehgal v. Union of India*,³⁰ and noted that the author has the right to preserve, protect and nurture his creation. The author of work shall have the right to claim authorship of the work and to restrain or claim damages in respect of any distortion, mutilation, modification or other act in relation to the said work if such distortion, mutilation, modification or other act would be prejudicial to his honour or reputation.³¹

Further, a deepfake video may be justified by the defence of fair use as elucidated under Section 52 of the Act. But if the deepfakes are used for fair use, the Act requires that due recognition is given to the author and copyright owner of the sound recording and video films. The publisher shall display in the recording or the container, the name and address of the person who made the sound recording/video film and the name and address of the copyright. Also, in case of the video films, the publisher need to give a declaration that he has obtained the necessary licence or consent from the owner of the copyright in such work for making such video film.³²

The Copyright Act does not specifically mention or define internet intermediaries (like Google, Yahoo, MySpace, Facebook, Amazon, Flipkart etc.) nor does it lay down any special protection except as provided for under Section 52. Even under Section 51, the infringement contemplated is general in the sense that it does not distinguish between virtual space and actual physical space.³³

By way of amendment in Section 79 of Information Technology Act, 2000 (hereinafter referred as IT Act) a separate provision and regime for intermediaries was created. Intermediary Guidelines Rules, 2011 (hereinafter referred as Rules, 2011) provide that an intermediary would be required to inform users by including in its user agreement or terms and conditions to not host, display, upload, modify, publish, transmit, update

³⁰ 117 (2005) DLT 717.

³¹ The Copyright Act, 1957, Section 57.

³² The Copyright Act, 1957, Section 52A.

³³ Myspace Inc. v. Super Cassettes Industries Ltd., (2017) 236 DLT 478 (DB), ¶52.

or share any information that infringes any patent, trademark, copyright, or other proprietary rights.³⁴³⁵

The Delhi Court in *Myspace Inc. v. Super Cassettes Industries Ltd.*,³⁶ clarified the liability of intermediary with respect to copyright infringement. The Court observed that immunity granted to the intermediary under Section 79 of IT Act would not mean that the rights guaranteed under the Copyright Act are in any manner curtailed. All Section 79 does is regulate the liability in respect of intermediaries while the Copyright Act grants and controls rights of a copyright owner and that copyright owners could still pursue legal remedies against such intermediaries in specified circumstances. In the case of copyright laws it is sufficient that intermediary receives 'actual knowledge' or knowledge from the affected person in writing or through email of the infringing works without the necessity of a court order act within 36 hours of receiving such information disable access to such information under Section 79(3) read with Rule 3(4) of the Rules, 2011 and shall also comply with "due diligence" clause under Section 79(2)(c).³⁷

The Delhi High Court in *Christian Louboutin Sas v. Nakul Bajaj & Ors.*,³⁸ while dealing with trademark violations on e-commerce websites again stressed on the due diligence requirement for an intermediary to be able to claim safe harbour under Section 79 of the IT Act. The intermediaries are obliged to have agreements that the sellers shall not host, display or upload products that violate any trademark rights, copyrights or patent rights or any other proprietary rights.³⁹ The above judgments were followed in various cases establishing that the intermediary (like social media sites) has to take due diligence that it does not host posts that infringe copyright and if they do shall take down the same when it comes to its knowledge.

But the question is how successful is the claim of copyright infringement against the deepfakes? Copyright takedown of deepfakes in USA made news across the globe when the fake video of Kim Kardashian was taken down from YouTube when Conde Nast claimed copyright infringement. In another case, the rapper Jay-Z and his

³⁴ Intermediary Guidelines Rules, 2011, Rule 3(2)(d).

³⁵ *Myspace Inc. v. Super Cassettes Industries Ltd.*, (2017) 236 DLT 478 (DB), ¶50.

³⁶ (2017) 236 DLT 478 (DB).

³⁷ *Id.* at ¶65.

³⁸ (2018) 253 DLT 728.

³⁹ *Id.* at ¶73.

company Roc Nation convinced YouTube to remove two audio deepfakes by claiming both copyright infringement and unlawfully using AI to impersonate the rapper's voice.⁴⁰

It is anticipated that copyright is more likely to protect celebrity content like this, but will be more challenging for the everyday target of deepfake to make a claim. Copyright claims are just a Band-Aid for issues of consent and ownership of our own likenesses online.⁴¹ Further, the burden of proof lies on the copyright owner that the so-called hyper realistic deepfake is infringement of the protected work.

The more petrifying loophole in copyright remedy is that the copyright may not reside in the person who is the target of the deepfake. For example, in cinematographic films, the copyright reside with producers of the films and not actors. Likewise, in photos copyright could be owned by the cameraman and not the person in the photograph. So, the remedy for copyright infringement may not be available to the target.⁴²

V. Can deepfake imagery be copyrighted?

Earlier this year, World Intellectual Property Organization (hereinafter referred as WIPO) requested for comments from the Association of American Publishers (hereinafter referred as AAP) on Intellectual Property and Artificial Intelligence, in general, covering upon the issue related to copyright ownership in deepfakes.⁴³ AAP responded that although the issues arising from so-called deepfakes are not solely to be evaluated within the copyright law framework, the question is not whether

⁴⁰ Mike Masnick, *Jay-Z Claims Copyright on Audio Deepfake of Him Reciting Hamlet*, Tech Dirt, April 29, 2020. Available at: <https://www.techdirt.com/articles/20200428/23203944401/jay-z-claims-copyright-audio-deepfake-him-reciting-hamlet.shtml>. (Last accessed at June 29, 2020).

⁴¹ Samantha Cole, *The Kim Kardashian Deepfake Shows Copyright Claims Are Not the Answer*, Vice, June 19 2019. Available at: https://www.vice.com/en_us/article/j5wngd/kim-kardashian-deepfake-mark-zuckerberg-facebook-youtube. (Last accessed at June 29, 2020).

⁴² Amanda G. Ciccatelli, *In Honor of April Fools' Day: Diving Into Deepfakes*, IPWatchdog, April 1, 2019. <https://www.ipwatchdog.com/2019/04/01/honor-april-fools-day-diving-deep-fakes/id=107878/>. (Last accessed at June 29, 2020).

⁴³ Association of American Publishers, *WIPO Conversation on Intellectual Property (IP) and Artificial Intelligence (AI): WIPO/IP/AI/2/GE/20/1*, February 14, 2020. Available at: https://www.wipo.int/export/sites/www/about-ip/en/artificial_intelligence/call_for_comments/pdf/org_aap.pdf. (Last accessed on June 23, 2020).

copyright should even be accorded to deep fake imagery instead the question is to whom copyright in a deep fake should belong.⁴⁴

Deep fake imagery may be deserving of copyright protection, in the first case, where the copyright might properly belong to the *programmer* i.e. human actor(s) who developed the design and function of the artificial intelligence program that created deepfake imagery.⁴⁵ In the second case, the deep fake may be produced utilizing a commercially available the artificial intelligence algorithm, where the human actor(s) uses the artificial intelligence algorithm to accomplish his creative vision in much the same way as a photographer uses a camera to bring forth his perspective. Copyright ownership, in this case, could be accorded to the *user* i.e. human actor(s) who is employing the artificial intelligence algorithm as a tool.⁴⁶

In India, Copyright Act, 1957 was amended in 1995 and the definition of author was altered to include 'author' in relation to any literary, dramatic, musical or artistic work which is computer-generated and he shall be the 'person' who causes the work to be created.⁴⁷ However, the definition has two limitations; first, the parameter of this amendment to the definition of author of computer generated works is limited to the understanding that there is human input in creation of work but the works of artificial intelligence may or may not require human involvement; and secondly, it does not deal with computer generated cinematographic film without any human involvement. It is in these cases, that the law is yet to be explored.

Earlier, the Delhi High Court in *Liugong India Pvt. Ltd. v. Yograj Infrastructure Ltd. & Ors.*,⁴⁸ observed that: 'A company, being a juristic entity, has to necessarily act through natural persons and we are still far from the day when such juristic entities, with the assistance of Artificial Intelligence will enter into contracts without acting through natural persons.'⁴⁹ This observation raises an important question, whether the 'author' in the Copyright Act will include 'person' that will extend to machines, computers or artificial intelligence. There is no legal precedent in India yet that

⁴⁴ *Ibid.*

⁴⁵ *Ibid.*

⁴⁶ *Ibid.*

⁴⁷ The Copyright Act, 1957, Section 2(d)(vi).

⁴⁸ (2018) 248 DLT 392.

⁴⁹ *Id.* at ¶12.

accords the status of person to artificial intelligence. However, this is the avenue that is under consideration in many countries.

The European parliament in its resolution ‘Civil Law Rules on Robotics’, in 2017, stated that in the long run an autonomous robot could be considered as an electronic person.⁵⁰ The USA NSTC Committee issued report on Technology ‘National Artificial Intelligence Research and Development Strategic Plan’ in 2016 which was published by the Executive Office of the President that suggested in report that there is a proposal to develop robots that could follow ethical and legal rules.⁵¹ The report text does not propose to recognize artificial intelligence, a legal personhood, but it discusses that autonomous machine will follow ethical and legal rules i.e. to exercise moral and legal rights and obligations.⁵² In 2017, Estonia’s national digital adviser, Martin Kaevats, proposed the adoption of a special AI law aimed at granting a legal personality to AI, with corresponding amendments to liability insurance legislation.⁵³

Recently, the Delhi High Court in *Ferid Allani v. Union of India and others*,⁵⁴ took a progressive approach while deciding upon the appeal from rejection of patent application for a method and device for accessing information sources and services on the web. The Court observed that: ‘Innovation in the field of artificial intelligence, blockchain technologies and other digital products would be based on computer programs, however the same would not become non-patentable inventions - simply for that reason. It is rare to see a product which is not based on a computer program.⁵⁵ Over the years, the Patent Office has introduced various guidelines in respect of various technological subject matter, in order to guide the examiners as to

⁵⁰ European Parliament, *European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics: 2015/2103(INL)*, February 16, 2019. Available at: https://www.europarl.europa.eu/doceo/document/TA-8-2017-0051_EN.html?redirect#BKMD-12.

⁵¹ National Science and Technology Council, *National Artificial Intelligence Research and Development Strategic Plan*, October 2016. Available at: https://www.nitrd.gov/pubs/national_ai_rd_strategic_plan.pdf.

⁵² Roman Dremliuga, Pavel Kuznetcov & Alexey Mamychev, *Criteria for Recognition of AI as a Legal Person*, 12(3) *Journal of Politics and Law*, 105, 108 (2019).

⁵³ Bartosz Troczynski, *Estonia Plans the Boldest AI Regulations*, NEWTECH.LAW, October 23, 2017. Available at: <https://newtech.law/en/estonia-plans-the-boldest-ai-regulations/>. (Last accessed at June 29, 2020).

⁵⁴ 2019 SCC OnLine Del 11867.

⁵⁵ *Id.* at ¶ 10.

the settled case law by way of judicial precedents and the legal position internationally.⁵⁶

The takeaway from the above judgment is that the judiciary is open to consider the involvement of artificial intelligence in intellectual property law (at least in patents) in consonance with the internationally accepted views. Also, till the time policymakers decide upon the issue as to whether artificial intelligence has a legal personhood or not, it is futile to conclude that artificial intelligence may or may not be the sole or joint owner. Therefore, as of now, the authorship of films or photographs generated by artificial intelligence may be accorded as per the observation of AAP on the request of WIPO as discussed above i.e. either to the programmer or the user.

VI. Conclusion

The rise of deepfake technology in public as well as private sector elevates cyber security threats across the globe. Analogous with many issues in the online space, one of the biggest hurdles that potential plaintiffs will face is identifying the wrongdoer and being able to take enforceable action against those wrongdoers.⁵⁷ But it is no surprise that law does not grow at a same pace with technology. It is therefore required that the technology to combat deepfakes is developed simultaneously and is adopted too. Beyond using existing and new legal tools to address the malicious use of this technology, companies like Google and Facebook are actively developing tools to help identify deep fakes.⁵⁸

With proliferation of deepfake technology, people are more likely to exploit the online content on internet especially of the more prominent people and fabricate them into realistic stuff such as images or video clips for popularity or to influence larger crowd. Copyright remedy is necessary to curb infringements of copyright

⁵⁶ *Id.* at ¶ 15.

⁵⁷ Alexander Ryan and Andrew Hii, *Disinformation takes on a new face: 'Deepfakes' and the current legal landscape*, Gilbert+Tobin, October 4, 2019. Available at: <https://www.gtlaw.com.au/insights/disinformation-takes-new-face-deepfakes-current-legal-landscape>. (Last accessed at June 29, 2020).

⁵⁸ Cade Metz, *Internet Companies Prepare to Fight the 'Deepfake' Future*, New York Times, November 24, 2019. Available at: <https://www.nytimes.com/2019/11/24/technology/tech-companies-deepfakes.html>. (Last accessed at June 29, 2020).

owner in the online content. While this may not completely prevent the use of technology for malicious purposes yet there is need to relook the copyright law to prevent any possible infringement. It is hoped that the deepfakes that are harmful and disparaging may be declared as illegal by law in countries including India like that in few American States. Further, it is undeniable that artificial intelligence is the future and its use in creating content cannot be averted. With time the human involvement in artificial intelligence activities will diminish and vanish. It is expected that content created by artificial intelligence algorithms are as original and unique as its human counterpart. Therefore, India and other countries need to address the legal status on artificial intelligence and more so intellectual property rights of the content authored by artificial intelligence.