AUTHORSHIP IN COPYRIGHT LAW: A CRITIQUE IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION

by

Simphiwe Dlamini

(Student Number: 2017404746)

Submitted in partial fulfilment of the requirements for the degree of

Masters of Law

at the

University of the Free State

Supervisor: Ntando Sindane

DECLARATION

I declare that the dissertation hereby submitted by me for the Masters of Law degree at the University of the Free State is my own independent work and has not previously been submitted by me at another university/faculty. I furthermore cede copyright of the dissertation in favour of the University of the Free State.

Signature: SN Dlamini……..

Date: 10 December 2023……..

ACKNOWLEDGEMENT

To my mother, ngiyabonga Zikalala for everything. Your support and prayers are the reason why I am where I am today. I will never forget how you made sure no one disturbed me when I was writing during the holidays as well as our calls when I felt down and out missing home. This has been a stressful journey and financially taxing so ngiyabonga mama for believing in me, nako konke longentele kona Khuzweni.

To my supervisor, I hope you get all your flowers while you're still alive. You're a gem that will definitely change the lives of many. There were days where I thought I was doing nothing right, but your words of encouragement and positive criticism helped me forge through and not give up. You are really a natural in this field. I will forever be grateful for the assistance and motivation which got me this far. Someday ngiyofundza sithakazelo saka Sindane ngikubonge ngaso.

To my siblings Sithembile Dhlamini and Bekithemba Dlamini, thank you for being the best siblings a girl could ask for. You truly made me feel like every little win was worth celebrating. Ngiyabonga bantase for providing motivation in the dark times and always being there for highs and the lows, this is our win!

To Lebogang Ditlhareng and Remoneilwe Hottie thank you for always being a call away. You both know how emotionally draining this process was for me. Not only were you there for me to vent about my problems but even when my health was the at its worst you were there to check on me when family was far. Lebo, thank you for being my library partner and mental health buddy. Hottie, thank you for being my next of kin. You guys truly stepped up for me, I will forever be thankful. The days were dark, but the memories will always be treasured.

To all my friends and family who were with me during this time, it was not easy, but you guys made it work it. Mazulu atsi "izandla zindlula ekhanda". Lastly, this was for the 21-year-old me who pushed her way into the master's programme and made it through; may your work change people's perceptions of artificial intelligence while contributing to the field of intellectual property. Usebentile sidlubuladlede sakalobamba.

SUMMARY

This dissertation critically examines the demands for an amendment of the South African Copyright Act 98 of 1978 to bring it in line with modern times. It investigates authorship in copyright law from the perspective of the Fourth Industrial Revolution. This dissertation focuses specifically on artificial intelligence (AI) and its ability to generate copyrightable works under the Act. The growing use of AI technology inversely leads to the growing production of works generated by AI. These mechanically produced works share the same traits as those that, according to South African law, are entitled to copyright protection. As a result, there is currently uncertainty over who the author of such works is, because AI machines do not qualify as authors under the South African Copyright Act.

This dissertation examines the definition of an author in the existing Copyright Act, as well as the requirements for authorship and copyright protection, in order to determine if this section of the Act needs to be amended to reflect the Fourth Industrial Revolution.

To accomplish this, the dissertation investigates prominent South African intellectual property law textbooks as well as international sources that have conducted extensive research on the subject. The dissertation reveals the excessive use of artificial intelligence machinery and its products in the country and around the world. It demonstrates the growing need for legislation to govern such machinery in the country, as well as rules to regulate the usage of such technology and the copyrightable works it produces.

The dissertation studies the nature of copyright in a work made by AI equipment nationwide and internationally, as well as how these machines will affect different areas in the country. An analysis of the requirements for copyright is provided, and it is argued that the present requirements for copyright cater to works generated by artificial intelligence even though these machines do not qualify as authors under the Act. Furthermore, the dissertation demonstrates how a lack of regulations in this regard will have a negative impact on specific areas, such as the country's education system. It indicates that South African legislation has not advanced sufficiently in comparison to other countries.

The dissertation finds that the current Copyright Act is outdated and needs to be amended to account for AI generated works as well as AI authorship. Furthermore, legislation to oversee AI technology in the country should also be considered.

Key words: Authorship, Copyright law, Artificial intelligence, Fourt Industrial Revolution.

LIST OF ABBREVATIONS

AI- Artificial Intelligence

CAG- Changi Airport Group

CDPA- Copyright, Designs and Patents Act

CIPC- South African Companies and Intellectual Property Commission

DABUS- Device for the Autonomous Bootstrapping of Unified Sentience

DTI- The South African Department of Trade and Industry

ECTA- Electronic Communications and Transactions Act

EU-European Union

FNB- First National Bank

IP- Intellectual Property

IPRs- Intellectual property rights

PCT- Thaler's Patent Cooperation Treaty

PR- Public relations

SA- South Africa

SAJSM- South African Journal of Sports Medicine

SEM- Sports and Exercise Medicine

UK- United Kingdom

US- United States

WTO- World Trade Organization

ZAR- Zuid-Afrikaansche Republiek

CHAPTER 1

1.1BACKGROUND

Although there was no copyright law in the classical world, Greek and Roman authors had concerns with having their authorship recognized from the beginning of history such that the word "plagiarist," which refers to someone who plagiarizes another's work and passes it off as their own, was derived from the Latin word plagiarius, which means "kidnapper".[1] Before the invention of printing, there was hardly any practical need for copyright protection because the majority of the population was uneducated and would have no use for books. Nevertheless, copyright law has evolved and adapted in response to technological advances[2] over the centuries, with the origins of copyright law dating back to the invention of the printing press in the fifteenth century.[3]

The Statute of Anne, enacted in England in 1710, was the world's first copyright law, and it established the concept of the author of a work as the owner of its copyright for the first time, as well as fixed terms of protection.[4] Other countries gradually adopted legislation based on the Statute of Anne, for instance the United States' enacted the Copyright Act of 1790. Internationally, copyright legislation remained without the necessary order and regulations until the nineteenth century. This is where the Berne Convention for the Protection of Literary and Artistic Works was established to promote the development of international copyright protection standards and provide

1 Geyer *et al.* 2016:177.

2 The advancement of technology has brought about new means of creating copies and distributing copyright protected work. There has been a transition from merely using a pen and paper to create a work that will be seen by a number of people in one's close proximity to works being produced and published on the internet for anyone and everyone with a phone to see. The internet has broadened the number of individuals who can see creatives' work, increasing the potential of copyright infringement. People transitioned from watching films in cinemas to watching television programmes on their local or national broadcasters' television channels as technology advanced. This has resulted in international creations being accessible not just in theatres in certain areas but also from the comfort of people's own homes. Digital technology now enables a larger audience to watch films and television shows from around the world on their television sets, computers, and mobile devices.
See Guibault & Quintais 2014.

3 Geyer *et al.* 2016:177.

4 Intellectual Property Right Office "A brief history of copyright", https://www.iprightsoffice.org/copyright_history/ (accessed on 25 May 2022).

mutual recognition of copyright between nation-states[5]. One of the objectives of the Berne Convention for the Protection of Literary and Artistic Works is to eliminate the need to register works independently in each country. It has been adopted by nearly all countries worldwide, with over 140 of the approximately 190 nation-states, including South Africa. The Republic of South Africa filed its instrument of ratification of the Convention on the 23rd of December 1974.**[6]** The Berne Convention for the Protection of Literary and Artistic Works requires South Africa to establish a domestic copyright regime that is consistent with the provisions of the Convention, such that the works of all countries that are parties to the convention will be managed in a comparable manner**.[7]** The Berne Convention for the Protection of Literary and Artistic Works is still in force and is the foundation for international copyright law.[8]

1.2 THE HISTORICAL DEVELOPMENT OF COPYRIGHT[9]

Copyright protection was first implemented when South Africa's colonial masters established its copyright regime. The Batavian Republic statute was the first law to grant copyright in 1803 when the Dutch ruled the Cape Colony.[10] As a result, the Cape of Good Hope colony adopted copyright protection based on Roman-Dutch law principles at the time.[11] Later, the Transvaal and Free State Republics and the British

---

5 A nation-state is an independent country, especially when thought of as consisting of a single large group of people all sharing the same language, traditions, and history.

6 WIPO "Berne Notification No. 64 Berne Convention for the Protection of Literary and Artistic Works"https://www.wipo.int/treaties/en/notifications/berne/treaty_berne_64.html (Accessed on 02 October 2023).

7 Samtani 2020:6.
In terms of section 231 of the Constitution of South Africa, an international agreement binds the Republic only after it has been approved by resolution in both the National Assembly and the National Council of Provinces unless it is an agreement referred to in subsection (3). Section 231(4) further provides that the Republic is bound by international agreements which were binding on the Republic when the 1996 Constitution took effect which is the case for the Berne Convention.

8 Intellectual Property Right Office "A brief history of copyright", https://www.iprightsoffice.org/copyright_history/ (accessed on 25 May 2022).

9 *John Appleton v Harnischfeger Corp* 1992 AD 495 discusses the history of South African copyright legislation, with a focus on the extension of foreign copyright. The first South African copyright legislation, as the court pointed out, was contained in Chapter IV of the *Patents, Designs, Trademarks, and Copyright Act* 9 of 1916. This codified the *British Copyright Act* of 1916 into South African law. See Smith 1995:1.

10 Rens & Lessig 2006:25.

11 Geyer *et al.* 2016:182-183.

colonies of the Cape and Natal developed their instruments based on European precedents.[12] When the Cape of Good Hope passed its first Copyright Act,[13] copyright law became a figure of statute seventy years later.[14] The Zuid-Afrikaansche Republiek (ZAR) and Natal followed suit, with the ZAR (Transvaal) passing the Copyright Act 2 of 1887 and Natal passing the Copyright Act 17 of 1897.[15] The first two post-Union copyright laws were heavily influenced by British copyright law, as discussed by Pistorius.[16]

The British Copyright Act of 1911, a copy of which was annexed as the Third Schedule to the 1916 Act,[17] which was also known as the Imperial Copyright Act, was passed in Britain in 1911 to protect the rights of British authors in the colonies, at least in part.[18] The Act was formally adopted into South African law by the South African Patent, Trademarks, Designs, and Copyright Act 9 of 1916 and is the source of many of the country's present legislation.[19] Following unification in 1910, the Patents, Designs, Trademarks, and Copyright Act 9 of 1916 was enacted.[20] The intellectual property rights system in South Africa can be traced back to this Act.[21] When the Patents, Designs, Trademarks, and Copyright Act of 1916 was repealed, the various categories of IPRs, namely trademarks, patents, designs, and copyright, were placed under separate legislations, which developed independently. The equivalent British and European Patent Convention laws serve as a guide for South African laws.[22] In his dissertation, Owen Dean provided that;

> Prior to the coming into the operation of the patents, designs, trademarks, and copyright Act, 1916, on 1 January 1917, the copyright in South Africa was very confused and disjointed. Its existence and development were greatly influenced and determined by constitutional events and developments.[23]

12 Rens & Lessig 2006:25.
13 *Copyright Act* 2/1873.
14 Geyer *et al.* 2016:183.
15 Geyer *et al.* 2016:183.
16 Geyer *et al.* 2016:183.
17 *Copyright Act* 9/1916.
18 *Copyright Act* 9/1916.
19 Sikoyo *et al*. 2006:26.
20 Sikoyo *et al*. 2006:26.
21 Sikoyo *et al*. 2006:20.
22 Sikoyo *et al*. 2006:20.
23 Dean 1988:170.

The Copyright Act 63 of 1965 replaced the 1916 Act, and the scope of copyright protection was broadened to include protectable works that did not reflect an original creative effort, such as sound recordings, cinematograph films, broadcasts, and published editions.[24] The 1965 British Copyright Act was widely incorporated into the South African Copyright Act of 1965.[25] Soon after, the presently enacted Copyright Act 98 of 1978 replaced the 1965 Act and, following several amendments in 1983, 1992, and 1997, expanded the scope of copyright protection to include program-carrying signals and computer programs.[26] It is essential to note that although these amendments occurred, none of them made room for non-human authors.

Except for the administrative provisions of the Paris text of the Berne Convention for the Protection of Literary and Artistic Works adopted in 1971, South Africa did not ratify any international copyright treaties established since the 1940s.[27] Certain provisions of the Convention were included in the Copyright Act of 1978, such as the requirement that copyright be an automatic right and that an author or creator acquires the right as soon as her work has been "fixed" without the author having to announce or claim it.[28] Although the Copyright Act of 1978 shared many similarities with British legislation, it was not a carbon copy, unlike the Copyright Act of 1965. It is largely based on the terms of the Berne Convention for the Protection of Literary and Artistic Works as amended in Paris in 1971.[29] The 1978 Act included a rather thorough definition of the author, which varies based on the category of the work as compared to the 1965 Act.[30] Even though the Copyright Act 98 of 1978, which the apartheid government enacted, has been revised nine times, most of these revisions have been technical, especially in response to international developments.[31]

The current Act governing South African copyright law was enacted in 1978. In the years following the enactment of the South African Copyright Act of 1978, the

---

24 Taljaard "Copyright protection for works created prior to 1978", https://www.golegal.co.za/copyright-protection-1978/ (accessed on 10 March 2023).
25 Geyer *et al.* 2016:183**.**
26 Taljaard "Copyright protection for works created prior to 1978", https://www.golegal.co.za/copyright-protection-1978/ (accessed on 10 March 2023).
27 Armstrong & De Beer 2010:235.
28 Armstrong & De Beer 2010:235. See sections 3 and 4 of the Copyright Act 98 of 1978.
29 Copeling 1978:1.
30 Copeling 1978:3. However, the Act still made no provision for nonhuman authors.
31 Sikoyo et al. 2006:26.

publishing world was dominated by strong copyright protection, with rapidly expanding large global media companies wielding heavy-handed control of this market due to market dominance and strict copyright enforcement rules.[32]

The Copyright Act[33] defines the author in relation to:

- a literary, musical or artistic work, the author is the person who first makes or creates the work. In relation to a photograph, the author is the person who is responsible for the composition of the photograph.
- a sound recording, the author is the person by whom the arrangements for the making of the sound recording were made.
- a cinematograph film, the author is the person by whom the arrangements for the making of the film were made.
- a broadcast, the author being the person who is the first broadcaster thereof.
- a programme-carrying signal, the author is the first person emitting the signal to a satellite.
- a published edition, the author is the publisher of the edition.
- a literary, dramatic, musical or artistic work or computer program which is computer-generated, the author is the person by whom the arrangements necessary for the creation of the work were undertaken.
- a computer program, the author is the person who exercised control over the making of the computer program.

The Act also precisely provides that an author must be a qualified person, stating that this "qualified person" is a person who is of South African citizen or domiciled or resident in the country or, in the case of a juristic body, is a body incorporated under the South African laws.[34] Persons domiciled or resident in a Berne Convention for the Protection of Literary and Artistic Works country, or a body incorporated under the laws of a Berne Convention for the Protection of Literary and Artistic Works country, are also covered by the Act.[35] Furthermore, chapter two of the Copyright Act provides that, if they are original, the following works shall be eligible for copyright; literary

---

32 Graysouth "Half a century of copyright history and South Africa's new Copyright Amendment Bill", http://graysouth.co.za/2019/07/02/half-a-century-of-copyright-history-and-south-africas-new-copyright-amendment-bill/ (accessed on 22 May 2022).

33 Sec.1(iv)

34 Levenstein & Tucker "South Africa: Introduction to the law of copyright", https://www.mondaq.com/southafrica/copyright/36570/introduction-to-the-law-of-copyright (accessed on 25 May 2022).

35 Levenstein & Tucker "South Africa: Introduction to the law of copyright", https://www.mondaq.com/southafrica/copyright/36570/introduction-to-the-law-of-copyright (accessed on 25 May 2022).

works; musical works; artistic works; cinematograph films; sound recordings; broadcasts; programme-carrying signals and published editions. Copyright recognition asserts that an author is entitled to a restricted monopoly to utilize his original work if it is part of a recognized category.[36]

The term "Copyright" is commonly used to refer to the rights an author has in his work granted to the copyright holder or a person authorized by such a holder entitle him/her to control, use, and adapt the work exclusively.[37]

The evolution of copyright has also been influenced by technology, evidently showing that the two have a lengthy and inextricably linked history, with both having had an impact on the other. The role and influence of technology in the direction copyright law takes are gaining prominence as the world experiences a technology margin that rivals all other historical periods combined.[38] This is an ideal time to examine the transformations that have occurred since the enactment of the current Act that governs copyright in South Africa, as there is another cycle of developments in digital disruption in the Fourth Industrial Revolution. The government's attempt to revise South Africa's Copyright Act 98 of 1978, resulting in the Copyright Amendment Bill,[39] is a clear representation that the Act is outdated and that the country needs updated legislation to govern copyright at the present moment. Such legislation must be enacted for a Fourth Industrial Revolution period wherein works eligible for copyright are created by "persons" or "things" that fall outside an author's current definition.

1.3 RESEARCH PROBLEM

As the foundation of copyright, authorship introduces copyrightable work, establishes copyright interest, and indicates the first owner of the copyright.[40] Since an author

[36] Levenstein & Tucker "South Africa: Introduction to the law of copyright", https://www.mondaq.com/southafrica/copyright/36570/introduction-to-the-law-of-copyright (accessed on 25 May 2022).
[37] Levenstein & Tucker "South Africa: Introduction to the law of copyright", https://www.mondaq.com/southafrica/copyright/36570/introduction-to-the-law-of-copyright (accessed on 25 May 2022).
[38] Gachago 2011:1.
[39] Pistorius & Mwim 2019:4.
[40] Craig 2007: 209.

must produce a work to be eligible for copyright under copyright law, it logically follows that an author is central to copyright. To be sure, authorship is a constitutive element of copyright.

The Fourth Industrial Revolution is the current era of connectivity, advanced analytics, automation, and advanced manufacturing technology, which has been shaping global business for years.[41] This period of transformation in the manufacturing sector emerged in the mid-2010s and offers substantial potential for operations and the future of production.[42] The Fourth Industrial Revolution is an unprecedented period in the development of humanity, created by exceptional technological developments similar to those of the first, second, and third industrial revolutions.[43] These technological developments have connected the physical, digital, and biological worlds in ways that hold both tremendous potential and significant risk.[44]

The Fourth Industrial Revolution era is one in which works worthy of copyright protection can be created by artificial intelligence (AI). AI is usually regarded as the science of programming computers to perform tasks normally requiring human intelligence.[45] It is a particular field of science and technology that creates intelligent machines and computer programs which carry out activities that require human intelligence.[46] It is a system that replicates multiple human functions. AI has had some success in narrower or more simple settings.[47] AI-authored works are not included as the author under the auspices of the Act. One might wonder whether AI falls within the scope of a juristic person who qualifies as an author; however, in such a scenario, it will always be a matter of one's interpretation of the Act.

---

41 World Economic Forum “Fourth Industrial Revolution” https://www.weforum.org/focus/fourth-industrial-revolution (07 October 2023).

42 Ibid.

43 Mckinsey & Company “What are Industry 4.0, the Fourth Industrial Revolution, and 4IR?” https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-are-industry-4-0-the-fourth-industrial-revolution-and-4ir#/ (07 October 2023).

44 Ibid.

45 Copeland “What is artificial intelligence", AlanTuring.net http://www.alanturing.net/turing_archive/pages/Reference%20Articles/What%20is%20AI.html (accessed on 30 March 2023).

46 PK FA 2021:65.

47 Copeland “What is artificial intelligence", AlanTuring.net http://www.alanturing.net/turing_archive/pages/Reference%20Articles/What%20is%20AI.html (accessed on 30 March 2023).

Artificial intelligence (AI) is the term used for machines that mirror cognitive functions commonly associated with humans, such as pattern recognition, perception, and learning.[48] It is controlled by a collection of algorithms, which are a series of rules that a computer applies to produce a prediction or solve a challenge by analysing and identifying patterns in an endless amount of data. AI, as opposed to humans, is capable of effectively processing large amounts of data without being fatigued. As a result, the technology enables drawing insights from massive data easier, improving manageability.[49]

Aside from the fact that AI does not qualify as a person in the natural sense, no legislation implies that it may qualify as a person under the law. This dissertation emphasises this to support the fact that the definition of an author covers all the persons specified in the Act, except for AI, which can produce works that qualify for copyright under the Act. Furthermore, this is an era where AI produces works without being controlled by a “person”. This causes confusion and uncertainty because the Act states that an author is a "person" which is inclusive of natural persons and juristic persons,[50] while simultaneously indicating which works are eligible for copyright, works that can now be generated by AI, which is not recognised as a "person" under the Act.

In addition, the Copyright Act was created at a different time when intellectual property was not as advanced as today. For instance, the Fourth Industrial Revolution lays the groundwork for transformative changes in our existence.[51] This has resulted in individuals seeking to understand the potential influence of the Fourth Industrial Revolution's evolving concept of AI and technologically advanced futures, which is expected to be a game-changer.[52] The Copyright Act was not enacted in the fourth

48 Jin & Shin 2021:12.
49 Ibid.
50 One would question whether an AI does not fall under juristic persons, however, juristic persons are defined as a community or an association of people that, as an entity is something more than the sum of its members. See Robinson *et al.* 2015:6.
51 McGinnis “What is the fourth industrial revolution?”, https://www.salesforce.com/blog/what-is-the-fourth-industrial-revolution-4ir/#:~:text=The%20Fourth%20Industrial%20Revolution%20is%20a%20way%20of,printing%2C%20genetic%20engineering%2C%20quantum%20computing%2C%20and%20other%20technologies (accessed on 20 May 2022).
52 Okediji “Creative markets and copyright in the fourth industrial era: Reconfiguring the public benefit for a digital trade economy”, http://infojustice.org/archives/40247 (accessed on 20 May 2022).

industrial revolution era. Therefore, it does not properly cater for works created in an era with such advanced technology. Considering how technology and copyright are closely linked, such progressive development of technology and the fourth industrial revolution calls for a re-look into the Copyright Act. There have been various attempts to better equip South Africa for the Fourth Industrial Revolution period, indicating that the country does, in fact, require governance in this area. For instance, President Cyril Ramaphosa set the Presidential Commission on the Fourth Industrial Revolution (4IR), which was chaired by the President and Deputy Chairperson Professor Tshilidzi Marwala who was tasked to advise the President and the whole government on relevant policies, strategies, and action plans to position South Africa as a smart, connected, and competitive global player.[53] The Commission was tasked with advising the government on how best to use technology as a tool for economic growth and job creation in which the Commission presented the President with its preliminary diagnostic report for a country 4IR plan, as well as prospects for South Africa to capitalize on the Fourth Industrial Revolution.[54]

The Commission provided a number of recommendations, including underlining the importance of investing in human capital, and that leverage points for investing in human capital must be established.[55] Marwala advised that a "skills revolution" should be implemented in order to focus on numerical and logic skills which in turn feed into computational thinking and problem-solving - all of which are necessary in 4IR. Marwala also believes that the government should establish an AI institute to focus on research and development, implementation capabilities, and the use of AI in health, finance, mining, agriculture, and manufacturing.[56]

---

53 The Presidency “President receives draft Diagnostic Report on 4IR” https://www.thepresidency.gov.za/newsletters/president-receives-draft-diagnostic-report-4ir (accessed on 07 October 2023).

54 The Presidency “President receives draft Diagnostic Report on 4IR” https://www.thepresidency.gov.za/newsletters/president-receives-draft-diagnostic-report-4ir (accessed on 07 October 2023).

55 EU CHAMBER OF COMMERCE AND INDUSTRY IN SOURTHERN AFRICA “South Africa’s 4IR starts with proper spectrum allocation, incentives” https://www.euchamber.co.za/news/south-africas-4ir-starts-with-proper-spectrum-allocation-incentives/ (Accessed on 07 October 2023).

56 Ibid.

Considering the progression of AI and the fact that AI can programme and generate its own codes, i.e. codex,[57] it is safe to conclude that AI can produce work on its own without the supervising or programming of the manufacturer. As a result, we cannot rule out the idea of the AI being the author based on the assumption that the work created by the AI is a result of how the manufacturer programmed it. The Copyright Act does not include the manufacturer of a machinery as the author of a work it creates. This brings to mind how a minor, who lacks legal capacity, can produce work protected by copyright.

When it comes to minors, the law does not change the fact that they are the original creators of the works; instead, a parent, who, for the purpose of this dissertation may be viewed as "the manufacturer of the minor," or legal guardian may represent the minor in a legal transaction or if the minor's copyrights are violated. Why is a similar approach not taken when it comes to a manufacturer or creator of the AI and the AI itself, seeing that AI also has no legal capacity but can produce work similar to a minor? This demonstrates that legal capacity is not required to create a work that is copyright worthy and to be identified as the author.

The South African Government's attempts to create an amendment to South Africa's Copyright Act 98 of 1978 have not assisted in clearing up confusion and uncertainty surrounding South African copyright and authorship, including the limiting nature of the author's definition.[58] Therefore, an investigation of authorship in South Africa in the Fourth Industrial Revolution era is necessary not only to display the need for legislation which will protect new technology but to dig deep into what should be considered an author and whether the term "author" should be limited to the persons identified by the Act even though works included in the Act can be created by those who are not covered by it. Marzetti Maximiliano[59] states that "AI can potentially unleash a

---

[57] Metz "A.I. can now write its own computer code. That's good news for humans", https://www.nytimes.com/2021/09/09/technology/codex-artificial-intelligence-coding.html#:~:text=A.I.-,Can%20Now%20Write%20Its%20Own%20Computer%20Code.,and%20even%20translates%20between%20them (accessed on 10 September 2022).
OpenAI created Codex, an AI system that allows users to input natural language (text) and receive code as a result. Codex can rapidly compile code using machine learning, assisting in accelerating the coding process for both beginners and pros.

[58] See Tomaselli 2022:14-15.

[59] Maximiliano 2022:19-33.

Schumpeterian wave of creative destruction, creating winners (those who adapt) and losers (those who do not), and governments must prepare their countries for the AI revolution", which this dissertation completely agrees with and therefore, emphasis the need for need to investigate this area in South African law.

1.4 RESEARCH QUESTIONS

1. How do other countries and foreign sources define an author?
2. Is there a need to restructure conceptions of authorship in light of current technological development?
3. How does the limiting nature of authorship affect copyright in the fourth industrial revolution era?

1.5 METHOD AND THEORETICAL APPROACH

Doctrinal analysis is a research method which focuses on case law, legislation, and other legal sources and is sometimes referred to as "typical legal research".[60] This method entails using legal reasoning or logical deduction to analyse case law, organize, order, and systematize legal concepts, and research legal institutions.[61] It differs from other methodologies in that it considers the law as a written set of principles which can be distinguished and assessed solely through legal sources. A doctrinal approach scrutinizes law as a written body of principles that can be distinguished and assessed using only legal sources rather than considering the effect of the law or how it is applied.[62]

This dissertation uses this methodology because a theoretical comprehension of the definition of an author and copyright is required. Doctrinal legal research will serve a beneficial purpose as legal reasoning will be required in criticizing the Copyright Act

[60] UWE ASC LLM Support "Research Methods: Doctrinal Methodology", https://uweasclmsupport.wordpress.com/2017/01/18/research-methods-doctrinal-methodology/ (accessed on 1 June 2022).
[61] Kharel 2018:3.
[62] UWE ASC LLM Support "Research Methods: Doctrinal Methodology", https://uweasclmsupport.wordpress.com/2017/01/18/research-methods-doctrinal-methodology/ (accessed on 1 June 2022).

and its definition of an author. Therefore, this dissertation will use the doctrinal approach to address the research topic by relying on legislation and legal source.

This dissertation will also use the 'critical approach' methodology, which employs a critical perspective to textual analysis and identification of texts, including legislation, textbooks, journal articles, case law, internet sources, and reports.

1.6 LITERATURE OVERVIEW

Ever since the World Economic Forum's Founder and Executive Chairman, Klaus Schwab, published a book titled The Fourth Industrial Revolution, the term "Fourth Industrial Revolution" (4IR) has been used to frame and analyse the impact of emerging technologies on nearly every aspect of human development in the early twenty-first century, from evolving social norms and national political attitudes to economic development and international relations.[63] The concept of 4IR is occasionally applied interchangeably with "Industry 4.0," a German project that evolved between 2011 and 2015 with a focus on the application of digital technologies to manufacturing.[64] The topic of the Fourth Industrial Revolution has been touched on by many, as evidenced by this dissertation, and is constantly addressed with the advancement of technology. The literature on the Fourth Industrial Revolution and AI is vast and international in scope.

South Africa has weighed in on the AI and Fourth Industrial Revolution debates, with Professor Tshilidzi Marwala[65] giving recommendations from the commission's report on South Africa's progress towards embracing the Fourth Industrial Revolution. Marwala stated that, in light of the COVID-19 recovery and machines' ability to assist people in tackling issues such as poverty, the time has come for South Africa to harness 4IR technology for its recovery and social upliftment duties.[66] He contends that South Africa has been de-industrializing due to a lack of investment in new

63 Philbeck & Davis 2018:
64 Ibid.
65 University of Johannesburg vice-chancellor and deputy chairperson of the Presidential Commission on the Fourth Industrial Revolution (PC4IR**).**
66 EU CHAMBER OF COMMERCE AND INDUSTRY IN SOURTHERN AFRICA “South Africa’s 4IR starts with proper spectrum allocation, incentives” https://www.euchamber.co.za/news/south-africas-4ir-starts-with-proper-spectrum-allocation-incentives/ (Accessed on 07 October 2023).

manufacturing technology and that this makes it impossible for South Africa to compete in advanced manufacturing with companies from Vietnam, China, and Germany. This platform should be used to ensure that South Africa invests in production technologies.[67]

A number of foreign writers continuously discuss the Fourth Industrial Revolution and AI such as Bingbin Lu, who has described AI as “an exciting and revolutionary technology designed to simulate human intelligence”.[68] He focuses on AI in a "non-tool sense," stating that the AI is the true author of an outcome and proposing that AI creations in a non-tool sense have the potential to be integrated into modern legal systems without compromising well defined foundations.[69] Lu analyses whether AI-generated works could and should be protected under copyright law, as well as authorship allocation. He claims that humans are no longer the only source of creative and innovative works and that the evolution of AI has allowed it to potentially become a major actor in the creative process, as well as the driving force behind advancing creativity and innovation in our society.[70] Lu refers to Hristov who addresses the issue of IP ownership of Al generated works.[71]

Hristov's paper divides Al-generated works into two main categories, the first being works generated by Al programmes with direct guidance, assistance, or input from humans. In this category, Al functions as a tool to achieve a determined or predicted goal or outcome, such as the creation of a painting by an artist who has selected the colours, tool type (brush size and stroke style), and has to some extent input his requirements into the Al algorithm used to create the painting.[72] The second category of works he discusses deals with autonomously generated Al creations. The computer programs that generate works autonomously are the result of human intellect; their source code may be protected as a literary work under the United States Copyright

67 Ibid.
68 Lu 2021:2.
69 Lu 2021:4.
70 Lu 2021:4.
71 Hristov 2017:431-454.
72 Hristov 2017:435.

Act. He states that the artworks generated by such programs, however, are not copyrightable if not directly influenced by human authors.[73]

Another author who discusses AI, Simon Chesterman, provides two distinct reasons why AI might be recognised as persons before the law: first, to ensure that there is someone to blame when things go wrong, which is presented as a solution to potential accountability gaps created by AI's speed, autonomy, and opacity; and second, to ensure that there is someone to reward when things go right.[74]

Authorship dates to before the Fourth Industrial Revolution.[75] It is a concept that has been discussed worldwide for a long time. It is a broad concept that extends beyond the law to include notions such as technology, art, literary, dramatic, and musical works. As a result, there are different perceptions of the term "author" and interpretations of authorship and copyright law outside the South African Copyrights Act. The academic literature on intellectual property law concepts is immense. However, this dissertation is limited to authorship in copyright law in the context and situation of the Fourth Industrial Revolution.

The academic literature on copyright law and authorship in South Africa and foreign countries is vast. Writers who write from a South African context include but are not limited to scholars such as; Carol Ncube,[76] Pamela Andanda,[77] Owen Dean,[78] Tana Pistorius[79] and others. As a point of departure, the court in the *Biotech Laboratories (Pty) Ltd v. Beecham Group Plc case*[80] remarked that the South African Copyright Act is built on the Anglo-American copyright model, wherein commercial rights frequently

---

73 Hristov 2017:436.
74 Chesterman 2020:820.
75 See generally, Geyer *et al.* 2016:177, 182 and Ncube 2017: 2-7. See also Dean & Dyer 2014:4-6 and Graysouth "Half a century of copyright history and South Africa's new Copyright Amendment Bill", http://graysouth.co.za/2019/07/02/half-a-century-of-copyright-history-and-south-africas-new-copyright-amendment-bill/ (accessed on 22 May 2022).
76 Ncube & Oriakhogba 2018:2-26. Caroline B Ncube, a Professor at the University of Cape Town, has produced a number of articles on authorship and copyright, as exemplified by the examination of some of her work in this dissertation. Her article *Three Centuries and Counting: The Emergence and Development of Intellectual Property Law in Africa* provides a historical account of intellectual property development on the African continent, but this dissertation focuses more on her work with Orikhogba as they discuss authorship based on a monkey selfie.
77 Andanda 2016:411-434.
78 Dean & Dyer (eds.) 2014:3-25.
79 Geyer *et al.* (eds.) 2016:177-314.
80 *Biotech Laboratories (Pty) Ltd v Beecham Group Plc and Another* 2002 3 All SA 652 (SCA) 659.

take precedence and that the definition of "author" in section 1 also includes a significant number of individuals who are not authors in the ordinary meaning of the word but rather individuals with financial interests in the ending.[81] The court concluded that it is acceptable to doubt the philosophical foundations of South African copyright protection.

Pistorius discusses, amongst others, the nature of copyright and authorship. She points out that the popular and customary sense of "author" as the maker or creator of a work only pertains to literary, musical, or artistic works. The authors of all other works are defined as those who are not authors in the word's ordinary meaning but have a vested financial interest in the outcome, such as a juristic person. This means that, more frequently than not, someone other than the person who made or created the work may be considered its author.[82]

Pistorius states that the individual who converts the work to material form is usually the author. Still, if his or her action is merely mechanical, he or she is not the author.[83] In the *Kenrick & Co v Lawrence & Co* case,[84] the judge had an idea for a drawing but, being unable to draw, hired an artist to execute the drawing under his supervision and to his specifications. The court ruled that the artist, not the person who had the initial idea, was the creator of the drawing. The court limited the copyright granted to the individual drawing above and beyond the idea.

According to Pistorius, it is critical in copyright law to distinguish between the author of a work that is the subject of copyright and the copyright holder, meaning identifying the author and the owner of the work. She mentions that it is common practice to refer to the copyright holder as the copyright owner, and the Copyright Act follows suit. Further stating that using "owner" in relation to a right and copyright is incorrect: only corporeals may be owned. Hence only "quasi ownership," not "ownership," can be used to incorporeals such as rights with any theoretical force.[85] The author retains the first ownership of the copyright granted under sections 3 and 4. At the same time, the general rule in section 21(1)(a) also states that the copyright in a work initially belongs

81 *Biotech Laboratories (Pty) Ltd v Beecham Group Plc and Another*: par. 12.
82 *Biotech Laboratories (Pty) Ltd v Beecham Group Plc and Another*: par. 221.
83 *Biotech Laboratories (Pty) Ltd v Beecham Group Plc and Another*: par. 222.
84 *Kenrick v Lawrence* (1890) L.R. 25, Q.B.D. 99.
85 Geyer *et al.* 2016:225.

to the author. Pistorius' focus on the author and the first owner is essential in identifying the manufacturer of an AI as the owner of the work produced by the AI and providing clarity as to who is considered the author in such an instance.

Pistorius' work also extends to the evolution of copyright law in response to technological change. She published *The impact of digital copyright law and policy on access to knowledge and learning*[86] with Odirachukwu Mwim. In this part of her work, Pistorius and Mwim focus on digital technology, examining the impact of copyright law and policy on access to digital content. Given the impact of technology and the fact that we live in the Fourth Industrial Revolution period, it is reasonable to assume that the law should make a substantial effort to keep up with technological advancement.

Pistorius and Mwim discuss South Africa's legislative response to the influence of technology on copyright law.[87] They discuss how the South African Government began revising South Africa's Copyright Act 98 of 1978, resulting in the Copyright Amendment Bill, 2015, published for public comment in July 2015. Further resulting in the Copyright Amendment Bill, 2017 was published. Pistorius and Mwim state that the 2017 Amendment Bill builds on the first attempt to implement Internet treaties in South African copyright law.[88]

In *Striking a balance between intellectual property protection of traditional knowledge, cultural preservation and access to knowledge,* Pamela Andanda discusses protecting traditional knowledge through intellectual property regime, stating that it is important to prevent third parties from using it inappropriately. This dissertation highlights this part of her work because as much as she speaks of traditional knowledge as the work of a community,[89] traditional knowledge may also start from one person's work to a community. The dissertations highlights this because, according to Andanda, traditional creativity is characterized by a dynamic interplay between collective and

86 Pistorius & Mwim 2019:1.
87 Pistorius & Mwim 2019:4.
88 Pistorius & Mwim 2019:4. This illustrates that there are other people who have observed the need for up-to-date copyright legislation which then brings me back to the need for updated legislation to account for the fourth industrial revolution era.
89 Pistorius & Mwim 2019:2.

individual creativity complicates issues; additionally, she claims that the Intellectual property system concentrates more on individual works.

This reinforces Graham Dutfield's contention that "the notion of authorship is problematic in many traditional societies, and the 'qualified person' requirement is practically inconvenient to 'collective groups."[90] Identifying one person as the author of the traditional knowledge, in line with the current copyright Act, is no issue; however, we should also consider that the original author of certain traditional knowledge could be a deceased person since some traditions were established ages ago. This would mean we find ourselves in an instance where the author died years before these legislations and regulations were implemented. Does this mean such a person falls within the scope of an author in terms of the current Act? If not, what happens to traditional knowledge or work regarding copyright protection? This brings back the dissertation's argument that the Copyright Act creates confusion as it provides works eligible for copyrights but restricts who can be identified as an author even though the work created falls in the ambit of the Act.

The discussion of copyright and authorship extends to foreign and international sources, with writers such as Jane Ginsburg,[91] Peter Jaszi,[92] Carys Craig[93] and Orit Fishchman-Afori[94] writing on either one of the concepts.

Jane Ginsburg, a Literary and Artistic Property Law professor, writes about authorship and copyright from an American context. She speaks on authors as "the heart of copyright".[95] Ginsburg believes that refocusing the conversation on authors, who she

---

90 Dutfield 2004:100-109. In his paper, *Protecting traditional knowledge: pathways to the future* Dutfield, further provides that although a weak copyright regime may assist some countries by lowering the rate of imported intellectual property goods in specific fields such as software and educational items, such a policy could additionally harm industries that a developing country may seek to foster. According to the argument of this dissertation, South Africa's copyright regime is outdated, and it is safe to say that it is a weak system; therefore, an updated version of the Act would not only clear up the confusion that arises from authorship, but it would also assist the local music industries, which Dutfield states have reported significant losses and damages as a result of copyright infringement. This dissertation's argument, when read in conjunction with Dutfield's work, demonstrates the necessity for an updated version of the Act, which is emphasised throughout this dissertation but most notably in the discussion of ChatGPT in Chapter 4 of this dissertation.

91 Ginsburg 2003:1063-1092.

92 Jaszi 1991:455-502.

93 Craig 2005:425-445.

94 Fishchman-Afori 2011:231-259.

95 Ginsburg 2003:1064.

refers to as the constitutional subjects of copyright, will assist in restoring a proper perspective on copyright law as a system created to advance the public objective of extending knowledge by supporting the efforts and imaginations of private creative actors.[96]

Ginsburg opines that many aspects of copyright law in the United States and other countries only make sense if the author, the human who created the work, is acknowledged as essential. She further states that authors have moral claims that neither corporate intermediaries nor consumer end-users can straight-facedly make since copyright emerges from creating work, making it even more crucial to understand what authorship means in today's copyright laws.[97] Ginsburg points out that, in theory, artistic merit has never been a requirement for copyright, and several authors are not always less innovative than a single author. In this case, would it be incorrect to conclude that this makes room for non-human authors lacking artistic capacities?

According to Ginsburg, if authors are as important to copyright as she claims, then she must also admit that copyright doctrine on authorship is surprisingly limited, both in the US and abroad, with few judicial decisions defining authorship or defining who is an author and authorship being defined by fewer laws.[98] She states that because of this, one might conclude that the documented inability of national laws and those across jurisdictions to articulate a coherent concept of authorship undermines the author-based premise of copyright and, as a result, invalidates the regime of more or less exclusive rights those laws grant authors.[99]

Ginsburg points out that “some national laws set forth at least some indications of the kinds of activities that make one an "author”, but they disappoint upon closer examination”.[100] In addition, she shows the confusion that states make regarding authorship and ownership, mentioning that “It is unfortunate, as well as confusing, that the United Kingdom (UK) law here conflates authorship with the vesting of copyright

96 Ginsburg 2003:1063.
97 Ginsburg 2003:1063.
98 Ginsburg 2003:1066.
99 Ginsburg 2003:1066.
100 Ginsburg 2003:1069.

ownership. As we will see, an unrelenting equation of the two leads to considerable incoherence”.[101]

In addition, the writer provides that it is easier to establish that authors are the original beneficiaries of copyright than it is to determine what qualifies someone as an author and that the legal systems she considers in her writing appear to agree that an author is a human being who exercises subjective judgment in creating the work and directs its performance. She does specify that such a description may not fully encompass or exhaust the category of "writers".[102]

After studying and attempting to synthesize the authorities from three common law jurisdictions, the United States, the United Kingdom, and Australia, three civil law jurisdictions, France, Belgium, and Holland, and one mixed law jurisdiction, Canada, Ginsburg discovered six principles in search of an author which she does not claim that all six apply simultaneously time.

First, “authorship places mind over muscle,” meaning the author is the one who conceptualizes and leads the development of the work, not the person who just executes orders.[103]

Second, “authorship vaunts mind over machine”. This means that the participation of a machine or device in the creation of a work, such as a camera or a computer, does not deprive its creator of authorship status; however, the greater the machine's role in the work's production, the more the "author" must demonstrate how her role determined the work's form and content.[104] This is one of the essential parts of Ginsburg’s work which influence the outcome of this dissertation as it touches on the AI part of the research.

Ginsburg provides the third principle of authorship: "originality" is synonymous with authorship. She states that this principle appears to be the most universal and least controversial at first glance when in reality, different countries have established diverse ideas about what kind of contribution qualifies a work as "original", even within the

[101] Ginsburg 2003:1071.
[102] Ginsburg 2003:1066.
[103] Ginsburg 2003:1072.
[104] Ginsburg 2003:1074.

same jurisdiction, the required amount of originality varies depending on the type of the work.[105]

Carys Craig speaks of originality in her article *The evolution of originality in Canadian copyright law: Authorship, reward and the public interest*. She states that “originality is a foundational concept in copyright law: it defines the works to which copyright attaches and delineates the scope of protection they receive”.[106] Although her focus is on Canadian copyright law in this article, the writer Craig’s article also refers to “originality as the central requirement of copyright protection. A work is only copyright protected if it contains an original expression, and copying is an infringement only if original aspects of the protected work are taken. In this respect, the originality doctrine is in charge of defining the nature and extent of the subject matter of copyright, and originality is the fundamental idea that determines the link between an "author" and her "work" because copyright in work arises when an author makes the fixed original expression".[107].

Going back to Ginsburg’s six principles, she provides a fourth principle: the author must not be creative as long as she perspires.[108] It is evident here that the quantity and quality of sweat (skill and labour) may be important in determining authorship. If effort is rewarded in accordance with this precept, then it should be evident; as one English judge put it, there should be "more than negligible talent and labour". This concept, referred to as the sweat of the brow principle, is also mentioned by Vincenzo Iaia[109] , who also touches on originality when researching whether works created by AI qualify and, if so, which natural person should be considered the author of the work. This author’s research focuses on the originality of a work created by an AI and how the creative capacity of the AI influences the originality standard in terms of the European Union acquis, which provides that a work is original only if the author puts his personal touch on it.[110] Like Ginsburg, this author identifies the author as a human and works to identify a human as the author of the work created by AI.

---

105 Ginsburg 2003:1078.
106 Craig 2005:425.
107 Ginsburg 2003:427.
108 Ginsburg 2003:1082.
109 Iaia 2022:795.
110 Iaia 2022:795.

Ginsburg further provides that a fifth principle is thus presented by the intent to be an author. She states that it may appear logical to assert that only people who want to mark their personalities on their literary and artistic works should be entitled to authorship status; everyone else is only a craftsman, not a true creator. However, suppose the nature of the assignment does not inexorably govern how the putative author performs the work. In that case, she makes subjective and, most likely, minimally creative decisions, even if she wishes to let the first author's vision lead her own.[111]

Ginsburg provides the sixth principle: money talks; maybe it also writes, composes, paints, etcetera. She states that employer/commissioning party, "authorship" is justified mostly based on rationality: concentrating authorship and ownership in employers and commissioning parties undoubtedly makes exploiting creators who might otherwise be a nuisance easier.[112]

Ginsburg discusses the importance of the author and lack of authority and judicial decisions in this matter as much as she believes the author is central copyright. The gap this dissertation intends to bridge in this matter is Ginsburg's idea that the author is strictly human. She discusses the confusion that arises from not categorizing the author as a human. However, there is greater confusion in limiting the author to a human while non-humans may create the works recognized as works of authors.

Peter Jaszi is another writer whose work deserves some discussion in this dissertation. Jaszi discusses authorship as a concept which is arguably the most central and resonant of the foundational concepts associated with Anglo-American copyright doctrine.[113] But discussions of copyright doctrine tend to assume the importance of "authorship" as a privileged category of a human enterprise rather than to examine where this notion arose or how it has influenced the law. In his article, *Toward a theory of copyright: the metamorphoses of "authorship*", Jaszi aims to demonstrate how copyright acquired a constructed notion of "authorship" from literary

111 Iaia 2022.
112 Iaia 2022.
113 Jaszi 1991:455-502.

and artistic culture and explores how this "authorship construct" has been utilized in legal discourse in sometimes odd and even perverse ways.

While on the ‘literary and artistic culture” note, I find it appropriate to mention Alina Ng’s article, *The author's rights in literary and artistic works*, where she discusses the author’s rights stating that copyright jurisprudence gives limited recognition to the author's rights in his literary and artistic creations and to the general concept of authorship.[114] Ng provides that authors and artists contribute significantly to the copyright system by engaging in the authorship process to generate literary and artistic works for society. Authorship can take many forms, and creative works can be created alone or in partnership. Still, one thing stays constant: the author or creator of a work is responsible for delivering literary and artistic works to the public to foster advancement in the sciences and useful arts.[115]

Turning to Jaszi's article, the author intended to disaggregate the notion of "authorship" in copyright by examining some of the legal texts in which it is utilized and examining the cultural settings from which it was absorbed into legal discourse. This examination will demonstrate how, despite its prominence in current copyright law, the concept of "authorship" is more often than not a source of consensus rather than disagreement.[116]

Jaszi discusses the structural dilemma of copyright doctrine in terms of Public/Private Contradiction, Mediation in Copyright Doctrine and "Authorship" in relation to the Structure of Copyright Doctrine. In the case of "authorship" in relation to the structure of copyright doctrine, Jaszi provides that what is lacking from this depiction of the development of copyright doctrine is "authorship," precisely because its centrality is an unquestioned term. Even the declaration of the fundamental contradiction this Part started with assumes "authorship".[117]

[114] Ng 2009:475.
[115] Ng 2009:477.
[116] Jaszi 1991:455.
[117] Jaszi 1991:466.

Jaszi discusses "authorship" in the early law of copyright: history and prehistory.[118] Third, he provides that the "author" produces the "work".[119] The writer states that copyright originates with the term "authorship". However, as copyright law evolved, new vocabulary helped to establish the concept of literary property. In particular, a reflexive inclination evolved to define the "author" in terms of the "work" - a phrase meaning the abstraction that receives physical manifestation in a specific "copy" or "copies." However, before the term "work" entered the discourse of intellectual property as a key term in discussions concerning the reach of the Statute of Anne, the concept of "author" was at least rather well-entrenched.[120]

Jaszi mentions that “the emphasis on "authorship" left questions about the scope of "authorship" rights unanswered. In effect, "authorship" reproduced the fundamental contradiction between control and access.” In turn, he proceeds to discuss free Access, Commodification, and the Rise of the "Work",[121] the "Work", and the Penumbra of "' Author's" Rights[122] and the Work in Commerce.[123]

The writer moves to discuss “the "author" survives”, where he states if the copyright story had been more organised, the evolving "work" concept might have led to the death of "authorship," but this did not happen. With the objectification of literary and artistic creations, "authorship" not only assumed new ideological significance but was also deliberately used to expand copyright protection to new categories of subject matter. "Authorship" has been used to legitimise extra-legal appropriations of creative and not-so-creative activities at numerous pivotal points in the subsequent evolution of copyright.[124]

Jaszi’s article starts with the writer discussing authorship as the centrepiece of copyright. However, the writer slowly moves away from this notion and concludes the discussion by stating that authorship does not matter as much as it appears to. After that, he states that authorship remained what it was in the 18th century. This

[118] Jaszi 1991:468.
[119] Jaszi 1991:471.
[120] Jaszi 1991:472-473.
[121] Jaszi 1991:472.
[122] Jaszi 1991:472-473.
[123] Jaszi 1991:477.
[124] Jaszi 1991:480.

dissertation aims to prove that authorship remains the centrepiece of copyright and that it continues to evolve with current, therefore, requires legislation in line with such times. In addition to this, Jaszi's discussion will assist in not only comparing foreign copyright law with South African copyright law, but it provides context on authorship as the centrepiece of copyright, in turn assisting in proving the importance of widening the scope of authorship in South Africa for copyright law.

The work of the writers discussed in this section not only assists in pointing out different aspects of authorship and copyright but also assists in laying the foundation for the dissertation by providing the history of authorship and copyright, which is included in the background and will be referenced throughout the dissertation. The literature discussed above is a clear indication of the studies that have been conducted on authorship, copyright and AI. However, as I have briefly mentioned in my brief analysis of each source, there remains confusion and uncertainty when the South African definition of an author is read with certain parts of the copyright act as well as the lack of legislation that touches on AI creating its works, this study aims clear up such confusion and loopholes.

CHAPTER 2

The chapter will compare what scholars consider to be an author in the Fourth Industrial Revolution to the definition drafted in the 1978 Act in order to determine if the definition in the Copyright Act is appropriate for current or whether it is out of date.

The aim of this chapter is to address authorship in the lens of the Fourth Industrial Revolution. This chapter will explore the nature and requirements of copyright and authorship in order to assist in determining whether AI falls under the abovementioned requirements and whether the works created by AI are covered by the Copyright Act.

2.1 AUTHORSHIP FROM A FOURTH INDUSTRIAL PERSPECTIVE

The South African Copyright Act[125] does not define "author" broadly. Instead, it defines “author” in terms of the works protected by copyright.[126] In other words, the author is defined in terms of specific works protected by the Act and the author of a literary, artistic, or musical work is defined in this context as the person who creates the work. South African legislation governing copyright and authorship only recognizes natural and juristic persons as authors.

Discussing authorship under copyright law from an AI viewpoint is more difficult than it might seem in light of the fact that South Africa remains without legislation governing AI. However, this is not a major setback because the Copyright Act, which governs copyright and authorship, remains in effect.

The Act was adopted in 1979, a long time ago, with much technological progress occurring since then. This Act regulates all matters relating to copyright which includes authorship. South Africa has spent the last decade attempting to transform its outdated copyright laws, bringing them out of the apartheid era and in line with the 1996 Constitution of the Republic of South Africa, which has taken the form of legislative changes to the Copyright Act of 1978 and its accompanying regulations.[127]

---

125 Copyright Act 98/1978. Herein after will be referred to as “the Act”.

126 Ncube & Oriakhogba 2018:14.

127 Beiter *et al.* 2022:2-3. The introduction of the Intellectual Property Laws Amendment Act 28 of 2013 is one example of an attempt to update South Africa's outdated legislation which includes the Copyright Act. The purpose is to “provide for the recognition and protection of certain manifestations of indigenous knowledge as a species of intellectual property; to that end, to amend certain laws to provide for the protection of relevant manifestations of indigenous knowledge as a species of intellectual property, namely the Copyright Act of 1978, which intends to provide for the recognition

Due to this, the Copyright Act of 1978 and its accompanying regulations have undergone legislative amendments.[128]

The National Assembly passed the Copyright Amendment Bill (B13-2017) on 1 September 2022, with 163 votes in favour and 45 votes against, and the National Council of Provinces will now consider the Bill.[129] The Bill's preamble accordingly provides:

> To amend the Copyright Act, 1978, so as to define certain words and expressions; to allow for further limitations and exceptions regarding the reproduction of copyright works; to provide for the sharing of royalties in copyright works; to provide for the payment of royalties in respect of literary, musical, artistic and audiovisual works; to provide for resale royalty rights; to provide for recordal and reporting of certain acts; to provide for the accreditation of collecting societies; to provide for a mechanism for settlement of disputes; to provide for access to copyright works by persons with a disability; to provide for the licensing of orphan works; to strengthen the powers and functions of the Copyright Tribunal; to provide for prohibited conduct in respect of technological protection measures; to provide for prohibited conduct in respect of copyright management information; to provide for protection of digital rights; to provide for certain new offences; and to provide for matters connected therewith.

The Amendment Bill establishes important copyright policy objectives; however, it makes no mention of a solution to the matter we have at hand, which takes me back to the need to research authorship in copyright law from an AI perspective because the challenges brought up by the absence of clear legislation on the subject remain unresolved in South Africa.

Pistorius notes that only literary, musical, or artistic works fall under the definition of "author" in its common and everyday usage as the maker or creator of a work. Still, all other works' authors are defined as individuals who are not authors in the traditional sense but have a financial stake in the outcome.[130] This can be seen in the *Biotech Laboratories (Pty) Ltd v Beecham Group Ltd* case.[131] In this case, the court noted that the South African Copyright Act is based on the Anglo-American copyright model, in which commercial rights take precedence and that the definition of "author" in section 1 includes a large number of people who are not authors in the ordinary sense of the

---

and protection of indigenous works; to establish a National Council for indigenous knowledge; to establish National Databases for recording indigenous knowledge and indigenous works; and to establish a National Trust Fund for Indigenous Knowledge".

128 Beiter *et al.* 2022:2-3.

129 Nicholson "New copyright bill will take South Africa into the 21st century at last", https://www.groundup.org.za/author/723/ (Accessed on 20 November 2022).

130 Geyer *et al.* 2016:221.

131 *Biotech Laboratories (Pty) Ltd v Beecham Group Ltd*.

word but have financial rewards in the result.[132] The court concluded that one does not have to be sceptical to be suspicious of the philosophical premise upon which South African copyright protection is founded.[133]

In *Kenrick & Co v Lawrence & Co,*[134] an individual had the idea for a drawing but was unable to create it himself, so he hired an artist to do it for him, following his instructions and to his specifications. The artist, not the person who had the original idea, was deemed the author of the drawing by the court. The court limited the copyright conferred to that unique to the individual drawing above and beyond the idea. What can be inferred from these cases is that South African courts have occasionally looked at an author's status from a financial and idea vs execution perspective without questioning the author's physical characteristics or whether being human has any bearing on the author's copyright. This reverts us to the essential aspect of this dissertation, the author, and thus leads to a discussion of the nature of authorship and, by extension, the nature of copyright.

2.2.1 The nature of copyright and authorship in South Africa

Copyright covers many concepts, including authorship, ownership, and traditional knowledge.[135] Pistorius states that the term "copyright" is a misnomer because the concept of copyright encompasses much more than a "copy right" or right to copy - it also includes the right to publish, perform, adapt, translate, and transmit the work.[136] Copyright is a property right in common-law countries, deriving from the public-interest viewpoint.[137]

Dean is a significant source of South African intellectual property. He provides that copyright law, like other branches of intellectual property law, seeks to establish a system in which the creator of original works or intellectual property is granted a

---

132 *Biotech Laboratories (Pty) Ltd v Beecham Group Ltd*.
133 This means that one does not have to be pessimistic or cautious to be doubtful about the logical foundation of venting authorship on the person who has financial benefit on the work rather than the actual creator of the work.
134 *Kenrick v Lawrence*.
135 See Chapter One of Dean & Dyer 2014. Also see part four of Geyer *et al.* 2016.
136 Geyer *et al.* 2016:181.
137 Geyer *et al.* 2016:181.

qualified monopoly in using or exploiting their work.[138] This is done to compensate and reward him for the effort, creativity, and talent expended and utilized in creating his work and, secondly, to act as an incentive for him to use his talent.[139] The qualified monopoly is for a fixed period, after which the work enters the public domain and can be freely used and reproduced by others.[140]

The very nature of copyright in a work generally grants the owner an exclusive right to be economically exploited concerning certain acts linked to the work, which the copyright owner has the right to exercise or authorize others to exercise.[141] Copyright is a system "giving rise to rents" because it grants the owner the right to exploit the work and authorize others to do so personally, typically in exchange for monetary compensation.[142] Copyright law is a subjective right distinct from real, personal, and personality rights.[143] Copyright strikes a balance between the individual's and the public's interests.[144] This philosophy aims to create a profit incentive for intellectual property creators. The effectiveness of the profit motive is determined by the creator of intellectual property's ability to maintain and enforce his qualified dominance.[145]

In section 22(1) of the Copyright Act, copyright is transferable as movable property through assignment, testamentary disposition, or operation of law. This means that copyrights are moveable property. The presence of copyright in a work confers certain exclusive rights to the owner of that work.[146] The copyright content in the work is the sum of these exclusive rights, indicating that the copyright holder has a dominant position on the rendering or performance of certain specified acts.[147] In addition, these acts, referred to as restricted acts, are specified and determined by the type of copyright work.[148] In *Biotech Laboratories (Pty) Ltd v Beecham Group Plc*,[149] the Supreme Court of Appeal stated, “the current Act, in its original form, attempted to be

[138] Dean 1988:1.
[139] Dean 1988:1.
[140] Dean 1988:1.
[141] Baloyi 2014:101.
[142] Baloyi 2014:101.
[143] Geyer *et al.* 2016:179.
[144] Dean 1988:1.
[145] Dean 1988:1
[146] Dean & Dyer 2014:23.
[147] Dean & Dyer 2014:23.
[148] Dean and Dyer outline these acts for each type of copyright work.
[149] *Biotech Laboratories (Pty) Ltd v Beecham Group Plc* 786 JOC (A).

kinder to authors. The concept of copyright was replaced with an author's right, the ownership of which was vested principally in the author".[150] This means that because of the South African Copyright Act, copyright awards authors with ownership rights primarily vested in them. In addition, section 2(2) of the Act infers that copyright exists once a work has materialized and does not provide the author exclusive control over ideas represented. This means that copyright protects material concepts and not intangible ideas.

Copyright rights are territorial in nature and are viewed as negative rights.[151] The territoriality principle, which applies to registered intellectual property rights such as patents and trademarks, also comes into play for unregistered rights such as copyright. Therefore, copyright is located in the country where the law establishes its validity.[152] Pistorius draws attention to Cornish, Llewelyn and Aplin's observation that all types of intellectual property rights have one thing in common: they are essentially negative.[153] They are "rights to stop others from doing certain things, rights to stop pirates, counterfeiters, and imitators," as Pistorius puts it. Fundamentally, copyright forbids unauthorized copying by outside parties and describes it as a legal claim that can be used to hold someone accountable for violating a copyrighted work by engaging in certain actions.[154]

Pistorius opines that copyright is a "bundle of rights" as it safeguards the moral and economic rights of the author.[155] She argues that the right to economically exploit the work and the ability to prevent unauthorized use by others are two examples of the author's economic interests in his or her work. A "bundle of rights" refers to these several rights vested in a single work.

The duration of copyright in a work is limited, meaning that copyright does not continue indefinitely but ceases to exist when the period of copyright specified in the Act expires.[156] When this happens, the work enters the public domain, and the restrictions

---

150 *Biotech Laboratories (Pty) Ltd v Beecham Group Plc* 786 JOC (A): par.12.
151 Geyer *et al.* 2016:179-180.
152 Geyer *et al.* 2016:179-180.
153 Geyer *et al.* 2016:180.
154 Geyer *et al.* 2016:180.
155 Geyer *et al.* 2016:180.
156 Dean & Dyer 2014:21.

previously applied to its usage are no longer enforced.[157] At that point, a work may be copied or otherwise utilized in its entirety by a person without the need for prior permission from the former copyright holder.[158]

In terms of authorship, the Act specifies that the author is either a natural person or a juristic person, meaning the author is either of human or juristic nature, according to the current Act. The term "author" has a technical meaning in the Act, and the author of a work is not always the person who first produced or created it. The type of work created determines it.[159] The author produces work by himself, with a co-author,[160] or with the assistance of a machine. In addition, the author is the first owner of a work produced.[161] Authorship does not change when ownership of a work changes.[162]

The author is important to the creation of a work and is inextricably related to its birth.[163] The author converts the work to material form, noting that such action should not be mechanical.[164] Authors have moral rights which arise only if a work is copyrightable and include their paternity and integrity rights.[165] Moral rights are only granted to the authors of literary, musical, and creative works, cinematograph films, computer programs, and works associated with computer programs.[166] As a result of these rights, the author has the right to voice objections to any distortion, mutilation, or other modification of the work that is detrimental to his or her honour and reputation.[167] The identity of the author or authors of a work depends on and must be considered with due consideration for the relevant circumstances pertaining to the creation of that work.[168]

---

157 Dean & Dyer 2014:21.
158 Dean & Dyer 2014:21.
159 Dean & Dyer 2014:20.
160 Section 1 of the Act acknowledges the possibility of co-authorship of a work.
161 The author retains the first ownership of copyright awarded under sections 3 and 4. However, there are instances where there is an exception to this general rule such as when a work is created in the scope of one's employment. These exceptions are set out in section 21 of the Act.
162 Dean & Dyer 2014:25.
163 Dean & Dyer 2014:19.
164 Geyer *et al.* 2016:222.
165 Geyer *et al.* 2016:251.
166 Geyer *et al.* 2016:251.
167 Geyer *et al.* 2016:251. See section 20(1).
168 Dean & Dyer 2014:20.

2.2.2 The requirements of copyright and authorship

The discussion of which works are eligible for copyright is an essential foundation for understanding the limitations on the use of the works in which copyright is claimed and, therefore, recognizing the exceptions to such limitations that may encourage access to knowledge.[169] According to Pistorius, propriety[170] is the sole requirement under common law for copyright protection, with the remaining requirements being statutory in nature. Pistorius provides that a work must be original, in material form, and created or first published in South Africa by a qualified person.[171] She goes on to say that the requirements that the work be original and that it be reduced to a material form are two legal requirements for copyright protection that are related to the inherent characteristics of the work, whereas the requirements that the author be qualified or that the first publication or manufacture of the work takes place in South Africa are external circumstances.[172]

Originality was tested in the *Waylite Diary CC v First National Bank Ltd* 1995 (1) SA 645 (A) case. Waylite supplied FNB with field diaries produced by a Waylite employee between 1987 and 1991[173]. FNB issued a tender for diary supplies in 1992, which was won by a different printer.[174] The format of the journals was identical to those provided by Waylite. Waylite sought an order in a Local Division prohibiting FNB from infringing on its copyright in the appointment pages of the diaries.[175] The application was denied because the work done in designing, drawing, and composing the pages for which copyright was claimed was not 'original' as defined in Section 2(1) of the Act.[176] The appointment pages were not established as artistic or literary works for the Act.[177]

The case was appealed, and the court had to decide whether an alleged work was the proper subject matter for copyright protection as contemplated in Section 2(1) of the Copyright Act 98 of 1978, which involved an objective test, both in terms of originality

169 Armstrong & De Beer 2010:235.
170 See *Goeie Hoop Uitgewers (Edms) Bpk v Central News Agency* 1953 2 SA 843 (W).
171 Geyer *et al.* 2016:203.
172 Geyer *et al.* 2016:203.
173 *Waylite Diary CC v First National Bank Ltd* 1995 1 SA 645 (A): par.2.
174 *Waylite Diary CC v First National Bank Ltd*: par 3.
175 *Waylite Diary CC v First National Bank Ltd*: par 3.
176 *Waylite Diary CC v First National Bank Ltd*: par.4.
177 *Waylite Diary CC v First National Bank Ltd*.

and 'work'; and that the two tests may become intertwined.[178] It was provided in this case that the material factor for originality was actual time and effort; however, whether time and effort produce something original remains a value judgment.[179] The court reasoned that for a compilation to be the subject of copyright, it should not be commonplace and that the layout of the pages in dispute was commonplace and as such, the appeal was denied.[180]

Owen Dean and Alison Dyer provide that, per the Berne Convention for the Protection of Literary and Artistic Works , there are no requirements for safeguarding copyright.[181] They further provide that in contrast to the other types of statutory intellectual property rights, such as trademarks and patents, copyright is the only type provided for by statute that does not necessitate registration. Not only is no registration of a work required, but copyright law makes no provision for any process of copyright registration (with the exception of registration of copyright in cinematograph films, which facilitates proof of certain facts but does not create a copyrighted work).[182]

Section 2 of the Copyright Act[183] brings about the originality concept in which authors state “a literary, musical or artistic work shall not be eligible for copyright unless sufficient effort or skill has ·been expended on making the work to give it a new and original character; the work has been written down, recorded or otherwise reduced to material form”. An analysis of the originality requirement in South African law indicates that it resembles the originality approach customarily supported in English law.[184] Pistorius provides that this does not imply that the work must be the outlet for fresh or creative ideas, nor does it imply that any ideas the work may contain must be expressed in a manner that is original or unheard of.[185]

The Act specifies the requirement for originality but does not define the term or offer any other instructions that might help clarify what it means. Therefore, it is important to look at what the authorities have said to determine originality and how this term

[178] Par 7,8 & 9.
[179] Par. 7.
[180] Par.19.
[181] Dean & Dyer 2014:15.
[182] Dean & Dyer 2014:15.
[183] Act 98/1978.
[184] Hauman 2014:143.
[185] Geyer *et al.* 2016:204.

should be used. It was provided in the *Appleton v Harnischfeger Corporation* case[186] that originality relates to original skill or labour put into the work; it requires that the work come from the author directly and not from a copy. This does not imply that a work is considered original if created without reference to existing subject matter. An author can use existing material and still achieve originality in his work.[187]

In *Moneyweb (Pty) Ltd v Media 24 Ltd and Another*[188] , the court stated that determining originality applies to the work as a whole rather than to specific portions of a work. To be considered 'original,' a work should not have taken or copied from another person's prior work but instead must have been made, created, or brought about by the own independent skill and effort of the author and had to be the result of the author's "sweat of the brow".[189] Since its initial adoption in *University of London Press Ltd v. University Tutorial Press Ltd*, the industrious standard has been the criterion for originality in common-law jurisdictions. To meet the requirement of originality, this test requires a significant degree of skill, labour, and judgment. Sometimes more emphasis is placed on labour.

Similarly, the court found in *National Soccer League t/a Premier Soccer League v. Gidani (Pty) Ltd*[190] that, in some cases, putting a lot of work into compiling something may be enough to make it original, even if less skill is involved. As a result, where enough effort has been put into compiling a work that is sufficient to make the work original and susceptible to copyright protection.[191] The writers make evident that the requirement for an original work does not imply that the work must be novel or new but originality simply means that the work was created by the author and not copied from another source, and as long as this requirement is met, the work is unique, regardless of whether one or more identical works exist.[192]

The court in the *Haupt t/a Soft Copy v Brewers Marketing Intelligence (Pty) Ltd* 2006 4 SA 458 (SCA) provided the following explanation of the originality clause: "If a work

---

186 *Appleton v Harnischfeger Corporation* 1995 2 SA 247 (A) 262.
187 *Appleton v Harnischfeger Corporation*.
188 *Moneyweb (Pty) Ltd v Media 24 Ltd and Another* (31575/2013) [2016] ZAGPJHC 81.
189 Dean & Dyer 2014:16.
190 *National Soccer League t/a Premier Soccer League v Gidani (Pty) Ltd* (10/48519) [2014] ZAGPJHC 33.
191 Geyer *et al.* 2016:205.
192 Geyer *et al.* 2016:205.

is eligible for copyright, an improvement or refinement of that work would similarly be eligible for copyright, even if the improved work involved an infringement of copyright in the original work, if it satisfactorily meets the requirement of originality the alteration to the original work must be substantial".[193] Sunelle Geyer reiterates the importance of the endnote in this case which was overlooked in a few instances.[194] The court stated the following:

> It should be noted that no mention is made of labour. In para 24 it is said: 'The "sweat of the brow" approach to originality is too low a standard'. In this regard the Canadian law differs from our law and the law of the United Kingdom as also the Australian law. See Waylite Diary CC v First National Bank Ltd 1995 (SA) 645 (A) at 652G-653C and in respect of the Australian law Ricketson The Law of Intellectual Property: Copyright, Designs & Confidential Information para 7.35 and 7.60 where it is said: '[I]f the expression in question represents the independent application of knowledge, judgment, skill or labour on the part of the author, this will be sufficient for the statutory requirement (of originality).' Whether we should in due course follow the Canadian approach need not be decided now.[195]

If this endnote goes unnoticed, it may be interpreted that *Haupt* supported the Canadian standpoint. This explains why some post-*Haupt* opinions were unclear on whether more than just labour was needed.[196] A thorough review of the *Haupt* judgment's main text and pertinent endnotes reveals that in South Africa, as in England (at the time), skills or labour are required, and Haupt did not initiate a shift away from mere "sweat of the brow".[197]

Even though it was decided in 2006, *Haupt* remains the most recent Supreme Court of Appeal case regarding the definition of originality.[198] Even after *Haupt*, the High Court and academic writers in South Africa still recognise "sweat of the brow" as the criteria of originality.[199]

The second requirement for the protection of copyright in a work is that the work must be reduced to a material form, as mentioned above. Section 2(2) of the Act states that "a work, except a broadcast or programme-carrying signal, shall not be eligible for copyright unless the work has been written down, recorded, represented in digital data or signals, or otherwise reduced to material form". The Act requires that works other

193 *Hautp t/a Soft Copy v Brewers Marketing Intelligence (Pty) Ltd*: par.24.
194 Geyer 2022:184.
195 *Haupt* endnote 9
196 Geyer 2022:182.
197 Geyer 2022:182.
198 Geyer 2022:183.
199 Geyer 2022:183.

than broadcasts and signals that carry programming be reduced to material format, recorded, represented in digital data or signals, or represented in another way.[200] A potential broadcast is not protected by copyright until it is broadcasted, and a satellite-transmitted signal is required for a broadcast to be eligible for copyright.[201] Thoughts, ideas, or facts are not the foundation of copyright and concepts are not protected by copyright; rather, they apply to their physical or material manifestation or embodiment after they are created or come into existence.[202] Ideas have no copyright, a common expression that a work must be in a material form. Simply put, the requirement of a material form states that a work must exist in some sort of material form to be eligible for copyright protection.[203]

The other requirement discussed by these writers, which is crucial to this paper, is that a qualified person must create the work.[204] The third requirement is that the author of a work, or any of the authors in the case of a work of joint authorship, was indeed a "qualified person" when the work or a significant portion of it was created.[205]

Section 3 of the Copyright Act[206] provides this requirement in the following manner:

> (1) Copyright shall be conferred by this section on every work, eligible for copyright, of which the author or, in the case of a work in joint authorship, any one of the authors is at the time the work or a substantial part thereof is made, a qualified person, copyright that is-
>
> (a) in the case of an individual, a person who is a South African citizen, or is domiciled or resident in the Republic; or
>
> (b) in the case of a juristic person, a body incorporated under the laws of the Republic: Provided that a work of architecture erected in the Republic or any other artistic work in a building located in the Republic, shall be eligible for copyright, whether or not the author was a qualified person.

A qualified person is also a citizen of, or resides in, a World Trade Organization (WTO) member country.[207] Caroline Ncube and Desmond Oriakhogba conducted research on authorship based on a monkey selfie. In their research, they state that the Acts'

---

200 Armstrong & De Beer 2010:235.
201 Armstrong & De Beer 2010:235.
202 Dean & Dyer 2014:18-19.
203 Geyer *et al.* 2016:208.
204 See Geyer *et al.* 2016:209. See also Dean & Dyer 2014:19.
205 Dean & Dyer 2014:19.
206 Copyright Act 98/1987.
207 Geyer *et al.* 2016:210.

definitions do not completely resolve the authorship question within the Nigerian and South African context.

Since this dissertation is written from a South African perspective, the focus will be on these authors' work in their South African copyright discussion. Ncube and Oriakhogba make an example of determining the author of a cinematographic film, which appears simple because arrangements for the production of a cinematographic film or sound recording have traditionally been considered primarily financial. As a result, the person who makes financial arrangements is considered the author of such a work. Ncube and Oriakhogba observe that it would be difficult to determine how a person qualifies as a maker or creator of a literary or musical work under the South African Copyright Act because as much as the Act defines certain concepts such as a photograph, it does not include any part of a cinematograph film in this context.[208] This demonstrates that the requirements for authorship in South Africa are not as straightforward or as simple as they appear in the Act because the Act only defines an author in the context of a particular work rather than providing an all-encompassing overview to supplement the scope of intellectual property.

Ncube and Oriakhogba use Ginsburg's principles[209] to determine authorship, implying that there is no simple method of determining authorship requirements in South Africa, particularly under the current Copyright Act. Therefore, this dissertation applies an approach similar to that used by Ncube and Oriakhogba to determine the requirements. Ncube and Oriakhogba observe that Ginsburg's six principles for determining authorship are very appropriate because Ginsburg developed them after researching copyright laws and judicial authorities from several jurisdictions in Europe and America, including the United Kingdom, which influenced South African copyright laws.[210] The principles have been used in other places as suitable guidelines for determining authorship.[211]

As seen in chapter one, three of Ginsburg's principles are similar to what has been discussed above as she mentions originality, the sweat of the brow concept as well as

[208] Ncube & Oriakhogba 2018:22.
[209] These principles have been discussed in Chapter One.
[210] Ncube & Oriakhogba 2018:11.
[211] Ncube & Oriakhogba 2018:11.

the person who provides the money, resources, and platform for the creation of the work is given the presumption of authorship. This presumption aligns with case law, confirming that the author holds a financial stake in the outcome.[212] The other three principles provide a different criterion for the authorship requirements from the discussion. As mentioned in chapter one, Ginsburg states that authorship places mind over muscle,[213] which means that the author creates the work and supervises or exercises control over its execution. In the context of this dissertation, it is important to note that AI can perform the latter in this day and age. In addition, Ginsburg provides that authorship vaunts the mind over machine, meaning that the use of machinery does not influence the authorship status. However, in this context, the machinery serves as both "the mind" and the machine. Lastly, Ginsburg provides the author must have the intent to be an author.[214]

In a separate intervention, Ginsburg and Luke Budiardjo make a multifaceted argument in relation to the thesis of this dissertation, namely that the question of authorship in AI is irrelevant simply because human always vaunts over the machine as machines do not act voluntarily or by virtue of their natural intellect, but can function because of human input.[215] They provide that the only valid question is whether the machine's inventor or the user who purchased it and conferred instructions to create a certain work can be considered the author.[216]

Ginsburg and Burdiardo discuss AI works by dividing the range of generating machines into three categories: ordinary tools, partially generative machines, and fully-generative machines.[217] They describe ordinary tools as "machines which rely solely on the creative contributions of their users, and for which the creative contributions of the machines' designers are minimal, non-existent, or not apparent in the resulting work-form one end of the spectrum". For this category, Ginsburg and Budiardio exemplify Adobe Photoshop's Content-Aware Patch. This tool allows users to remove unwanted elements from digital images with the click of a button.[218] Ginsburg and

---

212 See *Biotech Laboratories (Pty) Ltd v Beecham Group Ltd*.
213 Ginsburg 2003:1063.
214 Ginsburg 2003:1085.
215 See Ginsburg & Budiardjo 2019:343-448.
216 Ginsburg & Budiardjo 2019:404.
217 Ginsburg & Budiardjo 2019:405-432.
218 Ruling out AI authorship based on a tool such as this would be incorrect and simply an easy way out of the discussing as there is already a work created by the photographer who takes the

Budiardo state that the author is the human who produces the work since the person using the tool is in full control of the end product and how the tool completes its mission.[219] At this point, it is important to remember that this dissertation argues that the AI which creates works without any involvement of humans should be granted authorship, just as Ginsburg and Burdiardo provide that authorship rests on the user who creates a work with the assistance of an “ordinary tool”.

Ginsburg and Budiardo describe Fully Generative Machines as machines that depend solely on their creators' "creative contributions" and do not require any creative decisions from users who simply operate or instruct the machine "create".[220] Machines that can generate works "on their own" and are designed to emulate or replace the human creator rather than assist her. These devices are "fully generative" or can produce specific outputs requiring minimal or zero user input.[221] They use Harold Cohen's "AARON", a painting machine, as an example, which generates paintings on demand despite not having any instructions from its creator.[222]

AARON is programmed with abilities in painting that allow it to mix paint and apply paint to canvas, as well as sufficient knowledge of basic object forms that enable it to "paint still life and portraits of human figures without photos or other human input as a reference."[223]Ginsburg and Budiardo further state that AARON is not a tool in the traditional sense since it creates without Cohen's guidance after being programmed.[224] AARON often paints images on its own while Cohen is sleeping, and it does not need to be told what to paint. In this case, they argue that "the ability of these machines to generate outputs on their own does not justify the logical leap to the concept of "machine authorship": even Cohen admits that AARON's autonomy does not extend to exercising judgement about what it's doing."[225] However, Ginsburg and Budiardo

photograph being edited by the machine. This kind of tool simply makes amendments on works that has already been created and therefore raises no complicated authorship questions as it is clear that the photographer created the work when capturing the photograph with his camera.

219 Ginsburg & Budiardio 2019:406-407.
220 Ginsburg & Budiardio 2019:405.
221 Ginsburg & Budiardio 2019.
222 Ginsburg & Budiardio 2019:407.
223 Ginsburg & Budiardio 2019:407.
224 Ginsburg & Budiardo 2019:408.
225 Ginsburg and Budiardo’s argument is that authorship rests on the creator of the AI who passes on the knowledge to the AI. A work created by a student using knowledge imparted by a teacher is not considered the teacher's work, such a debate has never been raised been raised by Ginsburg and Budiardo. As a result, they are erroneous when they solely apply their theory to AI-generated works,

make no mention of "exercising judgement" as a criterion for authorship or copyright, implying that AARON's lack of judgement does not invalidate the fact that the machine is the creator of original works and should be recognized as the author.

Partially-Generative Machines are machines that produce an end product that reflects a combination of the designer's and the user's creative contributions.[226] These machines do not entirely produce the expressive content of the resulting work but rather depend on the creative contributions of users.[227] Ginsburg & Budiardo refer to French artist and computer scientist Patrick Tresset's drawing machine he calls "Paul", which employs a robotic arm to create a portrait sketch of a human subject after processing the image.[228] Tresset cannot foresee Paul's outputs because they are dependent on the image captured by its camera. Yet, all of Paul's sketches share expressive details with Tresset's artistic style: messy lines, dark shading, and sharp contrasts.

Tresset programmed Paul's drawings to resemble his own, sharing a common aesthetic with the machine; however, while the programmer established the form of the drawings, he did not choose their subjects.[229] The person operating the machine determines who the drawings portray, and this operator may or may not be Tresset himself.[230] Ginsburg and Budiardo state that in this instance, neither the human participant, Tressent, nor the user operating Paul is completely responsible for the expressive content of the finished drawings; both participants creatively contributed to the end product.[231]

This presents the question of whether Tresset and another user operating Paul can independently assert authorship or be co-authors, and if not, does the work remain authorless? Ginsburg and Budiardo address this by stating that, as a preliminary

---

even if that latter scenario is no different from what they contest over. The main issue here is clearly that AI lacks cognitive ability or "human intellect", and hence Ginsburg and Budiardo "write off" the very possibility of AI authorship.

226 Ginsburg & Budiardo 2019:413.

227 Ginsburg & Budiardio 2019:413.

228 Ginsburg & Budiardio 2019:413.

229 Ginsburg & Budiardio 2019:414.

230 Ginsburg & Budiardio 2019:414. This means that with such works there will be instances where the AI produces works without the assistance or instruction of its creator but from another individual. This may occur in instances where such an AI is sold to another person or is available for the public to use such as Chatgpt which is discussed in chapter four of this dissertation.

231 Ginsburg and Budiardo 2019:416.

matter, copyright rules regarding co-authorship may limit the ability of the designer and the user to claim that the resulting work is a "joint work" if the two participants do not know each other or collaborate concurrently.[232] Furthermore, only a creator who engages in both processes, contributing intellectually to the conception of the work and physically to the execution of the work, can assert sole authorship. However, conceptualization accounts for only half of the authorship equation.[233] A machine user, such as Paul, can claim authorship of the product only if he or she has adequate control over the method by which the work was created. If the user controls this process, the user has conceived of and executed the producing work and is thus the only creator of the resulting work, much like the user of an "ordinary tool."[234]

The essence of Ginsburg and Budiardo's argument is that humans will always author AI-generated works because human inputs will always be engaged in such production. However, the leading-up chapters of this dissertation, read in conjunction with chapter four, demonstrate that this is not always the case. The complexities of Ginsburg and Budiardo's concept of locating the author of works generated by Partially-Generative Machines lead to the dissertation's argument that authorship should be assigned to the work's true creator. The AI contributes more than the user, who simply instructs the machine what to make, and the designer may not have contributed enough to certain works created by the AI to be considered an author simply because he designed the tool. When no human involvement is needed to make a work, Ginsburg and Budiardo's argument may lead to confusion over who the author is, resulting in the works being left authorless.

Ginsburg's fifth principle, which states that only those who intend to imprint their personalities on their literary and artistic endeavours should be entitled to authorship status, was influenced by Nimmer's work,[235] which establishes intent to be an author as a condition for attributing authorship to the person. All others are merely craftsmen

---

232 Ginsburg and Budiardo 2019:416.
233 Ginsburg and Budiardo 2019:416.
234 Ginsburg and Budiardo 2019:426. The discussion of ChatGPT in Chapter 4 shows that it is not as straightforward as Ginsburg and Budiard make it appear. With the ability to code themselves, as previously indicated, AI machines may be able to develop works that the user and designer of the AI are unaware of. Ginsburg and Budiardo's theory leave room for authorless works since machines such as ChatGPT go above and beyond the methodology employed by the latter to determine who is the author of works generated by such AIs.
235 Ncube & Oriakhogba 2018:12.

and not true creators.[236] In this regard, some have said that because AI systems lack a personality that they could stamp on what they make, AI authorship is limited.[237] However, the portrait created by a machine learning (ML) algorithm known as a generative adversarial network proves quite the contrary.

The portrait bought at Christie's art auction on 25 October 2018 was a painting by Edmond De Belamy, which Christie's marketed as "the first portrait generated by an algorithm to come up for auction," sparked discussion about the definition of authorship and AI.[238] Upon analysis of the portrait, the bottom right aspect consists of distinct writings that one may identify as the imprint of the AI that created the portrait. Researchers introduced the algorithmic imprint concept to demonstrate how an algorithm's removal does not necessarily mean that its effects are stopped or undone.[239] Put differently, algorithmic consequences extend far beyond the algorithm's "lifetime". This supports the theory that AI does have an imprint, and the writing in the portrait discussed above could be a feature categorised as an imprint of AI.

This means that the requirements applied by the South African Copyright Act together with Ginsburg's principles provide a contradictory notion as they strictly identify the author as a natural person or juristic person, further creating these requirements from such context. However, as was discussed above, there is a grey area where AI generates works that satisfy both the authorship and copyright requirements, with the one exception that AI is not a person.

CONCLUSION

The preceding discussion indicates that the existing definition of an author excludes AI, despite the fact that the machinery is capable of producing works deserving of copyright protection. This gap has been addressed by writers such as Ginsburg and Burdiardo, who make valid arguments in their writing, particularly in terms of authorship requirements. However, these authors have disqualified AI as authors primarily due to their lack of human intelligence and characteristics, despite the fact

---

236 Ginsburg 2003:1085.

237 Vézina and Moran "Artificial intelligence and creativity: Why we're against copyright protection for AI-generated output", https://creativecommons.org/2020/08/10/no-copyright- protection-for-ai-generated-output/ (accessed on 30 December 2022).

238 Vézina and Moran "Artificial intelligence and creativity: Why we're against copyright protection for AI-generated output", https://creativecommons.org/2020/08/10/no-copyright- protection-for-ai-generated-output/ (accessed on 30 December 2022).

239 Ehsan *et al.* 2022:1305.

that the same standards they established are met by AI for authorship status. It is evident that the discrepancy in authorship in relation to AI is merely due to a lack of human intelligence. Nevertheless, this should not detract from the reality that AI is capable of creating works worthy of copyright without the need for human intelligence. Furthermore, all the requirements imposed by the Copyright Act and explained by the writers named above are the same requirements that AI machinery satisfy. This chapter highlighted the significance of revising the definition of the author, as the nature and requirements of authorship essentially cover AI and the works it generates, with the exception of the human nature aspect.

CHAPTER 3

3.1 A COMPARATIVE ANALYSIS OF AUTHORSHIP BETWEEN SOUTH AFRICA AND ENGLAND

Authorship is a concept that has long been debated worldwide because authors from various walks of life and countries have written on the subject, as stated in chapter one. As a result, various interpretations of the term "author" and copyright law exist outside the South African Copyright Act. The academic literature on intellectual property law concepts is vast, and the literature on copyright law and authorship in South Africa and other countries is extensive. As a result, this chapter intends to discuss and compare South African legislation and academic literature to foreign legislation and literature to answer the research question.

Although several authors have discussed authorship in South Africa, only a few focus on the concept of authorship in and of itself; therefore, the concept becomes lost in the shadow of copyright law. As a result, the history of authorship is a limited piece of knowledge that can currently only be discussed in the context of the history of South African copyrights. The lack of historical development of authorship in the country stems from the fact that the current Act is the 1978 Act, insinuating that not much has happened in South African authorship since the Act's enactment, even though there have been multiple amendments to the Act, none of which are focused on authorship in and of itself, which is what this chapter intends to depict.

This chapter distinguishes between the current South African definition of an author, as discussed in Chapter Two, and the Copyright Act and legislation governing copyright law in different countries, namely, England. The chapter examines different writings on copyright, mostly international sources, and links these to South African copyright law. This assists in determining how other countries, especially developed countries, address authorship and copyright and how they have responded to the advancement of technology and AI as a producer of copyright-worthy works.

As a result, this dissertation proceeds to discuss foreign legislation, focusing specifically on English legislation. This jurisdiction was chosen because of the significant attention they have paid to its copyright regimes and AI in relation to the

research problem. England colonised South Africa, causing most of the country's legislation to be derived from English legislation, which further explains the England comparison. The present Copyright Act 98 of 1978 is based on the 1911 British Copyright Act.[240] As a result, South Africa can be compared to a developed country with similar regulatory and legislative frameworks. The primary objective of this chapter is to highlight the similarities and differences between South African and English copyright legislation, as well as the actions taken by each country to alter their respective Act to accommodate current events.

3.1.1 South Africa

Over the past decade, South Africa has been involved in attempts to update its outdated copyright laws, bringing them out of the apartheid era and into compliance with the Constitution of the Republic of South Africa, 1996.[241] Due to this, the Copyright Act of 1978 and its accompanying regulations have undergone legislative amendments.[242]

The South African Department of Trade and Industry (DTI) proposed modifications to the Copyright Act of 1978 to modernize increasingly outdated legislation.[243] The DTI, which administers copyright law, saw the need to update the Copyright Act, resulting

[240] Armstrong & De Beer 2010:235.

[241] See *Blind SA v Minister of Trade, Industry and Competition and Others* 2023 2 BCLR 117 (CC). The high court in this matter declared the South African Copyright Act unconstitutional by the High Court of South Africa because it did not provide for people with visual impairments and other disabilities to access literary works in a legible format. The court found that equal access to reading materials is a fundamental human right. In addition, the court found that the Copyright Act not only violates several constitutional rights, but it also fails to meet South Africa's obligations under international agreements to persons with disabilities.

[242] Beiter *et al.* 2022:2-3. The following legislation amended this Act: Copyright Amendment Act 56 of 1980; Copyright Amendment Act 66 of 1983; Copyright Amendment Act 52 of 1984; Copyright Amendment Act 39 of 1986; Copyright Amendment Act 13 of 1988; Copyright Amendment Act 61 of 1989; Copyright Amendment Act 125 of 1992; Intellectual Property Laws Amendment Act 38 of 1997; Copyright Amendment Act 9 of 2002; and (to a limited extent) the Intellectual Property Laws Amendment Act 28 of 2013.

[243] Riby-Smith 2017:219.

in the Copyright Amendment Bill.[244] It was redrafted multiple times because of the significant critiques[245] it sparked.[246]

The *Amendment Bill* was passed in 2022, and its preamble states:

> To amend the Copyright Act, 1978, so as to define certain words and expressions; to allow for further limitations and exceptions regarding the reproduction of copyright works; to provide for the sharing of royalties in copyright works; to provide for the payment of royalties in respect of literary, musical, artistic and audiovisual works; to provide for resale royalty rights; to provide for recordal and reporting of certain acts; to provide for the accreditation of collecting societies; to provide for a mechanism for settlement of disputes; to provide for access to copyright works by persons with a disability; to provide for the licensing of orphan works; to strengthen the powers and functions of the Copyright Tribunal; to provide for prohibited conduct in respect of technological protection measures; to provide for prohibited conduct in respect of copyright management information; to provide for protection of digital rights; to provide for certain new offences; and to provide for matters connected therewith.

In terms of authorship, the bill addresses the proof of authorship in section 7. The bill provides that in the absence of proof to the contrary when a mark or name purporting to identify a person as the creator of a visual artistic work appears on such work, that person is believed to be the author of such work.[247] Is this to say that the Bill recognizes AI as the author when it leaves a mark on a work it creates? This is ambiguous because it is implied and not explicitly stated in the legislation. The Bill further provides that if a visual artistic work is the work of more than one author, the presumption in section 7C(1) applies to each co-author of such visual artistic work; or includes indigenous cultural expressions or knowledge, the relevant indigenous community is entitled to an equitable share of the resale royalty payable.[248]

Quite a few changes have been made to the current Copyright Act with the passing of its Amendment Bill. Despite these revisions, the definition of the author remains relatively unchanged with minor amendments. There have been no apparent

---

244 Riby-Smith 2017:219.

245 Dean went as far as stating that “Despite the DTI’s best efforts the draft Bill remained an abomination. It was poorly drafted, lacked balance, and exhibited a lamentable lack of appreciation of the principles of copyright law and of the basic tenets of legal draftsmanship”. Prof Sadulla Karjiker had expressed similar concerns about the Bill's flaws. He urged the committee not to make copyright legislation the scapegoat for government failures stating that "Copyright is the cheapest form of property ownership that somebody can own." He further provided that government notification of ownership is not necessary, nor is a license asking "Why should someone write a textbook when universities can just copy it for free?".

246 Dean “Reconstituting the Copyright Amendment Bill”, https://blogs.sun.ac.za/iplaw/2021/06/14/reconstituting-the-copyright-amendment-bill/ (accessed 20 March 2023).

247 Sec 7C(1).

248 Sec 7C(2).

amendments to accommodate those who have created copyright-worthy works currently not identified as authors by the Act.

The historical development of the Act governing copyright in South Africa has been focused on copyright law in general, with minimal emphasis on the 'individual' who produces the copyright-worthy works. In addition, there has been no legislative response to the influence that AI has on copyright. As a result, the dissertation will explore how English legislation has evolved from enacting the first British Copyright Act to the present to meet the needs of the country's development in terms of copyright and authorship.

3.1.2 England

3.1.2.1 The historical development of copyright

The majority of histories of British copyright law tend to concentrate on the origins of copyright, which are commonly traced back to the Statute of Anne[249] , which was passed in 1709 and came into force on 10 April 1710, or, on rare occasions, to the practices used to control the book trade in the sixteenth century.[250] Since the introduction of copyright law in England in 1709 in reaction to the invention of printing, its history has undergone constant development to keep up with technological advancements.[251] The content of this chapter will be restricted to a brief historical account of some of the more significant legislative and legal developments which have established and affected current copyright law.

[249] This act established clear conditions of protection and introduced for the first time the idea that the author of a work is its copyright owner. The first act, named "An Act for the Encouragement of Learning, by Vesting the copyright of Printed Books in the Authors or Purchasers of such Copies, during the Times herein mentioned," was passed by Queen Anne in 1709. The act established a statutory foundation for copyright, including both instrumental justification and adherence to the Lockean doctrine of the author's right to his work. This freshly enacted formulation was the result of a new balance of political and economic powers, as well as demands resulting from philosophical changes. See Fishchman-Afori 2011:246. See also Intellectual Property Rights Office "A brief history of copyright", https://www.iprightsoffice.org/copyright_history/#:~:text=The%20world's%20first%20copyright%20law,out%20fixed%20terms%20of%20protection (accessed 25 May 2022).

[250] Bently & Sherman 2014:33.

[251] See Davis 1997.

It is critical to begin an investigation of the underlying principles governing copyright legislation with the English Statute of Anne, given that it is the foundation from which the modern concept of copyright in the Western World had been constructed.[252] It was the most significant single occurrence in copyright history because it changed the conceptual nature of copyright and was founded on two revolutionary principles: recognising the individual author as the source of protection and adopting the concept of a limited term of protection for published works.[253] The Statute of Anne was revised twice in less than a half-century, first by the Copyright Act of 1814[254] and then again by the Copyright Act of 1842.[255]

Even though elements of copyright law have a long history, copyright law did not take on its modern meaning as a distinct area of law which offers rights in works of literature and art until the mid-nineteenth century.[256] Furthermore, copyright law was not rationalized and codified into the kind of contemporary, abstract, and forward-looking legislation that interests us here until the passage of the Copyright Act of 1911, which was replaced by the Copyright Act of 1956 following a review by the Gregory Committee in 1952.[257] The Imperial Copyright Act of 1911 was the first British copyright law to protect British authors' translation rights. This Act gave its author, who was also the copyright owner, the exclusive right to 'produce, reproduce, perform, or publish any translation of a work' for the rest of his or her life and a further 50 years after death with the fair dealing defence as the primary exception to this exclusive right.[258]

The 1956 Act was amended several times to account for new technologies such as computer software.[259] The same boundaries that created consequences for international systems also produced changes to national systems in copyright law as a result of developments in technology.[260] Britain was among the first nations to

[252] Davis 1997:8.
[253] Davis 1997:8.
[254] This Act guaranteed a work's copyright protection for the duration of its author's life. The 1842 Act on the other hand, extended copyright protection to only seven years after the author's death.
[255] Fishchman-Afori 2011:248.
[256] Bently & Sherman 2014:33.
[257] Bently & Sherman 2014:33.
[258] Talagala 2021:69.
[259] Bently & Sherman 2014:34.
[260] Cornish *et al.* 2003:355.

resurrect its Copyright Act in 1956 in response to the post-war decade's developments. Even in the 1970s, it was becoming clear that if copyright were to survive the impact of modern technology, adaptations of British law and practice would be needed.[261] The Whitford Committee suggested general revisions to the 1956 Act in a future periodic review in 1977 which resulted in the passing of the current Act, the Copyright, Designs, and Patents Act of 1988.[262] The Act has been amended several times to implement duties imposed by EU directives.[263] With the shift in the sources of British copyright law over the last two decades, the law has inevitably had to respond to the challenges and opportunities presented by digitization, especially the internet.[264]

3.1.2.2 The Copyright, Designs and Patents Act

The Copyright, Designs and Patents Act[265] constitutes the majority of British copyright law (CDPA).[266] This Act defines the author in the following manner:

> (1) In this Part "author", in relation to a work, means the person who creates it.
>
> (2) That person shall be taken to be—
>
> (aa) in the case of a sound recording, the producer;
>
> (ab) in the case of a film, the producer and the principal director;
>
> (b) in the case of a broadcast, the person making the broadcast (see section 6(3)) or, in the case of a broadcast which relays another broadcast by reception and immediate re-transmission, the person making that other broadcast;
>
> [(c)] (d) in the case of the typographical arrangement of a published edition, the publisher.
>
> (3) In the case of a literary, dramatic, musical or artistic work which is computer generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.
>
> (4) For the purposes of this Part a work is of "unknown authorship" if the identity of the author is unknown or, in the case of a work of joint authorship, if the identity of none of the authors is known.

261 Cornish *et al.* 2003:355.
262 Bently & Sherman 2014:34.
263 Bently & Sherman 2014:34.
264 Bently & Sherman 2014:34.
265 *Copyright, Designs and Patents Act* 1988.
266 Bently & Sherman 2014:31.

> (5) For the purposes of this Part the identity of an author shall be regarded as unknown if it is not possible for a person to ascertain his identity by reasonable inquiry; but if his identity is once known it shall not subsequently be regarded as unknown.[267]

In addition to this, the Act also defines authorship in terms of joint authorship[268] and co-authorship.[269] The Act also sets out a series of statutory presumptions as to who is the author of a work. The British authors Lionel Bently and Brad Sherman define the author in terms of the CDPA as the person who creates a work.[270] The Act also establishes a number of statutory presumptions regarding who is the author of a work, similar to the South African legislation. The definitions provided in the CDPA are almost identical to those in the South African Copyright Act, which is expected since South African Copyright law stems from English law, as mentioned before. The CDPA, however, states in section 104 of the Act that anyone who puts their name on the work is regarded as the author,[271] unlike the South African Copyright Act.

In a British law context, a work is eligible for copyright protection if it meets the following criteria: the work must be recorded in a material form, it must be original, and it must be adequately connected to the United Kingdom to qualify for protection under UK law, and it must not be excluded from protection on public grounds.[272]

The European Commission also recognized the importance of implementing regulations to address the technological advancements unleashed by AI technology adequately.[273] On April 25, 2018, it announced in a Communication on 'Artificial Intelligence for Europe' that the European Commission will devote €1.5 billion to AI research funding throughout 2020. In September 2020, the government issued an initial request for comments on legislative policy related to patents, data mining, and

---

267 Sec. 9.
268 Sec. 10.
269 10A.
270 Bently & Sherman 2014: 125.
271 In South Africa, one must leave an imprint to qualify as an author which qualifies an AI as such since it can leave such imprint as seen in the painting discussed in chapter two. Considering what the CDPA provides in this section as well as the advancement of AI technology, there is a great possibility that AI can leave its name on the work it creates should it be programmed with such a skill which takes me to the gap that is central in this discussion. This was also evident in the painting Edmond De Belamy discussed in chapter two.
272 Bently & Sherman 2014: 91. These requirements are similar to those provided in chapter two as discussed by South African author Tania Pistorius in Geyer *et al.* 2016:203. This is important to note as it shows that South African and British authors have similar requirements for copyright. It will be vital as the dissertation proceeds to compare the approaches taken by each country when it comes to copyrights and AI.
273 Straus 2021:148.

copyright, and the proposals announced several issues, including additional consultation on whether ownership of original works should be restricted to human works, including AI-assisted creations.[274] Following a series of consultations throughout 2020, it was determined, among other things, that the use of AI to produce creative content is still in its early stages. Thus, there would be no immediate legislative changes in relation to computer-generated works under the CDPA. However, the World Intellectual Property Organization(WIPO) will continue to monitor the effectiveness of existing protection as AI evolves and encourages any new evidence from stakeholders.[275]

AI-generated creative works currently have unique copyright protection. If the work is an original literary, dramatic, musical, or creative, it will be protected for 50 years as a "computer-generated work" from the creation date.[276] This is a reduction from the 70-year protection accorded to works created entirely by humans or partly by humans and partly by AI. The United Kingdom is one of only a few countries that offers copyright protection to AI-generated creative works. Despite being adopted at an early stage of AI development, the UK and Irish copyright laws assign the copyright in works generated by AI in instances whereby there is no human creator to the individual who takes all preparatory steps necessary for the creation of the work.[277]

However, no other legislature has enacted explicit laws addressing these AI-related copyright challenges.[278] Considering the above, one notes that South African copyright law was founded on British copyright law with acts so similar that they carry similar history. Like the South African Copyright Act 98 of 1978, the Copyright, Designs and Patents Act still refers to the author as a “person”. However, as the world developed with different technological advancements, although both South Africa and England have amended their copyright legislation with time, England's legislation is more

274 Straus 2021:148.
275 Straus 2021:148.
276 Davies & Dennis “UK set to decide on copyright protection of creative works generated by AI”, https://www.pinsentmasons.com/out-law/analysis/uk-to-decide-copyright-protection-creative-works-generated-ai (accessed on 20 March 2023).
277 Straus 2021:154.
278 Although in the UK, authorship for works generated by AI is bestowed upon the human creator involved in the process, the country has provisions in place to regulate such instances, unlike South Africa. They have legislation in place that assist them in dealing with these situations brought about by technology in the fourth industrial revolution, which South Africa lacks.

suitable for present times since it made amendments that account for new technologies which make provisions for works generated by AI, as laid out in this dissertation.

To address the growing use of AI and the implications that come with it, the UK government has indicated its intention to start developing a more comprehensive regulatory framework for AI such that In 2023, it published a consultation on a policy paper titled "A pro-innovation approach to AI regulation," it began to assemble a £100 million Foundation Model Taskforce, and revealed that Britain would host a global summit on AI Safety.[279] Even though, in terms of this dissertation, England still needs to work on AI authorship to allow AI authors, the country kept up with present times making sure that they cater for works created by AI as well as taking steps such as having consultations to make sure that they are not left behind as a result of this technological advancements. This is something that South Africa has failed to do. This supports the core premise of my dissertation that South Africa has failed to amend its Copyright legislation to cater to the technological era we are in right now.

CONCLUSION

It is evident that the current South African definition of an author is similar to that in English Copyright law due to the fact that South African Copyright legislation was derived from England's legislation. Although the South African Copyright Act emanated from the British Copyright Act, the two countries' legislation has not progressed at a similar pace. England has made substantial adjustments to their copyright legislation. Although none of the amendments have been made to specifically include AI authors, the country is already moving towards making changes to put them on par with countries with advanced AI technology and AI regulations. the 1956 Act in England was revised multiple times to account for new technology such as computer software, and it was also amended several times to implement requirements imposed by EU directives. The country has held discussions and interactions targeted at addressing AI technology, even committing billions to AI

[279] Ada Lovelace Institute "Regulating AI in the UK", https://www.adalovelaceinstitute.org/report/regulating-ai-in-the-uk/#_ftnref15 (Accessed 09 October 2023)

research. The United Kingdom is one of only a few countries that protects AI-generated creative works under copyright. The UK copyright law allocates the copyright in works generated by AI to the individual who takes all preliminary measures necessary for the creation of the work in cases where there is no human inventor. South Africa has failed to follow in the footsteps of England. It is yet to take major advances such as integrating AI-generated works in its legislation and investing in the technology. Although the country is slowly addressing issues associated with the Fourth Industrial Revolution, it is not as progressive as the country from which its copyright law is derived.

CHAPTER 4

4.1 THE MISALIGNMENT IN ARTIFICIAL INTELLIGENCE AND AUTHORSHIP

As noted in Chapter One, no legislation currently governs artificial intelligence (AI) or works created by them. This has created a gap in which works deserving of copyright are created by machines not acknowledged as authors in South Africa. This chapter demonstrates the mismatch between authorship and AI through practical accounts and the need to extend authorship to accommodate AI. This will be done by exploring the influence of AI and the rising demand AI poses on regulation. The chapter depicts the advancement of AI in various aspects of life, intending to demonstrate the excessive growth and use of AI, as well as its ability to operate and generate works without the assistance or necessity of human intellect.

The issue of authorship stretches back to when a court had to decide who held the copyright to a work created when the creator went into a trance and subsequently wrote over 2000 words in an hour and a half, communicated by the spirit Cleophas.[280] The *Cummins* case is one of several cases which had shown that courts found one as an author when such an individual created the tangible work and not the idea that led to the creation of the work. In this case, Mr Bond went to Miss Cummins,[281] a medium, intending to hear a message from the realm of spirits.[282] Miss Cummins recorded a message she claimed to have received from the spirit of Cleophas during the

[280] *Cummins v Bond* [1927] 1 Ch 167.

[281] Miss Geraldine Dorothy Cummins was a journalist as well as a "medium" who believed she could connect with persons who had "passed over" with the use of psychic "messengers" who could function as intermediaries. She achieved this by covering her eyes with her left hand and testing a pencil on a pad of paper with her right hand. She would then drift off into a sort of dream state, and her hand would start moving. She wrote rapidly on the paper, often without pausing, and was fatigued at the conclusion of a séance and wanted to rest.

[282] Mathers "Favourite cases: Cummins v Bond", https://radcliffechambers.com/wp-content/uploads/2020/08/Favourite-Cases-Cummins-v-Bond-Article-by-Wendy-Mathers.pdf (accessed on 5 April 2023):1.

session.[283] The resulting automated writing was very chaotic as there was no punctuation, and it was written in an unusual English style.[284]

Mr Bond recognized the English style as 16th-century English, which can be challenging to understand. He after that, offered to take the writing and make sense of it, transcribing it into current English, adding punctuation, and arranging it into paragraphs to make it easier to understand.[285] The resulting collection of texts became known as "The Chronicle of Cleophas". Bond saw the potential significance of this literature, particularly in America, where spiritualism was popular.[286] The court ruled that she owned the copyright because the medium, Miss Cummins, penned the message by hand.[287]

In this case, the court granted authorship to the creator of the work, not because of the human intellect involved, but because Cummins was “the agent competent to translate the information supplied to her which was sufficient to find the copyright in her”.[288] This means that her conduct leading to the existence of the work was sufficient enough to grant her copyright and authorship. Based on this case, it is safe to conclude that authorship vests in the creator of the work. This goes back to the argument of this dissertation when an AI generates a work based on the idea of another, why is a similar approach not taken? This case supports the argument of this dissertation that the creator of the work, who executes an idea to create a work, should be recognised as the author. This would represent the sweat of the brow concept, as discussed in chapter two. The *Cummins* case is a clear illustration of how the expression of one's idea by another acquires copyright protection.

---

283 Mathers "Favourite cases: Cummins v Bond", https://radcliffechambers.com/wp-content/uploads/2020/08/Favourite-Cases-Cummins-v-Bond-Article-by-Wendy-Mathers.pdf (accessed on 5 April 2023):1.

284 Watt “No case to answer”, https://nocasetoanswer2012.wordpress.com/2014/08/09/cummins-v-bond-1927-1-ch-167/ (accessed on 10 April 2023).

285 Watt “No case to answer”, https://nocasetoanswer2012.wordpress.com/2014/08/09/cummins-v-bond-1927-1-ch-167/ (accessed on 10 April 2023).

286 Watt “No case to answer”, https://nocasetoanswer2012.wordpress.com/2014/08/09/cummins-v-bond-1927-1-ch-167/ (accessed on 10 April 2023).

287 Mathers "Favourite cases: Cummins v Bond", https://radcliffechambers.com/wp-content/uploads/2020/08/Favourite-Cases-Cummins-v-Bond-Article-by-Wendy-Mathers.pdf (accessed on 5 April 2023):1.

288 Mr Justice Eve, who was called to rule on the matter, went so far as mentioning an idea of joint authorship between Cummins and Cleophas with jurisdiction preventing him from ruling as such since Cleophas was deceased.

This case reiterates that authorship is about the execution of an idea and the creation of a work, not the need for human intellect in the creation of the work. This is crucial for the argument of this dissertation as it means that AI should be acknowledged as the author of the work it creates simply because it is the executor and the creator of the work, even if the execution is based on the idea of another.

4.1.1 Artificial intelligence and authorship

Technological revolutions have always been disruptive to copyright, providing risks and opportunities primarily through unconventional forms of artwork and new modes of content generation, distribution, and consumption.[289] Copyright laws have been continuously amended with each economic growth stage to balance the interests at stake.[290] Hristov states that given the recent surge in AI, non-human "authors" have produced an increasing number of creative works.[291] Algorithms and learning machines in computers have created a new source of creativity.[292]

The Fourth Industrial Revolution refers to a new socioeconomic concept that has emerged due to a convergence of technologies that rely on automated data exchanges by intelligent systems capable of reproducing human cognitive capabilities, which are referred to as artificial intelligence.[293] Alan Turing[294] stated, "when a machine could fool people into believing it was human, we might properly say that it was intelligent".[295]

Arguments that AI systems ought to have some legal personality are becoming more persuasive as they advance and take on more societal responsibilities.[296] The arguments are frequently expressed in instrumental terms compared to legal entities

289 Iaia 2022:794.
290 Iaia 2022:794.
291 Hristov 2017:433.
292 Hristov 2017:433.
293 Maximiliano 2022:20.
294 Alan Turing is acknowledged as a hero for his codebreaking efforts during the Second World War, as well as his contributions to the development of computer science, laying the groundwork for artificial intelligence.
295 Chesterman 2020:820.
296 Chesterman 2020:819. The arguments are frequently expressed in instrumental terms and compared to legal entities like corporations with the notion that AI systems should be entitled to a status equal to natural persons when they approach the point of becoming unrecognizable from humans.

like corporations. The idea that as AI systems approach the degree of indistinguishability from humans, they should be entitled to a status similar to that of human beings is implicit in those arguments.[297] There have been a number of cases where AI has not only been used to perform a duty that humans perform in the usual sense, but instances where AI creates a work which makes room to question the author's identity.[298]

Stephen Thaler announced in 2018 that his AI, Device for the Autonomous Bootstrapping of Unified Sentience (DABUS), invented novel products without human assistance.[299] Thaler filed patent applications for the invention in several countries, naming his AI DABUS as the inventor.[300] Thaler's Patent Cooperation Treaty (PCT) application for a patent in respect of inventions made by DABUS, an artificial intelligence (AI) 'inventor,' was accepted by the South African Companies and Intellectual Property Commission (CIPC) on 24 June 2021.[301] Thaler's patent from the CIPC in South Africa (SA) has been proclaimed as the first granted for an AI invention.[302] Thaldar and Naidoo claimed that the grant was the right legal judgment accorded with the South African public policy on AI more broadly.[303]

Intellectual property (IP) law is an area of law focused on safeguarding the products of human effort and thought.[304] The most important types of IP law are patent law, which protects inventions; design law, which protects the outward appearance and functional attributes of industrial products; trademark law, which protects words and other symbols designating the trade origin of products; and copyright law, which protects original literary, artistic, and other works.[305] Although patent and copyright law encompass different objectives, regulations, and standards, they both fall under intellectual property and govern intellectual or intangible works. Therefore, when there

297 Chesterman 2020:819.
298 See discussion below.
299 Okeke “Can an artificial intelligence system be classified as an inventor”, https://www.derebus.org.za/can-an-artificial-intelligence-system-be-classified-as-an-inventor/ (accessed on 30 March 2023).
300 Okeke “Can an artificial intelligence system be classified as an inventor”, https://www.derebus.org.za/can-an-artificial-intelligence-system-be-classified-as-an-inventor/ (accessed on 30 March 2023).
301 Oriakhogba 2021:1.
302 Oriakhogba 2021:1.
303 Oriakhogba 2021:1.
304 Dean & Dyer 2014: xxviii.
305 Dean & Dyer 2014: xxviii.

is a significant development in South African patent law, such as granting an AI inventorship, such development should be considered when another field of intellectual property remains with gaps in such matters.

The fact that South Africa previously granted its first AI patent demonstrates that AI-generated works are worthy of the protection generally granted to human-generated work in terms of South African Intellectual property regulations. Based on the CIPC's decision on DABUS, it is evident that the country already recognizes AI as inventors, which means it is possible to consider a nonhuman as a creator of a work worthy of protection under South African intellectual property laws and regulations. Consequently, this dissertation argues that the legislature should move in the direction already taken by CIPC and proceed to recognize AI as the authors of the works they create.

Even though this is the first patent granted to an AI, this is not the first time we have seen the use of AI in South Africa. Despite having a long history in South Africa that dates back to the 1950s, AI did not take off until the 1980s, when the University of Pretoria established the country's first AI research group.[306] According to an article by Rita on Surfactants, it is difficult to say whether South Africa has fully embraced the concept of AI technology, even though certain companies and groups in the country are using the technology.[307] However, it appears probable that AI will have a larger role in South Africa as the country strives toward becoming more technologically advanced.[308]

4.1.2 The growing application of artificial intelligence

The main argument of this dissertation is largely concerned with copyright and authorship; however, it does advocate for the implementation of legislation which will govern AI in the country and move towards AI being legally recognized as the creator

306 Surfactants "The history of artificial intelligence In South Africa", https://www.surfactants.net/the-history-of-artificial-intelligence-in-south-Africa/#google_vignette (accessed on 30 March 2023).
307 Surfactants "The history of artificial intelligence In South Africa", https://www.surfactants.net/the-history-of-artificial-intelligence-in-south-Africa/#google_vignette (accessed on 30 March 2023).
308 Surfactants "The history of artificial intelligence In South Africa", https://www.surfactants.net/the-history-of-artificial-intelligence-in-south-Africa/#google_vignette (accessed on 30 March 2023).

of the work it generates. The growing usage of AI highlights the need for laws that govern how such advanced technology is used and the legal implications that come with it. Although South Africa remains without legislation which regulates AI, it has not stopped companies from using AI in the country. AI technology is presently utilized for automating tedious agricultural operations such as soil analysis and crop management.[309] AI-powered equipment can detect and analyse changes in soil composition and identify which crops perform best under varied conditions. Therefore, farmers can develop more effective agricultural methods and boost their yields.[310]

AI has progressed drastically in other countries, which should encourage South Africa to look into legislation governing AI in the country and works created by AI. Changi Airport Group (CAG) has launched a series of experimental projects using connective and intelligent technologies to support its digital alteration and SMART Airport Vision.[311] This has resulted in the initial wave of AI and Machine Learning deployment enabled applications across many domains that can better sense, analyse, envision, and interact with humans.[312] The Changi airport in Singapore employs robotic cleaners programmed to seek out spills to mop up actively.[313] These robotic cleaners' AI enables them to carry out their cleaning duties around the clock without human oversight or interference.[314]

AI's influence has also moved to the realm of social media influencers, where AI, or virtual influencers, mirror human influencers' realistic traits and personalities.[315] Virtual influencers, which have grown in popularity in recent years, are creations that are humanlike or not.[316] They are independently managed by AI and graphically exhibited

309 The AI Blog "How AI is helping to automate agriculture in South Africa", https://aiblog.co.za/artificial-intelligence/how-ai-is-helping-to-automate-agriculture-in-south-Africa (accessed on 02 April 2023).
310 The AI Blog "How AI is helping to automate agriculture in South Africa", https://aiblog.co.za/artificial-intelligence/how-ai-is-helping-to-automate-agriculture-in-south-Africa (accessed on 02 April 2023).
311 Lee & Miller 2019:1.
312 Lee & Miller 2019:1.
313 Okeke "Can an artificial intelligence system be classified as an inventor", https://www.derebus.org.za/can-an-artificial-intelligence-system-be-classified-as-an-inventor/ (accessed on 30 March 2023).
314 Okeke "Can an artificial intelligence system be classified as an inventor", https://www.derebus.org.za/can-an-artificial-intelligence-system-be-classified-as-an-inventor/ (accessed on 30 March 2023).
315 Sands *et al.* 2022:778.
316 Sands *et al.* 2022:778.

in a digital environment as interactive, real-time rendered being.[317] Lil Miquela,[318] arguably the most well-known virtual influencer, was formed in 2016 with a typical "Instagram look".[319] Lil Miquela is a Brazilian-Spanish virtual model and musician[320] who Brud, a Los Angeles-based company 2016, created.[321] She has made several original music videos and has occasionally worked with musicians such as Baauer, Lauv, and Teyana Taylor.[322] Lil Miquela has a social media following of over 3 million followers; the account has also collaborated with brands such as Chanel, Burberry, and Fendi and is named one of Time's most influential persons on the internet, alongside Rihanna, Donald Trump, and Kanye West.[323]

Lil Miquela is one of the many AI influencers that currently exist and produce works which are eligible for copyright protection. Many companies have produced their own AI social media influencers, such as Imma,[324] Bermuda,[325] Rosy[326] and Shudu.[327]

---

317 Sands *et al.* 2022:778.

318 Miquela "lilmiquela", https://instagram.com/lilmiquela?igshid=YmMyMTA2M2Y= (accessed on 24 June 2023).

319 Sands *et al.* 2022:778.

320 This is a representation of artificial intelligence that is currently creating original works which qualify for copyright protection in terms South Africa legislation are.

321 Jalan “Meet the 5 most realistic virtual influencers on Instagram”, https://www.makeuseof.com/popular-virtual-influencers/(accessed on 02 April 2023).

322 Jalan “Meet the 5 most realistic virtual influencers on Instagram”, https://www.makeuseof.com/popular-virtual-influencers/(accessed on 02 April 2023).

323 Sands *et al.* 2022:778.

324 Imma is Japan's first virtual influencer. Aww Inc., a self-described virtual human startup, produced the Japanese model, which has collaborated with brands such as IKEA, Porsche, KFC, Magnum, Dior, Puma, Nike, Calvin Klein, Valentino, Amazon, and Lenovo. Imma joined Instagram in October 2018 and had over 18,000 followers by the end of January 2019. She also serves as a brand ambassador for True Corporation, a Thai telecommunications company and Watsons Water, a Chinese bottled water company. She also made an unexpected cameo at the Tokyo 2020 Paralympic Games closing ceremony. See Jalan “Meet the 5 most realistic virtual influencers on Instagram”, https://www.makeuseof.com/popular-virtual-influencers/(accessed on 02 April 2023).

325 Similar to Lil Miquela, Bermuda is a brainchild of Brud and a virtual "it girl" from Los Angeles with over 250,000 followers. Her CGI realism has improved dramatically since she initially appeared on Instagram in 2018, with some of her recent photographs making her look practically indistinguishable from a genuine fashion model. Bermuda was originally formed as a fictitious political person to spread alt-right propaganda.

326 Rozy is Sidus Studio X's first virtual influencer in South Korea, with over 150 000 followers. She has signed more than 100 endorsement deals since her creation and initial appearance on Instagram in August 2020, including Calvin Klein, Maison Margiela, Hera Beauty, and, most famously, the South Korean corporation Shinhan Life Insurance for which she models. Her expected profits in 2021 were one billion Korean won. According to Sidus Studio X CEO Baek Seung Yeop, the business intends to give Rozy a distinct voice and cast her in films, K-dramas, and other entertainment shows.

327 Shudu is a digitally feminized supermodel with over 230 000 Instagram followers, established in 2017 by male British fashion photographer Cameron-James Wilson as part of his all-digital modeling business, The Diigitals, UK. Shudu is a tall and skinny figure with dark skin and short hair who is designed to come from South Africa's Ndebele tribe, who are famous for their neck rings. See Sigurðardóttir 2020:2.

There is one fascinating piece of information about Bermuda to consider: the AI influencer is believed to have "hacked" Lil Miquela's account in April 2018, erasing all of her photographs.[328] Bermuda also ordered Lil Miquela to "tell the truth" about her virtual identity and who created it.[329] It was later discovered that Brud devised this PR ploy to generate drama and media attention. This raises the question of how a country with regulations, such as South Africa, would handle an instance where an AI hacked someone's account, as it is a crime under the Electronic Communications and Transactions Act (ECTA)[330] and the Cybercrimes Act.[331]

According to the Act, it is a crime to access, intercept, alter, or destroy another person's data without their permission and to do so to such an extent that such data is modified, destroyed, or otherwise rendered ineffective.[332] Since South Africa has no regulation controlling AI in and of itself, or AI as a creator of a work, such acts or copyright violations by AI, lead back to this dissertation's central argument that South African legislation has to be revised to reflect present-day realities.

On the 25th of October 2017, Saudi Arabia gave citizenship to a robot named Sophia at the Future Investment Initiative event in Riyadh, paving the way for the construction of different laws for AI.[333] Ginsburg provides that "[b]ecause computers today, and for proximate tomorrows, cannot themselves formulate creative plans or "conceptions" to inform their execution of expressive works, they lack the initiative that characterizes human authorship". She uses "the lack of human authorship characteristics" as one of the reasons to write off the question of whether AI can be considered the author of the work. However, it is evident from Sophia that the lack of human characteristics should not hinder South Africa from bestowing AI powers generally given to humans. This dissertation contends that it is erroneous to overlook AI authorship simply because of the lack of the human element, given that not only may laws be altered to better reflect the society governed by them, but one does not need to conceptualize an idea to be

328 Jalan "Meet the 5 most realistic virtual influencers on Instagram", https://www.makeuseof.com/popular-virtual-influencers/(accessed on 02 April 2023).
329 Jalan "Meet the 5 most realistic virtual influencers on Instagram", https://www.makeuseof.com/popular-virtual-influencers/(accessed on 02 April 2023).
330 Electronic Communications and Transactions Act 25/2002.
331 Cybercrimes Act 19/2020.
332 Sec. 86.
333 Chikhale & Gohad 2018:106.

regarded as an author, as revealed in the Cummins case. What matters is the execution involved in the creation of the work.

The example of Sophia, a robot, granted citizenship even though she lacks the human attributes listed by Ginsburg demonstrates that not only can the law be modified to suit modern times, but the human element does not always play a crucial part in certain aspects of the law. Sophia is a social humanoid robot created by Hong Kong-based Hanson Robotics jointly with Google parent company Alphabet and SingularityNET, which offer Sophia's voice recognition system and AI software.[334] According to her online biography, Sophia is "proud to be designed to genuinely help people; helping serve real-world uses in medicine, education, co-work, and science research, and inspiring people to dream and talk about the possibilities of human-level intelligent robots of the future".[335]

Sophia's Al is said to be made up of "machine perception, conversational natural language processing, adaptive motor control, and cognitive architecture," allowing her to respond to any environment or interaction in a unique way. She can "recognize human faces, see emotional expressions, and recognize various hand gestures",[336] thanks to machine perception.[337] Sophia conducts interviews on her own and appears on broadcast television shows such as CBS 60 Minutes with Charlie Rosez, The Tonight Show with Jimmy Fallonz, and Good Morning Britain and has also spoken as a keynote and panellist at global conferences and events, including those held by the United Nations, and has met with several international leaders.[338]

The revelation of Sophia's Saudi citizenship was a calculated marketing move designed to present Saudi Arabia as a prominent global innovator in technology and computers after years of restricting voice- and video-calling programs like Skype.[339] According to the BBC, the country removed the prohibition in 2017 aimed at promoting

---

334 Pagallo 2018:3.
335 Redden 2019-2020:164.
336 These are abilities that are generally exclusively present in humans.
337 Redden 2019-2020:162-163.
338 Redden 2019-2020:162-163.
339 British Council “Should robots be citizens?”, https://www.britishcouncil.org/anyone-anywhere/explore/digital-identities/robots-citizens#:~:text=The%20announcement%20of%20Sophia's%20Saudi,innovator%20in%20technology%20and%20computing (accessed on 05 April 2023).

productivity and economic growth.[340] Sophia is the ideal representative for Saudi Arabia's new modern and connected image, as the internet is increasingly important in the country's economy.[341] Shibuya Mirai, a chatbot in the messaging app Line programmed to conduct a seven-year-old child, is another example of AI that has been granted civil rights.[342] The chatbot was granted a seat in the real registry in 2017 and an official residence in the Tokyo district of Shibuya, Japan.[343]

This goes back to the centre of the dissertation's argument: if laws can be altered to grant AI technology citizenship and residency for the betterment of the country, why should similar steps not be taken regarding authorship? These are separate areas of the law, but that should not detract from the reality that other countries have observed the necessity for laws to govern AI, whether in the instance of authorship or citizenship. Taking such steps assists in clarifying the uncertainty that occurs with AI-generated works regarding authorship and copyright. If a country can go so far as to award an AI the same legal standing normally granted to humans, what is stopping it from granting AI authorship over the works they create?

The European Parliament passed a resolution calling on its commission to consider giving robots a special legal status in the long run so that, at the very least, the most advanced autonomous robots can be established as having the status of electronic persons responsible for making good any damage they may cause.[344] Electronic personality may also be applied to instances where robots independently make autonomous decisions or interact with third parties.[345] This is a representation of a country that goes above and beyond its societal conventions to benefit the country's economy. Saudi Arabia broadened the scope of its regulations to grant citizenship for AI in alignment with present-day conditions for the benefit of the country's economy,

340 British Council "Should robots be citizens?", https://www.britishcouncil.org/anyone-anywhere/explore/digital-identities/robots-citizens#:~:text=The%20announcement%20of%20Sophia's%20Saudi,innovator%20in%20technology%20and%20computing (accessed on 05 April 2023).
341 British Council "Should robots be citizens?", https://www.britishcouncil.org/anyone-anywhere/explore/digital-identities/robots-citizens#:~:text=The%20announcement%20of%20Sophia's%20Saudi,innovator%20in%20technology%20and%20computing (accessed on 05 April 2023).
342 Sapytska 2019:108.
343 Sapytska 2019:108.
344 Chesterman 2020:821.
345 Chesterman 2020:821.

which is imperative in the argument of this dissertation. This demonstrates that South Africa must extend the scope of its legislation to keep up with the times to benefit the country.

The end of 2022, described as a strong year for AI, was marked by the introduction of ChatGPT.[346] Since its public release on the 30th of November 2022, ChatGPT (Generative Pre-trained Transformer), an intelligent conversation agent created by OpenAI, has grown rapidly in popularity.[347] It offers an easy-to-use textual interface for people to create simple prompts, ask questions, and request various types of text to be generated as a powerful natural language processing and question-answering system.[348]

ChatGPT is an AI chatbot that can generate detailed text responses and articulate responses to any enquiry.[349] Although the primary function of this chatbot is said to be to simulate human conversation, early research by millions of users points to its significantly wider utility for scholarly writing, creating computer programs, creating music, writing stories, lyrics, and poems, developing algorithms, and many other tasks limited only by one's creativity.[350]

When AI was tested for this dissertation, it was evident that the technology could do more than just write essays or generate answers to questions; it could also produce original artwork based on a person's ideas. Upon using the application, it is evident that all the app needs is an idea. From there, it proceeds to do the rest of the work. One could simply type the question given in homework, a research hypothesis or even an idea for a drawing or painting. The app conducts the research on your behalf, answers one's homework or research questions and produces artwork based on your request. The fact that the work created qualifies for copyright rather than an idea of a work is significant for this dissertation. [351] Therefore, in terms of the Act,[352] the creator of the work is the author, not the person who came up with the idea, as discussed in

346 Holistic AI "The state of global AI regulations in 2023", https://www.holisticai.com/papers/the-state-of-ai-regulations-in-2023 (accessed 30 March 2023).
347 Shiri 2023:1.
348 Shiri 2023:1-2.
349 Kumar 2023:24.
350 Kumar 2023:24.
351 See chapter two and three.
352 Copyright Act 98/1978.

the two previous chapters. Discussions around ChatGPT have already begun, with authors writing about it from various perspectives, such as academic writing,[353] publishing[354] , and ethics are concerned.[355]

For instance, in 2022, 36 papers were published in the South African Journal of Sports Medicine (SAJSM).[356] Three manuscripts were rejected before review because significant portions of them had already been published, making up 58% of the submitted papers that were rejected. According to Mike Lambert, the difficulty of identifying plagiarism is increased due to the general public having access to ChatGPT, which creates original material based on written requests.[357] The problem was that SAJSM employed iThenticate, a software program that tests for plagiarism, to protect against plagiarism in every work submitted to the journal. However, iThenticate does not detect text generated by ChatGPT.[358]

A study tested ChatGPT's ability to generate two academic papers related to Sports and Exercise Medicine (SEM).[359] The authors concluded their study with the opinion that natural language model-based AIs, such as ChatGPT, are tools to watch when generating genuine conversational writing for diverse manuscript contents in Sport and Exercise Medicine.[360] However, issues with ethics, equity, accuracy, and detection associated with their use may jeopardize the credibility of science.[361] The authors also noted that ChatGPT had passed the theory portion of the United States Medical Licensing Examination even without extra training or extensive years of medical schooling.[362]

In the Michelle Parker v Amanda Forsyth N.O. case the court had the duty to decide whether a body corporate may sue and be sued for defamation and iniuria which is compensation for damages caused to a person.[363] In this case, Ms Parker, a former

[353] Kumar 2023: 24-30.
[354] Lambert 2023:1.
[355] See Zhuo *et al.* 2023.
[356] Lambert 2023:1.
[357] Lambert 2023:1.
[358] Lambert 2023:1.
[359] Anderson *et al.* 2023:1.
[360] Anderson *et al.* 2023:3.
[361] Anderson *et al.* 2023:3.
[362] Anderson *et al.* 2023:1.
[363] Parker v Forsyth N.O. and Others (1585/20) [2023] ZAGPRD 1.

trustee of the body corporate, instituted legal action against her co-trustees over an email she claimed contained defamatory and derogatory allegations about her. The court heard two interlocutory matters: first, an application by the First Defendant to strike-out certain allegations in the particulars of claim, and second, an exception by the Defendants that the particulars of claim fail to disclose a cause of action or are vague and embarrassing. As a result, the Defendants requested that the Plaintiff's suit be dismissed with costs.[364]

The Defendants requested ordinary costs, including lawyer fees, with the exception of punitive costs on the attorney and client scale for the period 28 March 2023 to 22 May 2023, for which an exception and application to strike-out were heard on 28 March 2023.[365] At that hearing, the court decided to accept Plaintiff's counsel's assertion that there existed authority in the shape of case-law deciding whether a body corporate may be sued for defamation.[366] However, the Plaintiff's counsel stated that neither he nor his attorney could find the relevant case law before the hearing while the attorney for the defendants was unaware of any such authority.[367]

During the hearing, the Plaintiff's counsel explained that his attorney found the cases via ChatGPT.[368] The Plaintiff's attorneys used this AI medium as a means of legal research and accepted the results without questioning the accuracy of the information. As it turned out, the cases cited by the plaintiff's counsel did not exist such that the names, citations, facts, and decisions were all fictitious.[369] The Plaintiff's attorney was forced to admit as much and as such the defendants' counsel argued that this type of attempt to deceive the court should result in a punitive costs order.[370]

The court perceived that the plaintiff's legal representatives placed undue faith in the reliability of the legal research generated by AI and neglected to verify all of the research.[371] The court was fairly certain that neither the Plaintiff's attorney nor her

[364] Par.2.
[365] Par.77-78.
[366] Par.78.
[367] Par.78.
[368] Par.86.
[369] Par.87.
[370] Par.88.
[371] Par.89.

counsel attempted to deceive the court, but the attorneys appeared to have been both "overzealous and careless."[372]

Lambert asserts that there is no question that this software will have an immense effect on education.[373] Educators are concerned that students will rely on ChatGPT for most of their work, and scientists will use such AI as a convenient shortcut.[374] Lamber further states that when software is used as a crutch, it hinders the growth of problem-solving and critical-thinking abilities.[375] This validates the central argument of this dissertation, that there is a need for the governance of AI in the country, particularly regarding copyright and authorship. The lack of legislation, provisions, and discussions on this issue can potentially weaken the country's education system since students will now use AI technology such as ChatGPT for all academic literature.

In addition, published research papers will no longer be authentic material; instead, they will be the work of the AI generated by gathering other individuals' work. Similar to scientists who use the ChatGPT for scientific findings and artists who utilize the chatbot to create their art, such works will no longer be the artist's original work but rather the work of the AI created based on the artist's idea. When such technology is without the necessary governance, this dissertation speaks of. There is to be more harm to the country's education system. Suppose works generated by AI technology are not recognized as copyrighted works. In that case, students may simply use such technology for all academic work, which currently does not qualify as plagiarism or copyright infringement in terms of the Act. This leads to schools and universities producing graduates who lack credible research and writing skills.

---

[372] The Parker v Forsyth case is yet another illustration of why the usage of AI technology necessitates rules and regulations. It also reflects the risk of making use of AI when one is oblivious to the technology. South Africa requires not only legislation to manage this field but also education in it. When technology is ungoverned, courts will continue to be confronted with similar scenarios. Cases of plagiarism, falsified information, hacking and more will increase with the growing use of applications such as ChatGPT; consequently, addressing AI in legislation would better prepare courts on how to address such cases. A similar incident occurred in the American case of Mata v. Avianca, Inc., No. 1:2022cv01461, where the attorney threw himself at the mercy of the court, stating in an affidavit that he had utilized the artificial intelligence program to carry out his legal research. This indicates that a lack of awareness of the implementation of AI is a global concern that is not limited to South Africa. However, in order to put the country in an improved position, this issue needs to be addressed as discussed above.

[373] Lambert 2023:1.

[374] Lambert 2023:1.

[375] Lambert 2023:1.

The objective of this dissertation is not to diminish the creative contributions of AI machine designers or creators but rather to clear up any confusion or questions of ownership, authorship, and originality that arise when AI-controlled machines produce works traditionally eligible for copyright protection. The present concern is that AI machines lack legal standing due to their lack of human intellect. However, as with minors with limited legal capacity,[376] legal standing does not exclude one from being recognized as the author. When a minor produce works that are eligible for copyright, they are acknowledged as the author regardless of their limited legal status and the fact that they have no legal capacity for certain legal matters. [377]

CONCLUSION

The above discussion indicates that there have been multiple instances in jurisprudence where AI have been treated in a "human nature" in other countries as well as instances where a work has been created by AI, which is currently not recognised as the author in terms of South African legislation. It has been proven that AI machines drastically influence different sectors of the world. This includes social media, the education sector, farming, as well as art and entertainment. This chapter sought to prove that AI can perform all the duties humans can perform and produce works worthy of copyright when produced by humans. Therefore, the grey area in copyright and authorship will cause chaos in divisions such as academic literature and the entertainment industry, including the world of music, arts, poetry, and storytelling. Suppose AI technologies used in the past did not entice South Africa to research artificial intelligence in copyright and authorship. In that case, Ais such as Lil Miquela, Shudu, Sophia and ChatGPT should be sufficient motivation.

[376] See Robinson *et al.* 2015: 74-96.

[377] See Johannes "Meet these SA kids who published books before they were 16", https://www.news24.com/life/archive/south-africas-youngest-authors-20170830 (accessed on 28 May 2023).

CHAPTER 5

5.1 CONCLUSION

5.1.1 Background of chapters

This dissertation sought to investigate authorship in copyright law within the confines of the Fourth Industrial Revolution. A study of the development of authorship necessitates frequent reference to historical analysis of the evolution of copyright law because authorship is consistently viewed within the context of copyright and rarely as a focus area. The lack of AI authorship discussions in South Africa resulted in constant reference to international and foreign sources such as Jane Ginsburg.

Chapter One sets the tone for the research by introducing the topic with a historical foundation of copyright law, a literature review of the work that will be used to prove the dissertation's thesis, and an overview of the following chapters.

Chapter Two aimed to assess the current South African Copyright Act and what scholars in the country consider an author. The chapter examined the current definition of the author, the nature of authorship, and the prerequisites for authorship. This was done to determine if AI matched the author's description. What was evident here is that AI is being overlooked as authors of their works not because they do not meet the requirements but because of their lack of human intelligence, which, as seen in parts of Chapters Two and Four, is not the most important aspect in the topic of authorship. The assumption that AI will always require human assistance to create a work played a key role in disputing the thesis of this dissertation; however, the chapter demonstrated that not only can AI produce works without human intelligence, but they are also capable of working independently, even going so far as to code themselves. Chapter Two proved that the South African Copyright Act's prerequisites for identifying only natural and juristic persons as authors are contradictory, as AI generates copyrightable work.

The main purpose of Chapter Three was to showcase the similarities and differences between South African and English copyright legislation, as well as steps taken by each country to amend their respective Act to accommodate the Fourth Industrial

Revolution. The chapter distinguished between authorship and copyright in South Africa and England by beginning with the latest development in South African copyright legislation, the Copyright Bill, which was considered flawed by several scholarly writers such as Owen Dean. This chapter provided a brief historical background of British copyright law to demonstrate how British law has evolved to put its current provisions in place for AI technologies. This examination and discussion of the Copyright, Design, and Patents Act of 1988 revealed that, even though South Africa's Copyright Law was derived from English legislation, the country has made little progress in this field, with little to no amendments made to reflect current times and to provide room for AI technology. Although England does not identify the AI that generates the work as an author, the Act provides works generated by such machines while South Africa’s technology remains ungoverned. This chapter demonstrated that, while neither country has made sufficient modifications to its legislation, leaders and scholarly writers in England were already looking into developing AI technology and holding significant discussions about AI for the country's good. It demonstrated that while South African legislation is based on English law, its progression is not comparable to England's.

Chapter Four sought to show the rapid growth and use of AI technology and how such advancements may be affected by the Copyright Act's limitations. Chapter Four explored the misalignment in AI and authorship to demonstrate the discrepancy that South African authorship and copyright do not regard AI as the author of the works it makes, even though such works are copyright worthy. This chapter revealed that AI could not only generate works but can also create works independently and perform tasks which were previously only performed by humans. The main discoveries of this dissertation were that South Africa is long overdue for an update of its copyright legislation as well as its governance of technology. AI technology has more capabilities than one could have imagined, such that they can now work without the assistance of humans and even go as far as programming themselves, resulting in more independence for Fourth Industrial Revolution machinery. It is now evident that AI can function as humans and even acquire legal status in certain countries, as seen in chapter four which will affect South Africa in the future if it remains with laws that are out of touch with reality. This chapter has demonstrated the importance of regulating AI technology in South Africa and the works generated by AI to prevent works from

being authorless or giving credit to those without knowledge of the work. This includes safeguarding the educational sector and the quality of qualifications produced in the country, as AI technology may now conduct research on people's behalf.

The purpose of this dissertation is not to promote the use of AI but rather to stimulate discussion on its use and regulation. If there was appropriate knowledge of AI in every discipline, particularly the legal field, there would not be occurrences of lawyers presenting inaccurate cases in court or academics publishing papers based on fabricated sources. If AI-generated works were subject to adequate regulations, there would be clear guidelines for the technology's legal and ethical application. When AI, such as Chatgpt, is not governed, it allows for careless oversights, such as in the Parker v Forsyth case.

5.1.2 Recommendations

After investigating the content of authorship under South African copyright law from an AI perspective, with references to foreign and international sources, this dissertation provides several recommendations to the South African legislator. South Africa needs legislation that will govern the use of technology in the country, especially with machineries such as AARON and ChatGPT. The dissertation recommends that when it comes to works generated by an AI, an approach similar to minor authors should be taken. Minors are recognized as the author regardless of their limited legal status and are represented by their legal guardians when it comes to legal matters. Therefore, the amendment of the Copyright Act, with an addition to the definition of an author, grants authorship to artificial intelligent machinery that creates works protected by the Act. The Act should further state that ownership of such works vests on the creator of the AI machinery unless ownership of such machinery vests on someone other than the creator. Therefore, initial ownership of such works should vest in the owner of the AI. Provisions should be made for when ownership of the AI vest on anyone who is not the creator. However, this should not take away from the fact that the author of the work is the AI.

In addition, the dissertation recommends enacting legislation that will govern AI and its use in the country. The comparison between South Africa and England was

conducted in order to demonstrate that, while England does not yet have legislation governing AI authorship, the country has taken other steps such as publishing a consultation on a policy paper titled "A pro-innovation approach to AI regulation" as well as plans of hosting a global summit on AI safety. In addition, England has made substantial adjustments to their copyright legislation as it is one of the countries that protect AI-generated works and allocates copyright for works generated by AI. The process of amending legislation is a lengthy process in South Africa, therefore, while working on amending the copyright Act as done by England, South Africa may make use of other remedies utilized by England. South Africa may also host Summits on AI safety and a national address on the use of AI technology in the country to educate citizens of the country on how to use AI accordingly. AI awareness should be encouraged to avoid cases similar to that of Parker v Forsyth.

This dissertation aimed to prove that the current South African Copyright Act is outdated and needs to make provisions for AI and the works it creates. Further research can be done regarding ownership and economic rights of AI-generated works and copyright infringement by AI.

BIBLIOGRAPHY

ADA LOVELACE INSTITUTE

2023.*Regulating AI in the UK*.

https://www.adalovelaceinstitute.org/report/regulating-ai-in-the-uk/#_ftnref15 (Accessed 09 October 2023).

ANDANDA P

2016. Copyright law and online journalism: a South African perspective on fair use and reasonable media practice. *Queen Mary Journal of Intellectual Property 6*(4):411-434.

ANDERSON N, BELAVY DL, PERLE SM, HENDRICKS S, HESPANHOL L, VERHAGEN E & MEMON AR

2023. AI did not write this manuscript, or did it? Can we trick the AI text detector into generated texts? The potential future of ChatGPT and AI in Sports & Exercise Medicine manuscript generation. *BMJ Open Sport & Exercise Medicine* 9(1), e001568. doi: 10.1136/bmjsem-2023-001568

ARMSTRONG C & DE BEER J

2010. *Access to knowledge in Africa: The role of copyright*. Cape Town: UCT Press.

BALOYI JJ

2014. Demystifying the role of copyright as a tool for economic development in Africa: Tackling the harsh effects of the transferability principle in copyright law. *Potchefstroom Electronic Law Journal* 17(1):88-165.

BEITER KD, FLYNN S, FORERE M, KLAAREN J, NCUBE CB, NWAUCHE ES, RENS A, SAMTANI S & SCHONWETTER T

2022. Copyright reform in South Africa: two joint academic opinions on the Copyright Amendment Bill [B13B-2017]. *Potchefstroom Electronic Law Journal* 25(1):1-45.

BENTLY L & SHERMAN B

2014. *Intellectual Property Law.* 4th edition. Oxford: Oxford University Press.

BRITISH COUNCIL

2023. *Should robots be citizens*. https://www.britishcouncil.org/anyone-anywhere/explore/digital-identities/robots-citizens#:~:text=The%20announcement%20of%20Sophia's%20Saudi,innovator%20in%20technology%20and%20computing (accessed on 05 April 2023).

CACACE ME

2023. *UK: ChatGPT – Can the AI Generated content output be protected by copyright in the UK?*. https://www.mondaq.com/uk/copyright/1278498/chatgpt--can-the-ai-generated-content-output-be-protected-by-copyright-in-the-uk (accessed on 20 March 2023).

CHESTERMAN S

2020. Artificial intelligence and the limits of legal personality. *International & Comparative Law Quarterly* 69(4):819-844.

CHIKHALE S & GOHAD V

2018. Multidimensional construct about the robot citizenship law's in Saudi Arabia. *International Journal of Innovative Research and Advanced Studies (IJIRAS)* 5(1):106-108.

COPELAND J

2000. *What is artificial intelligence?.* AlanTuring.net http://www.alanturing.net/turing_archive/pages/Reference%20Articles/What%20is%20AI.html (accessed on 30 March 2023).

COPELING AJC

1978. *Copyright and the Act of 1978.* Durban: Butterworths.

CORNISH W, LLEWELYN D & APLIN T

2003. *Intellectual property: Patents, copyright, trade marks and allied rights.* 5th edition. London: Sweet & Maxwell.

CRAIG C

2005. The evolution of originality in Canadian copyright law: Authorship, reward and the public interest. *University of Ottawa Law & Technology Journal* 2(2):425-446.

2007. Reconstructing the author-self: Some feminist lessons for copyright law. *Journal of Gender, Social Policy & the Law* 14(2):208-255.

DAVIES WC & DENNIS G

2022. *UK set to decide on copyright protection of creative works generated by AI*. https://www.pinsentmasons.com/out-law/analysis/uk-to-decide-copyright-protection-creative-works-generated-ai (accessed on 20 March 2023).

DAVIS G

1997. *Copyright and the public interest*. Unpublished PhD dissertation. Aberystwyth, Wales: Aberystwyth University.

DEAN O

2021. *Reconstituting the Copyright Amendment Bill*. https://blogs.sun.ac.za/iplaw/2021/06/14/reconstituting-the-copyright-amendment-bill/ (accessed on 20 March 2023).

DEAN OH & DYER A (eds.)

2014. *Dean & Dyer: Introduction to intellectual property law*. Cape town: Oxford University Press.

DEAN OH

1988. *The application of the Copyright Act, 1978, to works made prior to 1979*. Unpublished doctoral dissertation. Stellenbosch: Stellenbosch University.

DREYFUS R & PILA J (eds.)

2017. *The Oxford Handbook of Intellectual Property Law* Oxford: Oxford University Press.

DUTFIELD G

2004. *Intellectual property, biogenetic resources and traditional knowledge.* London: Earthscan.

DUTFIELD G

2006. Protecting traditional knowledge: Pathways to the future. Issue paper no. 16. *Geneva: International Centre for Trade and Sustainable Development*.

EHSAN U, SINGH R, METCALF J & RIEDL M

2022. The algorithmic imprint. *2022 ACM Conference on Fairness, Accountability and Transparency*:1305-1317.

EU CHAMBER OF COMMERCE AND INDUSTRY IN SOURTHERN AFRICA

2020. *South Africa's 4IR starts with proper spectrum allocation, incentives*. https://www.euchamber.co.za/news/south-africas-4ir-starts-with-proper-spectrum-allocation-incentives/ (Accessed on 07 October 2023).

FISHCHMAN-AFORI O

2011. The evolution of copyright law and inductive speculations as to its future. *Journal of Intellectual Property Law* 19(2):231-259.

GACHAGO RM

2011. *The effect of technology on copyright*. https://www.researchgate.net/publication/333675350_The_Effect_of_Technology_on_Copyright (accessed on 24 June 2023).

GEYER S

2017. Artificial intelligence and the copyright dilemma. *IDEA: The Journal of the Franklin Pierce Center for Intellectual Property* 57(3):431-454.

2022. Determining originality in South African copyright law: Is it" or"," and", or something" more"?. *Tydskrif vir Hedendaagse Romeins-Hollandse Reg (Journal for Contemporary Roman-Dutch Law)* 85(2):176-195.

GEYER S, KELBRICK RA & KLOPPER HB (eds.)

2016. *Law of intellectual property in South Africa.* 2nd edition. Durban: LexisNexis.

GINSBURG JC & BUDIARDJO LA

2019. Authors and machines. *Berkeley Technology Law Journal* 34(2):343-448.

GINSBURG JC

2003. The concept of authorship in comparative copyright law. *DePaul Law Review* 52(4):1063–1092.

GRAYSOUTH

2019. *Half a century of copyright history and South Africa's new Copyright Amendment Bill*. http://graysouth.co.za/2019/07/02/half-a-century-of-copyright-history-and-south-africas-new-copyright-amendment-bill/ (accessed on 22 May 2022).

GUIBAULT L & QUINTAIS JP

2014. Copyright, technology and exploitation of audiovisual works in the EU, *IRIS plus* 2014(4):9.

HAUMAN M

2014. A South African perspective on user-created content in cloud computing: A copyright conundrum. Unpublished Masters dissertation. Bloemfontein: University of the Free State.

HOLISTIC AI

2023. *The state of global AI regulations in 2023*. https://www.holisticai.com/papers/the-state-of-ai-regulations-in-2023 (accessed on 30 March 2023).

HRISTOV K

2017. Artificial intelligence and the copyright dilemma. *IDEA: The Journal of the Franklin Pierce Center for Intellectual Property* 57(3):431-454.

IAIA V

2022. To be, or not to be… original under copyright law, that is (one of) the main questions concerning AI-produced works. *GRUR International* 71(9):793-812.

INTELLECTUAL PROPERTY RIGHT OFFICE

2006. *A brief history of copyright.* https://www.iprightsoffice.org/copyright_history/ (accessed on 25 May 2022).

JALAN A

2022. *Meet the 5 most realistic virtual influencers on Instagram.* https://www.makeuseof.com/popular-virtual-influencers/ (accessed on 2 April 2023).

JASZI P

1991. Toward a theory of copyright: The metamorphoses of “authorship”. *Duke Law Journal* 1991(455):455-502.

JIN BE & SHIN DC

2021. The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?. *Fashion and Textiles 8*(1): 1-25.

JOHANNES L

2017. *Meet these SA kids who published books before they were 16* https://www.news24.com/life/archive/south-africas-youngest-authors-20170830 (accessed on 28 May 2023).

KHAREL A

2018. *Doctrinal legal research*. Available at SSRN 3130525.

KUMAR AH

2023. Analysis of ChatGPT tool to assess the potential of its utility for academic writing in biomedical domain. *Biology, Engineering, Medicine and Science Reports* 9(1):24–30.

LAMBERT M

2023. Entering the era of artificial intelligence (AI) in publishing. *South African Journal of Sports Medicine* 35(1):1.

LEE S & MILLER S

2019. Distilling managerial insights and lessons from AI projects at Singapore's Changi Airport (part 2). *Asian Management Insights (Singapore Management University)*. 6(1):1-6.

LEVENSTEIN E & TUCKER R

2005. *South Africa: Introduction to the law of copyright*. https://www.mondaq.com/southafrica/copyright/36570/introduction-to-the-law-of-copyright (accessed on 30 May 2022).

LU B

2021. A theory of ‘authorship transfer’ and its application to the context of Artificial Intelligence creations. *Queen Mary Journal of Intellectual Property* 11(1):2-24.

MATHERS W

2020. *Favourite cases: Cummins v Bond*. https://radcliffechambers.com/wp-content/uploads/2020/08/Favourite-Cases-Cummins-v-Bond-Article-by-Wendy-Mathers.pdf (accessed on 5 April 2023).

MAXIMILIANO M

2022. Incorporating exceptions and limitations to copyright law to incentivize the development of artificial intelligence in Latin America. *Latin American Law Review* 9:19-33.

MCGINNIS D

2020. *What is the fourth industrial revolution.* https://www.salesforce.com/blog/what-is-the-fourth-industrial-revolution-4ir/#:~:text=The%20Fourth%20Industrial%20Revolution%20is%20a%20way%20of,printing%2C%20genetic%20engineering%2C%20quantum%20computing%2C%20and%20other%20technologies (accessed on 20 May 2022).

MCKINSEY & COMPANY

2022. *What are Industry 4.0, the Fourth Industrial Revolution, and 4IR?* https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-are-industry-4-0-the-fourth-industrial-revolution-and-4ir#/ (07 October 2023).

METZ C

2021. A.I. can now write its own computer code. That’s good news for humans. https://www.nytimes.com/2021/09/09/technology/codex-artificial-intelligence-coding.html#:~:text=A.I.,Can%20Now%20Write%20Its%20Own%20Computer%20Code.,and%20even%20translates%20between%20them (accessed on 10 September 2022).

MIQUELA L

2023. lilmiquela. https://instagram.com/lilmiquela?igshid=YmMyMTA2M2Y= (acccessed on 24 June 2023).

NCUBE CB & ORIAKHOGBA DO

2018. Monkey selfie and authorship in copyright law: The Nigerian and South African perspectives. *Potchefstroom Electronic Law Journal* 21(1) http://dx.doi.org/10.17159/1727- 3781/2018/v21i0a4979.

NCUBE CB

2017. Three centuries and counting: The emergence and development of intellectual property law in Africa. In R Dreyfus and J Pila (eds.) 2017:409-430.

NG A

2009. The author's rights in literacy and artistic works. *The John Marshall Review of Intellectual Property Law* 9(453):453-495.

NICHOLSON DR

2022. *New copyright bill will take South Africa into the 21st century at last.* https://www.groundup.org.za/author/723/ (accessed on 20 November 2022).

OKEDIJI R

2018. *Creative markets and copyright in the fourth industrial era: Reconfiguring the public benefit for a digital trade economy.* http://infojustice.org/archives/40247 (accessed on 20 May 2022).

OKEKE IE

2022. *Can an artificial intelligence system be classified as an inventor.* https://www.derebus.org.za/can-an-artificial-intelligence-system-be-classified-as-an-inventor/ (accessed on 30 March 2023).

ORIAKHOGBA DO

2021. DABUS gains territory in South Africa and Australia: Revisiting the AI-inventorship question. *South African Intellectual Property Law Journal* 9(1):87-108.

PAGALLO U

2018. Vital, Sophia, and Co.—The quest for the legal personhood of robots. *Information* 9(9):1-11.

PHILBECK T & DAVIS N

2018. THE FOURTH INDUSTRIAL REVOLUTION: SHAPING A NEW ERA. *Journal of International Affairs 72*(1): 17–22.

PISTORIUS T & MWIM OS

2019. The impact of digital copyright law and policy on access to knowledge and learning. *Reading & Writing* 10(1) a196. https://doi.org/ 10.4102/rw.v10i1.196

PISTORIUS T

2012. *Copyright law.* In S Geyer, RA Kelbrick and HB Klopper (eds.) 2014:177-314.

PK FA

2021. Learning Outcomes of Classroom research In Karthikeyan J, Ting Su Hie & Yu Jin (eds.) 2021:65-73.

REDDEN M

2019-2020. Sophia: The intersection of artificial intelligence and human rights. *Journal of Global Rights and Organizations* 10:155-186.

RENS A & LESSIG L

2006. Forever minus a day: a consideration of copyright term extension in South Africa. *The Southern African Journal of Information and Communication* 2006(7):22-31.

RIBY-SMITH M

2017. South African copyright law—the good, the bad and the Copyright Amendment Bill. *Journal of Intellectual Property Law & Practice* 12(3):216-225.

ROBINSON JA, HORSTEN DA, HUMAN S & MOULD KL

2015. *Introduction to the South African Law of Persons*. Durban: LexisNexis.

SAMTANI S

2020. The Domestic Effect of South Africa's Treaty Obligations: The Right to Education and the Copyright Amendment Bill (2020)-PIJIP: *TLS Research Paper Series*, *61.*

SANDS S, FERRARO C, DEMSAR V & CHANDLER G

2022. False idols: Unpacking the opportunities and challenges of falsity in the context of virtual influencers. *Business Horizons* 65(6):777-788.

SAPYTSKA OM

2019. Human rights, robots and artificial intelligence. *Рекомендовано Вченою радою юридичного факультету Східноукраїнського національного університету імені Володимира Даля*. 8:108-111.

SHIRI A

2023. ChatGPT and academic integrity. *Information Matters* 3(2) https://informationmatters.org/2023/02/chatgpt-and-academic-integrity/ (accessed on 23 June 2023).

SIGURÐARDÓTTIR SM

2020. *The colonized cyborgs: A feminist postcolonial perspective and intersectional exploration of feminized digital avatars in the West*. https://www.diva-portal.org/smash/get/diva2:1689743/FULLTEXT01.pdf (accessed on 23 June 2023).

SIKOYO GM, NYUKURI E & WAKHUNGU JW

2006. Intellectual property protection in Africa: Status of laws. *Research and Policy Analysis in Ghana, Kenya, Nigeria, South Africa and Uganda.* https://www.africaportal.org/documents/12653/ecopolicy16_1.pdf (accessed on 23 June 2023).

SMITH A

1995. *Copyright companion*. Durban: Butterworths.

STRAUS J

2021. Artificial intelligence – Challenges and chances for Europe. *European Review* 29(1):142-158.

SURFACTANTS

2022. *The history of artificial intelligence in South Africa*. https://www.surfactants.net/the-history-of-artificial-intelligence-in-south-africa/#google_vignette (accessed on 30 March 2023).

TALAGALA C

2021. *Copyright law and translation: Access to knowledge in developing economies*. Milton Park: Routledge. https://doi.org/10.4324/9781003165446

TOMASELLI K

2022. The 2022 Copyright Amendment Bill: Implications for the South African universities' research economy. *Communicare: Journal for Communication Sciences in Southern Africa 41*(2): 14-33.

TALJAARD L

2021. *Copyright protection for works created prior to 1978*. https://www.golegal.co.za/copyright-protection-1978/ (accessed on 10 March 2023).

THE AI BLOG

2023. *How AI is helping to automate agriculture in South Africa*. https://aiblog.co.za/artificial-intelligence/how-ai-is-helping-to-automate-agriculture-in-south-africa (accessed on 2 April 2023).

THE PRESIDENCY

2019. *President receives draft Diagnostic Report on 4IR.*

https://www.thepresidency.gov.za/newsletters/president-receives-draft-diagnostic-report-4ir (accessed on 07 October 2023).

UNIVERSITY OF CAPE TOWN

2022. *Copyright101* http://www.icts.uct.ac.za/Copyright_101#:~:text=Copyright%20law%20is%20automatically%20granted,make%20the%20copyright%20more%20visible (accessed on 25 May 2022).

UWE ASC LLM SUPPORT

2017. *Research methods: Doctrinal methodology* https://uweascllmsupport.wordpress.com/2017/01/18/research-methods-doctrinal-methodology/ (accessed on 1 June 2022).

VÉZINA B & MORAN B

2020. Artificial intelligence and creativity: Why we're against copyright protection for AI-generated output. https://creativecommons.org/2020/08/10/no-copyright-protection-for-ai-generated-output/ (accessed on 30 December 2022).

WATT L

2014. *No case to answer*. https://nocasetoanswer2012.wordpress.com/2014/08/09/cummins-v-bond-1927-1-ch-167/ (accessed on 10 April 2023).

WIPO

1974. *Berne Notification No. 64 Berne Convention for the Protection of Literary and Artistic Works*.

https://www.wipo.int/treaties/en/notifications/berne/treaty_berne_64.html (Accessed on 02 October 2023).

WORLD ECONOMIC FORUM

2023. *Fourth Industrial Revolution.*

https://www.weforum.org/focus/fourth-industrial-revolution (07 October 2023).ZHUO TY, HUANG Y, CHEN C & XING Z

2023. Exploring AI ethics of ChatGPT: A diagnostic analysis. *arXiv preprint arXiv:2301.12867*.

CASE LAW

South Africa

Appleton v Harnischfeger Corporation 1995 2 SA 247 (A)
Biotech Laboratories (Pty) Ltd v Beecham Group Ltd 2002 3 All SA 652 (SCA) 659
Blind SA v Minister of Trade, Industry and Competition and Others (CCT 320/21) 2023 2 BCLR 117 (CC)
Hautp t/a Soft Copy v Brewers Marketing Intelligence (Pty) Ltd 2006 4 SA 458 (SCA)
Gallo Africa Ltd v Sting Music (Pty) Ltd 1103 JOC (A) 1108
Goeie Hoop Uitgewers (Edms) Bpk v Central News Agency 1953 2 SA 843 (W)
Mata v Avianca Inc No. 1:2022cv01461
Moneyweb (Pty) Ltd v Media 24 Ltd and Another (31575/2013) [2016] ZAGPJHC 81
National Soccer League t/a Premier Soccer League v Gidani (Pty) Ltd (10/48519) [2014] ZAGPJHC 33
Parker v Forsyth N.O. and Others (1585/20) [2023] ZAGPRD 1
Waylite Diary CC v First National Bank Ltd 1995 1 SA 645 (A)

United Kingdom

Cummins v Bond 1927 1 Ch 167
Kenrick v Lawrence (1890) L.R. 25, Q.B.D. 99

United States of America

Associated Press v Meltwater U.S. Holdings, Inc., 931 F. Supp. 2d 537, 543 (S.D.N.Y 2013)

LEGISLATION

South Africa

Copyright Act 2/1873

Copyright Act 9/1916

Copyright Act 98/1978

Copyright Amendment Act 56/1980

Copyright Amendment Act 66/1983

Copyright Amendment Act 52/1984

Copyright Amendment Act 39/1986

Copyright Amendment Act 13/1988

Copyright Amendment Act 61/1989

Copyright Amendment Act 125/1992

Cybercrimes Act 19/2020

Electronic Communications and Transactions Act 25/2002

Nigeria

Copyright Act Cap C28 Laws of the Federation of Nigeria 2004

United Kingdom

Copyright, Designs and Patents Act 1988