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The Application of Intellectual Property Rules to AI Generated Content

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ABSTRACT AND KEY WORDS

The rapid development of artificial intelligence (AI) has resulted in the proliferation of AI-generated material, raising serious concerns regarding the applicability of existing intellectual property (IP) regulations. This thesis investigates the challenges and opportunities posed by AI-generated content in terms of copyright, patent, and trademark law. The thesis identifies significant areas of tension between AI and intellectual property law, such as authorship, originality, and novelty, through an examination of existing legal frameworks, case studies, and scholarly debate. It suggests various solutions and policy proposals to solve these issues while ensuring a fair and equitable IP regime for AI-generated work.

Keywords: AI, intellectual property, copyright, patent, trademark, authorship, originality, novelty, AI-generated content.

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INTRODUCTION

Artificial intelligence commonly referred to as A.I. has made quite a controversial entrance into our day to day lives, however, this is not a miracle of the modern era no, this is in fact the dreams and thoughts of people that lived more than a century ago.

From the dawn of the 20th century, with rapid modernisation and industrialisation changing our infrastructure, landscapes, and lives, humans were never more ambitious. People were amazed by the groundbreaking technology that was being developed, inventions which were being worked upon and how these advances benefitted everyone. People started wondering about the future in awe, pondering what will we achieve by the next century.

Since innovation had no limits in the early 20th century, imaginations ran wild. People started fathoming about flying cars, space, megacities, and robots. Putting the others aside, robots where something that fascinated everyone alike from the young energetic kids to the old who could not understand the word but understood the idea behind it. Robot, a machine that could work like a human being, albeit designed like a human but its actions were more *mechanical* than a human. This robot had a sort of intelligence that enabled it to conduct specific tasks without human intervention. Shortly after, the first instance of people coming up with the term *Artificial Intelligence* emerged. **(Alan Turing, 1948)**

From the early 20th Century from tales and stories to 2024, AI has not only had a significant jump but development at a rate which would have taken ordinary species a millennium. Today AI has had immense effects on multiple industries aiding in healthcare, science, quantum computing and research & development. It has brought a revolution in the way we create, interact, and consume content on the internet. All the way from being able to generate material from our imagination, from pictures to scripts to poems or doing our homework all the way to automating complex and meticulous tasks such as data calculations and reviewing syntax errors in code.

The boom for AI worldwide started with the *Generative Pre-trained Transformer* also commonly known as GPT. It was first brought forth by OpenAI in November 2022 revolutionising the way we interact and work with a machine. **(OpenAI, 2022)** From then onwards to now, AI is everywhere in every form and format.

Whilst some see this as a boon that will help propel our knowledge and understanding to the next level, others view it more with doubt and concern regarding the role of human creativity versus that of computer-generated content and how far of a reach intellectual property right actually has in this domain. This concern mainly lies with artists,

be it in the music, picture or the movie industry, every creative person sees AI as a threat to rights and liberties of their intellectual property. This fear comes to fruition when AI generated content completely waives intellectual property rights and generates content regardless of copyright or trademark protection, examples of this can be seen with indistinguishable pictures or plots of stories or even song lyrics. Now, in the normal world if a person were to attempt this, it will account for an infringement and would be followed by a lawsuit but in the realm of Artificial Intelligence and the Internet which is not *entity* per say, it remains in the grey zone.

This research on AI and IPR is critical, given the rapid improvements in AI and the growing prominence of AI-generated material. This thesis examines existing legal frameworks, landmark court cases, and scholarly discussions to identify important areas of conflict and friction between AI and IP law and provide alternative solutions to ensure a fair and equitable IP regime for both human and AI-generated works.

The novelty of this thesis lies in its comprehensive analysis of the challenges and opportunities presented by AI-generated content to the existing intellectual property framework. While prior studies may have focused on certain parts of AI and IP, this thesis provides a comprehensive review of copyright, patent, and trademark law.

The thesis also touches upon the ethical implications of AI-generated content, such as biases and misinformation, which are sometimes disregarded in legal discussions. By suggesting viable solutions and policy recommendations to address these ethical challenges, this thesis helps to shape a responsible and equitable intellectual property framework for the AI era.

Furthermore, the thesis's comparative legal study across numerous countries, including the US, the EU, the UK, and China, provides a worldwide perspective on the issue, highlighting the need for international collaboration and harmonization of IP laws in response to AI advancements.

By synthesizing legal analysis, ethical considerations, and comparative perspectives, the thesis offers a novel and timely contribution to the evolving field of AI and IP law.

Key Research Questions:

1. What changes can we introduce to current IP laws to accommodate AI generated content seeing the rapid advancement to AI systems?
2. Regarding authorship and originality, what are the implications of AI generated content considering the fact that a lot of the work generated is indistinguishable to human created content?
3. If AI generates inventions, can it be regarded as an inventor and be granted rights under the patent act? If no, then what criteria should be met by AI for it to be granted such rights.
4. What changes need to be introduced into trademark law that can facilitate AI generated branding and marketing to be recognised and that too without human intervention?
5. What impact will AI generated content have on the society? How will it affect jobs, industries, and diversity because of its rapid advancement?
6. How can we ensure that AI generated content and the use of AI in general be used in a responsible and legal manner?

By addressing these research questions and proposing innovative solutions, this thesis aims to contribute to the ongoing discourse on AI and IP law, paving the way for a future where AI and human creativity can coexist and thrive within a balanced and adaptive legal framework.

Thesis Statement:

The current rules and regulations we have in place specifically that of IP law face hurdles when it comes to dealing with AI generated content particularly in the fields of authorship, originality, and novelty. To ensure that AI isn't withheld from achieving great things, and its progress isn't dampened it is essential to adapt the current legal framework to ensure that both can coexist at the same time. This thesis emphasises for a comprehensive approach to be taken when dealing with AI and IP law since AI's impact is not only limited to the internet but has a broader societal and economic impact.

PART I. DEFINING AI AND ITS ROLE IN CONTENT CREATION

Artificial intelligence (AI), once visioned as a mere concept of science fiction, has had such a rapid development that today there is not one person in the world who has not either heard about it or interacted with it once. Defined as the ability of machines to stimulate human intelligence from doing basic tasks such as playing chess to solving complex eco-societal problems, this *machine* has showed us a tiny snippet of the power of what is to come. Just in 2 years, from the launch of OpenAI's GPT in November 2022 to this day, it has proven its ability in not only one field but various fields demonstrating its ability in the domains of science, arts, technology, and finance, revolutionising the way we produce and consume content.

This chapter will define in depth what AI is or what we have been referring to these past years. Further, it will go into AI's capabilities, the opportunities it brings and the challenges it presents for Intellectual Property.

1.1. Defining AI and its types

Now that we have a basic understanding of what AI is, we will delve deeper into what constitutes AI and the types of machines that work together to form the AI we know and use.

Artificial Intelligence is not one set of code, neither is it one type or style of code. AI is generally broken down into two categories for better understanding: Narrow AI and General AI. **(iVGeek, 2023)**

Narrow AI also commonly known as *weak* AI is a system that has been designed and designated to carry out specific tasks only. Now, these tasks do not necessarily have to be basic in nature but the domain of expertise of the AI is limited to one field. This is done on purpose to make the AI more efficient and error free in its task. This limited playing field allows the AI to become an expert in its field of practise over time and often outpace General AI when it comes to carrying out tasks.

Examples of narrow AI can be found all around us, from facial recognition systems to virtual online assistants all the way to self-driving cars, these AI's have gotten more efficient and better every passing day. Samsung in 2011 unveiled its first facial recognition system in their phones **(Zbigniew, 2016)** Yes, it was a little slow and inaccurate at times, it could sometimes be unlocked with a photo of you but over time, facial recognition

systems on phone have advanced so much that they take mere milliseconds to unlock and can even tell apart a real person from a high-definition picture.

These advances in not only facial recognition but multiple fields have been synonymous with our lives so much so that now we take it for granted undermining the weak AI system's that have been implemented for it to work so flawlessly.

In contrast, General AI also commonly known as *strong* AI is a much broader system unlike narrow AI which only focuses on one field. General AI is made up of millions of datasets, collectively referred to as a database. This database contains hundreds and thousands of gigabytes of information sourced from the internet. From Wikipedia pages, history books, finance websites to image sources from Shutterstock and music lyrics from Soundcloud, it has it all. From this database, the AI trains itself millions of times trying to recognise patterns, traits, and styles from the sourced material.

Once its training is complete, the general AI system evolves to such a level that it attains the ability to learn, understand and comprehend intellectual tasks that are often carried out by humans. This makes the AI good at every task presented to it, with its vast knowledge from not one source but multiple domains.

Examples of general AI systems have emerged recently, as mentioned before, OpenAI's ChatGPT which we have all heard about and/or used was the first general AI to have attained the public's frenzy and love with its apparent knowledge and ability to do anything and everything. Prior examples of general AI systems though not that successful could be traced back to Evie, the first female chatbot which took people by storm when it was launched by Existor in 2008**. (Existor, 2008)** This chatbot, was modelled to look like a human girl, named Evie and talked to you like any normal person would, it answered questions, responded to jokes, and even flirted with you. However limited, it was the first instance where we were beginning to see the formulation of a general AI system and its capabilities and from 2008 to now, general AI has developed at an astonishing speed.

However, where narrow AI lacks in its handling of multiple domains and fields, it covers up in its efficiency and error free output because of its dedicated single task operation. General AI on the other hand, even though it has a vast amount of data, struggles to handle, and concisely comprehend all this data. It lacks the efficiency narrow AI has and often gets facts and figures wrong or even fabricates some facts when it doesn't know the answer to certain questions. The limitations to both are apparent and visible, but with progress moving forward in the field of quantum computing, these limitations look to be conquered not far into the future.

1.2. Techniques used to make an AI

Both AI systems, whether general or narrow follow the same principles and techniques when it comes to solving problems and achieving the desired results albeit their methods might be different. The techniques used to get the desired results range from machine learning, deep learning, to natural language processing. **(Delgado, 2024)**

Machine learning is a process by which general AI is usually trained, it is a technique wherein the AI model is introduced to vast amounts of data usually referred to as datasets which when combined make up a database. As previously mentioned, this data constitutes information from multiple directories of the internet. From webpages to articles to even scholarly reports and research papers.

This data is used by the AI in training to help it identify patterns, styles, and traits. After vigorous training, the AI is able to correctly imitate a specific style or pattern depending on the questions asked. For example, if you were to ask an AI which has been through machine learning, *what the significance of Napolean was in the French Revolution and to write it in the style of an essay,* it would first look through its vast database of all record related to Napolean and the French Revolution, after finding the answer, it would then pick out an essay writing style and would present the answer as such. People who have used ChatGPT or other relevant AI's must have witnessed this multiple times, from writing essays to emails to templates in specific styles, be it professionally, casual or in a friendly tone, the AI can do it all.

Now, deep learning is a step further. It works upon machine learning as its foundation but polishes its results and the answers it provides. In deep learning, the AI uses something called the *artificial neural network*, this network is remarkably similar to that of how our brain works. **(Brault, 2024)** Our brain consists of various neural networks which correspond like gateways for the information to pass through and flow from one part of the brain to another. For general AI, as we were discussing previously, since there is a lot of data to process, it is more prone to make mistakes and be less efficient. This is where deep learning comes into play, allowing the AI to work in a structure with artificial neural networks, enables the AI to not only make faster decisions but have more accurate and efficient results imitating that of a human brain. This technique of deep learning however takes significantly more time and resources than of machine learning and only a few companies have been able to pull it off. The companies in question have made AI's that people are using today, from OpenAI's latest ChatGPT v.4, Microsoft's Co-Pilot to

Googles Gemini, these companies are dominating the landscape of the technological revolution after having implemented deep learning into their AI's.

Finally, Natural language processing also commonly known as NLP is a technique that allows AIs to generate, understand and comprehend human language and input. It would not be as exciting and entertaining if the AIs were ever so smart but were not able to interact with us like other humans do. AIs of the past felt mechanical and robotic with their answers, sometimes they would not be able to understand our inputs and what it was that we desired.

To fix this, millions of datasets were introduced to the AI, from essays, poems, famous written pieces to even stories and captions. By meticulously studying the pattern of the way humans write and phrase things, it was able to learn. The *change* in the way we see AI occurred when the boundaries to be able to distinguish machine written and human written became so thin that they appeared indistinguishable. From then, we have seen NLP being used in every AI to make it more human friendly and interactable. Now, modern AI has become so competent that it even recognises *slang* a type of informal language used by teenagers and respond to it accordingly, people feel more at ease talking to and conversing with an AI that is like them and that understands the way they speak whether its in English, Chinese, French or any other language from around the world, paving the road to more accessibility for the entire world.

1.3. The Growing Role of AI in Content Creation

The way we produce and consume content nowadays has been transformed due to AI, whether it's in the form of YouTube shorts, Instagram reels, essays or even photoshoots that are digitally produced by AI, the footprint has been so impactful that it cannot be overlooked.

As mentioned previously, NLP has aided AI in this field by becoming more generating content that is more human like, with the correct prompts, the AI is able to accurately generate exactly what the human mind can fathom. Nowadays, AI has gotten so advanced and good at its job that it is able the generate news articles on multiple topics, generate product descriptions and catalogues, and is even able to write creatively, formulating story boards, poems and plays all on its own without human intervention. This feature has helped multiple businesses and entrepreneurs to establish foundations that leverage this technology to their benefit by providing high speed news updates, coverage stories and much more.

Other than written pieces of work, AI has had significant improvements when it comes to visual work, particularly in the image and video generation department. While scrolling through the popular social media platforms like Instagram or YouTube, you will encounter various videos that don't feature a face but a random video playing in the background, some text and a narrator narrating a story. These videos are often the creation of AI and are made within just a few minutes. All that is needed for the creation of these videos is some context and a random video from the internet, after this the AI will do the rest. **(Marshall, 2024)**. As for how AI can create these videos, the technique used by AI in this scenario is machine learning, as discussed previously this is a technique that trains the AI by exposing it to a vast database of images, videos and reels making it learn the style and pattern of how these videos are made. Over time, it becomes so prominent that it can generate new and original content and is even capable of generating entire movies or short videos.

Further, not only in content creation but the way the content is presented to us is also controlled by AI. Weak AI systems are implemented in the process wherein they monitor our behaviour and study our preferences. From the videos we spend more time on, to the ads we click on all the way to what we search for, all this information is funnelled into the weak AI system that starts to build a person of us, our likes, tastes & preferences and what we enjoy. Once the system has enough data to process about us, it starts to *suggest* content that is likely to be interesting to us. These new suggestions are more tailored, and custom made to our requirements and preferences, this in turn enhances the users experience on the social media platform and increases engagement benefitting the corporations that own these platforms.

Coming to the music industry, AI has it a little easier here as compared to image generation or video generation. Music unlike images and videos falls under the finite range. There are only so many melodies and note combinations that can be worked upon to make music what we know of it today. An interview conducted by *New Scientist* with multiple musicians around the world looked at whether we are going to run out of musical melodies. An interesting answer to observe was given by *Richard Ellam* wherein he stated that "*Although the number of possible melodies is finite, it is so very large that for all practical purposes, the supply of new tunes is infinite."***(Anon., 2021)**

However, when we take into consideration the power of a modern computer and its ability to solve billions of mathematical problems in mere seconds, the finite range of music does not seem that big anymore. Music in mathematical terms would be test trying different tunes and melodies to find which one's sound good together and then arranging multiple

different melodies together to form a song, both tasks which AI is quite good at. With all the preexisting available notes, rhythms, tune, and melodies fed into a database for an AI to analyse and with the help of machine learning and/or deep learning, it will not take AI that long to compose entire albums let alone songs from classical pieces such as Mozart's Requiem to today's techno music from popular DJ's.

Finally, an often-overlooked role of AI in content creation is that of AI powered editing tools. From our phones to our computers to even websites now, we see it everywhere but remain quite oblivious. Hidden underneath our technology, AI powered editing tools have been improving our quality of life since a long time.

We have all mistyped a word, got a wrong spelling, didn't have correct punctuation or felt like the sentence could be phrased better. We have all encountered this and still do till this day. As soon as we misspell a word, a red squiggly line appears beneath our word highlighting the fact that it has been misspelled. When we don't use the correct punctuation, a blue line appears beneath the word suggesting improvements. These small but valuable inputs of suggestions, correcting errors, and identifying plagiarism provided by this model of weak AI helps billions of people around the world in their day-to-day tasks without them even noticing.

PART II. INTELLECTUAL PROPERTY LAW AND ITS JOURNEY TO THE DIGITAL AGE

Intellectual Property law has been around for a long time despite seeming modern. Yes, inventions, innovation and design have been around much longer, but people didn't have the tools and technology to imitate and/or copy the said invention or design. This however, started to change with the introduction of the printing industry in the late 15th and early 16th century. **(Seville, 2018)**

In no time, massive volumes of books could be copied, hundreds of times, designs could be mass printed, and blueprints of inventions could be easily distributed. This explosion of printed material created a new kind of marketplace for ideas and information, one where the potential for both profit and plagiarism was significant. This is when the concept of intellectual protection, or the protection of one's inventions, began to take shape. People wanted to capitalise on their creations, earn money and livelihood from selling their inventions and works of art. No longer was creativity solely the domain of patronage or limited by the slow, laborious process of hand-copying. This was also becoming a necessity due to the burgeoning printing industry and technological advancements. The ease of reproduction threatened to undermine the value of original works, making it difficult for creators to reap the rewards of their labour. The primary purpose (of copyright) was to protect the rights of creators and inventors, ensuring they could benefit from their work and encouraging further innovation and creativity.

2.1. Why should Intellectual Property be protected?

Won't society benefit from there being no protection with everyone allowed to access every creation without having to ask for consent and without paying royalties? This might be true in a dystopian society; it is not quite practical when it comes to the real world. There are a few distinct advantages that favour the protection of Intellectual Property rights. Ranging from economic growth, revenue generation to having a competitive advantage and building consumer trust.

2.1.1. Economic Growth

In today's world, economies are linked to how well businesses perform. The better they perform, the wealthier the country becomes, boosting the country's GDP and PPP. This performance of a business heavily relies on its ability to innovate, research, and develop newer technology, processes, and methods. Businesses which are at the forefront

of economic growth are usually the ones that rely heavily on IP rights and understand its importance and significance. These businesses broadly fall into 3 different types of industries, these include but are not limited to the pharmaceutical industry, the entertainment industry, and the technology industry.

These industries not only generate high volumes of wealth but also provide jobs to millions of people throughout the country, further strengthening the country's economy. Once the country has enough capital, it then embarks on building and encouraging more such businesses which in turn leads to more profit and even more businesses. This in turn becomes a self-sustaining cycle which fuels the country into prosperity and makes it an economic giant.

2.1.2. Revenue Generation

Now, once these established businesses begin creating and innovating new things, they start to license their newly developed innovations and creations. This licensing of their creation is what we commonly know as copyrights, trademarks, or patents. Once licensed, these businesses allow others to use their products for a set fee. Usually, these inventions are made available to the general population at a fraction of the cost that it took the business to develop the product. However, due to globalisation and market penetration of multiple market, the business is able to sell millions if not billions of their product, ensuring they get more than their money's worth. In this way, everyone gets to enjoy the new invention and the business which spent millions into research and development also generates revenue from the sale and/or use of its invention.

2.1.3. Competitive Advantage

Competitiveness is the grinding gear for any successful business. It is what pushes businesses to innovate, research, design and outperform their competitors in the market. Without competition, there would be a single business holding a monopoly over the entire market with innovation seeing a gradual decline as other business fail to catch up. However, in a free and fair market, all businesses are given the same treatment, this allows businesses to compete with each other, vying for the best product, the cheapest rates or having superior quality. All these traits are what push businesses to compete with each other for a bigger share of the market. This competition in turn leads to research and innovation skyrocketing, with every business trying to license their product before the others. It becomes a race to see who can research and innovate the fastest and who can license the most products. This not only benefits the economy but also benefits the general population who now have multiple options to choose from.

2.1.4. Consumer Trust

With licensed Trademarks and copyrights, businesses can build a legacy of trust and authenticity for themselves. Their trademarks usually in the form of recognizable logos, symbols, or phrases prompt customers to trust the quality as it comes from a reputed business. With the market already being competitive, businesses try to woe the most customers as possible. This will only be possible when their products stand out and consumers can trust the quality and authenticity of the products they purchase. This trust is crucial as it is what leads to brand loyalty and long-term business success.

2.2. Types of IP and how it came to be recognised today

Intellectual Property law incorporates various protections all the way from patents, trade secrets, industrial designs and geographical indications to the more common ones know to us as copyright, and trademarks. As society has evolved, newer fields have been added under the wing of IP protection and so far, it has accommodated them without any issues. However, since the advent of AI, we are seeing the foundations of IP law being challenged and questioned like never before. The modern digital age has brought with it various challenges, the biggest of them being the protection and acceptance of AI generated work.

Many states have tried to solve this pressing issue but with no avail. Organisations like the World Trade Organization (WTO) and the World Intellectual Property Organization (WIPO) have strongly voiced their opinions about a necessary change in the current IP system. However, before that, we have to examine what the current state of IP laws are and look at the challenges AI created content brings. For this, we will examine the primary form of IP protection i.e., copyright, patent, and trademark.

2.2.1. Copyright Law

"Copyright" in itself is a descriptive word, indicated by the two words; "copy" and "right", implying a right related to copying, this makes it easy to understand without needing further explanation. Now, lets examine what it protects.

Copyright law as stated from the word is a right given to authors to protect their work from being copied. This spans from original work of authors including but not limited to literary work, dramatic or musical work, artistic work, and audiovisual works. All of these works come under the purview of copyright law however whether they can be protected by copyright is another question.

No, a work for it to be protected by copyright must be an original piece, a new or novel piece having been created by the author. This piece of work regardless of its format

needs to be in a tangible form of expression for it to have copyright protection. This however, led to some inconsistencies later on which we will discuss with a case law.

As the internet age started booming, everything was being uploaded online from books, music, movies, and even blueprints for inventions. Before long, people discovered an apparent loophole in copyright law that seemed to allow them to unlawfully copy work from the Internet without any repercussions. People stated that any piece of work for it to have copyright protection must be in a tangible form of expression. However, since the material was present on the Internet, it was not in a tangible form since you couldn't physically touch it or feel it. Yes, they were technically right but judges and lawmakers quickly realised their mistake and the repercussions this might bring. Copyright law needed to be quickly amended to include the internet and change the definition and scope of what tangible meant. This is illustrated in a landmark case in **A&M Records, Inc. v. Napster, Inc., 2001.**

Napster was a famous music sharing platform in the early 2000's. Back in the day, it was not as easy to attain or listen to music digitally without paying a premium for it. When it came to downloading music, MP3 files were only available from producers for which they charged heavy prices. Napster came up with a brilliant idea wherein they solved this problem by making available the most popular and in demand MP3's for absolutely no price. Their reasoning was that copyright law does not extend to the internet and MP3 files were not tangible in a sense that they could be physically touched or felt. Thus, Napster implemented a peer-to-peer (P2P) file-sharing service which enabled its users to download and share MP3 files without consent and authorisation from the copyright holders of the music in question. Soon however, many recording companies, studios and labels alleged that Napster was liable for copyright infringement as it was enabling people to download their music without paying for it.

The court examined the issue and came to two major questions, the first; whether downloading, sharing, and transferring of copyrighted material through a P2P network was legal and whether it constituted fair use. The second; whether digital field were to be considered as tangible under copyright law.

Looking at the latter question, the concept of tangibility for digital files, online material became ever so crucial as it would later go on to shape and change the way law was interpreted when it came to violation of copyright in regard to the internet.

The court had to determine whether the term 'tangible' which meant something that can be physically perceived and touched implied to online material. After meticulous debates and reasoning, the court ultimately came to recognise that even though digital files

are not physically tangible as another object in the real world, they are however in a fixed medium. What this meant is that for the MP3 to exist online, it has to be stored somewhere, either a server, a computer, or some sort of drive. This in turn would meet the requirements of being 'fixed in a tangible medium of expression' i.e., in this case a computer hard drive which you can interact with physically, thus proving that even digital files will fall under the protection of copyright law.

The court ruled against Napster's plea and found them of copyright infringement liable for unauthorized copying and distribution of copyright works without the permission and consent of the owner. Further, the case also established that digital files, although not physically present are still tangible in a sense that the drive where it's stored or located can be physically accessed; 'fixed in a tangible medium of expression'. **(A&M Records, Inc. v. Napster, Inc. , 2001)**.

From then onwards, copyright law has witnessed continuous improvement in tackling the complexities presented by the digital age. One of the key initiators of this change in the way copyright law was interpreted was due to the introduction of the Digital Millennium Copyright Act (DMCA) which was introduced in 1998. Even though having been introduced more than 20 years ago, we see that even today the DMCA plays an essential role in governing copyright infringement online. This is thanks to the many laws it introduced from protection of online services to establishing notice and takedown orders that promptly addressed any kind of copyright violation. The DMCA has been ever so crucial in addressing the shortcomings in the copyright law in the early 2000's and making sure that illegal digital file sharing, downloading, and distribution are put to a stop. **(U.S.C, 2022)**

Another landmark case decided by the United States Supreme Court in 2021, further changed the way we perceive copyright law today. This case wasn't a small case by any means but a legal battle between two giant corporations, whose outcome would significantly change the way software code was treated. This case was famously known as **Google v. Oracle.**

We have all heard of the famous operating system "Android"; Android and iOS are what dominate today's market when it comes to phone operating systems. Google was one of the biggest contributors when it came to developing the Android Operating System. To make an operating system, millions of lines of code are written for it to be functional, operation and user friendly. Whilst developing their operating system, Google copied around 11,500 lines of code from another company called Oracle. Oracle had developed their own program popularly known as Java in which these 11,500 lines of code were

present. As to why it was done, Google claimed that it made it easier for developers to create, design and program applications on their Android operating system thanks to using Java's application code. However, Oracle sued Google citing violation of their copyright on its code.

The main issue in this case was whether Google's copying of Oracle's code constituted fair use under the copyright law or whether it was a violation of the right. Oracle argued that their codes, called APIs were copyrightable and were subject to the copyright law and Google's decision to copy their API was a clear violation. However, Google counteracted by saying that APIs were not copyrightable as their use was transformative in nature and fell under the clause of fair use. **(Google v. Oracle , 2021)**

The case went through multiple rounds of litigation and multiple courts, once being ruled in favour of Google stating that APIs were not copyrightable, the other time being ruled in favour of Oracle stating that they were copyrightable.

Finally, in 2021, when the case reached the United States Supreme Court, a decision was finally made 6 to 2 in favour of Google's use of Oracles APIs stating it as "fair use." Their decision followed that of Google's analogy wherein they stated that Oracles Java APIs were a set of code that was quite familiar with programmers throughout the world, Google's decision to copy 11,500 lines of the code were purely for transformative purposes as this allowed various programmers to work in newer environments and develop multiple standalone applications. **(Harvard, 2021)**

This decision came as a significant victory for not only Google but multiple software development companies throughout the world, establishing the precedent for using existing code to develop and work upon newer software and program. This ruling had quite an impact on the software industry, particularly in terms of:

- Innovation**:** Due to the court accepting the software copying as "fair use", it encouraged various software developers and companies throughout the world to build upon existing technology further helping us innovate and invent even better technology.
- Legal Clarity: After this landmark ruling, the guidelines for the use of software code became very clear reducing the risk of litigation for potential newer developers.
- Interoperability**:** This decision also helped support the system of interoperability allowing different software's and systems to work together more easily.

Not only these two landmark cases but several recent rulings by the United States Supreme Court have reshaped and redefined how we look at copyright law today. Another very important change is in the transformative use of copyright law. Transformative use refers to the idea that an original piece of work be transformed in such a way that it adds something new to the original, changing its purpose, meaning or message. This plays a crucial role when it comes to judging parodies, criticism, or commentary.

The European Union isn't far behind, introducing its own directive **(EU) 2019/790** whose sole aim is to modernize copyright laws and make it able for the digital age. Key aspects of this directive include:

- Improved rights for press publishers**:** The new directive gives power to publishers for negotiating and receiving compensation from platforms that use their content.
- Material on social media platforms**:** Social media platforms like YouTube and Instagram are mandated to implement measures such as securing licenses and utilising smart filters that prevent unauthorised use of copyrighted content.
- Compensation for creators**:** The directive also ensures that digital creators, such as writers, musicians and videographers are fairly and justly compensated for the use of their work online. **(EU, 2019/790)**

Thanks to these decisions and directives copyright law has seen a drastic change as compared to how it was in the past. Striking a balance between consumers, creators, and innovators.

2.2.2 Patent Law

"*Patent*" an English term which has been derived from the Latin word "patere," means "to lay open" in other words, to make available for public inspection. Let's briefly examine what patent law is.

Patent law is one of the three foundational pillars of Intellectual Property law along with copyright and trademarks. Patent law encompasses a legal system wherein it grants exclusive rights to inventors for their inventions, allowing them to have control over its production, sale, and use. However, these rights are only given once the invention is disclosed to the public which in turn allows others to learn from the invention and build upon the invention. Just like the concept of original material in copyright law, a certain degree of 'fair use' is allowed to be exercised when it comes to patents. Further, the law is there to encourage innovation, a return on investment and further technological progress without the inventor fearing for his rights.

Patents aren't necessarily granted just for inventions but are also granted for processes, compositions of certain material and improvements on existing technology that is present in the market. However, when it comes to getting patent protection, not every invention is eligible, for an invention to be patentable, it must meet a few criteria's:

- Novelty: The invention must be a new idea, thought or process and should not have been previously disclosed to the general public. If disclosed without attaining patent rights, it will not be considered a new idea anymore making it ineligible for patent rights.
- Non-obviousness: The invention has to be different, out of the box and should not be obvious from the get-go. It needs to be non-obvious in nature. Further, any improvements, changes, or modifications on existing technology should also follow the same analogy.
- Utility: The invention to be granted patent rights has to be useful and provide some sort of practical or theoretical benefit to the user. If the invention has no utility even though it is novel and not obvious, it won't be granted patent rights.

Once the inventor ticks all the boxes and gets granted patent protection for their invention, they hold exclusive rights to produce, sell and use their inventions for a period of 20 years from the filing date. After the expiration date of these 20 years, the patent becomes free to use and avail as it enters the public domain.

With the rapid advancement of the digital and biomedical age, a lot of questions have sprung up in regard to patent law. Even though patent law seemed straightforward and easy to understand as compared to copyright law, courts soon realised that was not the entire case. From software patents to biotechnology patents, the landscape of patent laws has changed a lot over the years. This has been mainly possible due to multiple landmark cases from around the world which helped modernise and bring patent law to its current state.

A famous landmark case which cleared a lot of air in regard to what exactly patent law covered came in the form of **Diamond v. Chakrabarty (1980)**

Mr. Chakrabarty was a bioengineer working in the United States on an essential problem, to solve the problem of oil spills that were happening around the world in major ocean bodies. For this, he was tasked to create a bacterium that was capable of breaking down crude oil in water bodies. Upon working countless hours and investing millions of dollars, Mr. Chakrabarty was able to develop the bacterium successfully. This new invention of a bacterium would help revolutionise the cleanup efforts that were caused by major oil spills. Mr. Chakrabarty quickly went on to file a patent for his new invention

however, the U.S. Patent office rejected his please stating that living organisations were not patentable.

The courts had never had such a bizarre case before of patenting a living organism. The major question of this case being whether genetically modified organisms could be considered as patentable. Yes, his invention ticked all the boxes required by patent law however the courts were still hesitant in moving forward with this case as allowing patents for living organisms would make it quite hard in defining what sorts of living organisms, life forms and levels of functioning would patent law cover if they were to move forward with this. The boundaries were quite broad and uncertain.

After multiple battles in various courts, Mr. Chakrabarty's case finally reached the United States Supreme Court. The court thoroughly analysed the United States patent law and examined Section 101 of the patent act. This section was important as it defined the subject matter of what exactly could be patentable and what could not. The two main clauses questions which arose from this were whether the bacterium developed by Mr. Chakrabarty was "manufactured", or it was "composition of matter in a certain way".

Finally, after multiple discussions, the Supreme court decided in favour of Mr. Chakrabarty with a 5-4 decision. The court help that genetically modified organisms were indeed patentable under the patent law. Their reasoning behind this was that they saw the bacterium developed by Mr. Chakrabarty as a product of human intelligence and ingenuity not naturally occurring in nature. The time, research and money spent on developing a bacterium with such a certain composition that it only cleared oil spills was a novel idea which was nonobvious to the general public and had great utility and therefore met all the criteria's set forth by patent law, enabling it to be called an invention and granted patent rights. **(Diamond v. Chakrabarty , 1980)**

This landmark decision by the Supreme Court helped the biotechnology sector significantly by unlocking the doors to even more innovation and invention as companies were now able to patent their new creations which would in turn enable them to earn profits from it further boosting the field and appeal of genetic engineering. This also broadened the scope of what can be covered by patent law, enabling it to penetrate into even more industries.

Another prominent landmark case appeared in the form of **Bilski v. Kappos (2010)**.

Unlike Mr. Chakrabarty's case, this case looked at whether business methods and certain ways of working could be patented. This was a completely new horizon for patent law as granting patents for methods and ways of practise seemed quite impractical however, Mr. Bilski contented that they had developed their own unique way of hedging risks in

commodities trading. Mr. Bilski further stated that the way of carrying out business was novel, non-obvious and was certainly a utility to their business as it ran more efficiently, ticking all the boxes for the granting of patent rights. However, the U.S. Patent office rejected their application counterarguing that the method used was just an idea and did not fall in the category of patent rights.

The main question which the court had to examine was whether business methods, an idea and thought of the mind met the criteria for patentability or business methods were not so 'non-obvious' and could be easily reconstructed by other people.

After multiple legal battles and uncertain answers, the case reached the United States Supreme Court, which understood that it needed to clarity the scope of patentability so as to prevent further misunderstanding of this nature. The Supreme Court used a test, a test which had been established by the federal circuit court.

This test was called the "machine-or-transformation test". This test was conducted to establish whether Mr. Bilski's idea was eligible for patentability by examining two questions, namely:

1. Is the idea attached or entwined to a particular machine or apparatus that it works and functions with, or
2. Does the idea have transformative effects on an article turning it into a different state or thing.

Finally, by unanimous decision, Bilski's method and idea for hedging funds was ruled by the Supreme Court to be an abstract idea and not eligible for patentability. The court further went on to state that abstract ideas, methods, and principles cannot be granted patent rights regardless of whether they meet the "machine-or-transformation" test unless they are applied and used in a specific way. By "applying in a specific way" the court emphasises that abstract ideas, methods and/or principles, have to be implemented in a tangible, practical, and clear manner which would enable them to produce results and/or effects in the real world. Finally, the Supreme Court also commented that the "machine-or-transformation" test was not the only test for patent eligibility, instead stressing that every single claim for patent rights should be heavily scrutinized to make sure that they do not cover abstract ideas. **(Bilski v. Kappos, 2010)**

This ruling ser forth a landmark precedent for the patentability of business methods and other abstract ideas regarding methods and principles to carry out business. The ruling highlighted that the focus should not be on the "machine-or-transformation" test but whether the invention added anything significant to the world other than just being the conjugation of ideas and thoughts.

Copyrights play a big role in the international market and community however, the role of patents hold more significance and thus there have been multiple efforts conducted by various countries throughout the world to harmonise and simplify the existing patent laws to make them easy to use, access and eligible to be tried across multiple jurisdictions. The Patent Cooperation Treaty (PCT) and the Patent Law Treaty (PLT) are treaties that have been signed and adapted by multiple countries throughout the world, with its numbers growing every year. These treaties showcase the value of patents and highlight the importance of coloration between different jurisdictions to ensure that inventors can invent and protect their inventions worldwide. **(WIPO, 2001)**

Patent laws have been continuously challenged and refined over the years as courts have dealt with diverse cases from various different domains. This process has provided lawmakers with valuable insights, enabling them to reshape and strengthen patent laws to what we know it as today. By addressing issues, challenges, hurdles and adapting to the rapidly evolving digital age, landmark cases such as the ones mentioned above as well as legislative and judicial measures have played a crucial role in fine tuning patent laws, making them safer for inventors and encouraging innovation throughout multiple industries.

2.2.3. Trademark Law

"Trademark" in itself is also a descriptive word just like copyright, indicated by the two words; "trade" and "mark", implying a mark that is utilised for trade, this makes it easy to understand without needing further explanation. Trademark can consist of not only marks but distinctive signs, symbols and words that help identify a certain product, good or service from its competitors. Trademark law protects these distinctive marks, words and phrases and gives exclusive right to the owner of these marks for its use. Just like copyright and patents, trademarks also need to be distinctive and non-generic in nature.

There are certain criteria's which need to be met when granting trademarks as multiple businesses compete with each other to capture the greatest number of customers, it becomes quite hard to come up with new, innovative designs and marks and we often see disputes arising between businesses claiming their own unique trademark. For this reason, trademark law has quite a detail orientated description when it comes to its distinctiveness and non-obviousness.

- Distinctiveness: The trademark should have clear distinguishing features when it comes to good or services, it should be identifiable from one source to another. If the trademarks are very similar or hard to distinguish, then in that case the trademark will be examined upon its filing date and the business who filed their

trademark first will be allowed to retain it whilst other will either have to change it or withdraw it completely from the market. The distinguishing feature of the mark comes down to whether the public can differentiate it by looking at two similar trademarks. If they are not able to tell them apart and might confuse them with the original product or service, then the later on will not be allowed in the market.

- Non-Generic: The trademark cannot be generic in nature or a mere description of the good or service, it has to employ something that transcends both elements. For example, a trademark cannot be “computer” or “bicycle” when it comes to generic terms, and it also cannot be “tasty” or “fast” when it comes to descriptions. However, if businesses choose to represent their trademarks by using an arbitrary mark, then they will be allowed to use it. An example of this can be seen via the word “Apple” which is trademarked via Apple Inc. As to how this was possible, Apple Inc. were not using the trademark in the fruit industry, where it would be considered generic or descriptive in nature suggesting the name of the fruit. Instead, they used it to sell computers, smartphones, and tablets in the technology industry marketing it in such a way that the trademark "Apple" had no inherent connection to the fruit industry.

Trademarks are the backbone for any business and its prosperity. Since the rise of the digital age, many people have tried to *piggyback* on famous and well-established brands identities, coming up with trademarks that are similar in nature, use the same colour scheme or sound very alike. This has led to various trademark infringement cases throughout the world. Businesses always needed to keep a keen eye on their competitors and practice vigilance to stop the unauthorised use of their trademarks online and even offline.

A landmark case decided by courts in the United States examined this problem of trademark similarities between two businesses. This case which was first filed in 2001 spanned for 13 years finally concluding in 2014 wherein the courts were finally able to crack the case and give out a mutually agreed decision. This case gave a lot of clarity when it came to trademarks and helped establish new and profound understanding of trademarks in the modern era. This case was that of Starbucks Corp. v. Wolfe's Borough Coffee, Inc**.,** 2001-2014

Starbucks, a coffee company which was well known throughout the world with its unique logo, colour design and aesthetics filed a lawsuit against a small-town coffee company going by the name of Wolfe's Borough Coffee. The lawsuit was filed because Wolfe’s at that time had recently started blending a unique coffee, however that was not

the problem itself, the problem lay in the fact that Wolfe's called these new blends "Charbucks blend" and "Mister Charbucks" which sounded eerily similar to the iconic coffee brand Starbucks. For this reason, Starbucks claimed that their trademark "Starbucks" was being diluted because of "Charbucks" and it amounted to infringement of trademark.

The key issue which the court was presented with was whether Wolfe's use of the trademark "Charbucks" constituted any kind of infringement under the trademark act and whether it's use diluted Starbucks brand image and caused harm to their reputation.

At first, the courts early in the 2000's dismissed Starbucks case citing that "numerous ordinary prudent purchasers are not likely to be misled or confused as to the source of the product in question" **(Starbucks Corp. v. Wolfe's Borough Coffee, Inc., 2004)** as to why the court cited this, this was became of Wolfe's statement that their product is currently called "Mister Charbucks," rather than simply "Charbucks," which is both less similar to "Starbucks" in sound and spelling than "Charbucks" is standing alone not causing confusion or misleading any buyers from Starbucks.

Later on, Starbucks went on to appeal again in the circuit court wherein they stated that the words "Starbucks" and "Charbucks" sounded very similar. They both consisted of two syllables each and had an accent on the first syllable. Further, they pointed that the two words are only differentiable by the speeling in the first two letters. Finally, Starbucks also claimed that they carried out a survey wherein they asked the general public if they could differentiate between the two words and the results showed that they could not as they associated both together.

After multiple years of battling, the court finally in 2014, came to a decision. The court found that there was indeed similarity between both the words however, the minimal degree of similarity showcased a weak association between both trademarks as well as the likelihood of consumer confusion. Thus, as a result the court ruled that Wolfe's use of the word "Charbucks" was not an infringement on Starbucks trademark, and it did not dilute Starbucks brand image or identity. **(Justia, 2014)**

This complex and lengthy case showcased the complexities that the digital age brings for trademark law. It also highlights the importance and necessity of a strong trademark protection.

Now that we have seen how complex trademark law can be, we understand how essential they are to brand identities and their status quo in the economy. With the digital age changing rapidly and with the introduction of AI systems into our lives, trademark law was also in due of changes. Copyright and Patents have gone through multiple changes and amendments throughout the years, but trademarks were still lagging behind. To fix this

issue, one of the biggest movements in favour of changing the trademark act and updating it to the current standard came forth in the form of The Trademark Modernization Act (TMA) of 2020 rolled out by the United States Patent Office. **(USPTO, 2021)**

The USPTO introduced a number of changes to the current trademark act. These changes came in the form of, how trademarks burden of proof will be treated, how its registration will be impacted and the what the introduction of ex parte will do.

- Ex Parte Expungement and Re-examination Proceedings: This new introduction into trademark law allows for proceedings that are filed for by third parties, challenging trademarks that have not been used commercially. As to why this is necessary, this new addition will help clear registry of trademarks of marks that have not been used making it easier for businesses to protect their own trademark and brand identity. Since its implementation, there have been various ex parte expungement proceedings where third parties have been able to successfully challenge trademarks that are unused, helping streamline the registration process.
- Increased Burden of Proof for Registering Trademarks: Owners of trademarks who wish to file their creations to the trademark office must now provide evidence not only of the creation of the trademark but also evidence that suggests that the mark will be used in commercial practice for selling goods or services. This ensures that trademarks are actively being used in commerce and are not lying dormant in the registry.
- Streamlined Registration Process: The TMA has further introduced online systems that will help USPTO deal with trademarks in a more accessible, easier, and efficient way. This had been an issue previously as the United States, the cradle for Intellectual Property rights has seen the number of trademark applications growing day by day due to the reliance on digital marketing and AI content creation. **(USPTO, 2021)**

In addition to trademark law, geographical indications, an additional part of intellectual property law that is very similar to how trademarks operate plays an equally important role. Trademarks and geographical indications (GIs) even though sounding quite different and holding separate parts in the broader sense of intellectual property rights, actually have quite a strong relationship and often function hand in hand.

If we examine the properties of both trademarks and GIs, we see that both have been enacted to protect the origin of goods and services. Whilst trademarks focus on the identity and image of the brand, GIs focus on the geographical location of the product and the

qualities and traits it brings with it by being from a specific location. Both trademarks and GIs play an important role when it comes to distinguishing products or services, both help consumers distinguish products based on the brand they are related to, their origin and the quality, thus allowing businesses to differentiate their products in the market.

In multiple jurisdictions around the world, we see that GIs are treated the same as trademarks are, often with the same regulations and law. Some jurisdictions further go on to protect GIs under trademark law whilst others have a separate legislative framework that helps govern it. An example of this can be seen in the EU where GIs are often protected through specific regulations drafted by the EU however, these regulations also relate to trademarks and can be applicable in their sense as well without any change needed.

Just like trademarks, protecting geographical indications is also very important. It helps maintain not only authenticity but also promote the specific geographical location in front of the consumers further promotion regional awareness and economic growth. A famous landmark case came to light in the year 1961 when there was a violation of this geographical indication. Throughout history, a small town in France has been famous for making a specific type of cheese, a cheese which is famously renowned throughout the world for it texture and flavour and not produced anywhere else. The place where it is produced is known as "Roquefort", a small community located in a municipality in France. The case in questions is famously known as **Community of Roquefort v. William Faehndrich, Inc. (1961)**

The small community of Roquefort famous for making its sheep milk blue cheese was sought after not only throughout Europe but also in America. They were so prominent that Roquefort holds a certification mark for its famous sheep blue cheese which is present with the United States Patent Office. What does the certification mean, well it signifies that only the cheese produced by Roquefort meeting certain set standard and made in region of Roquefort should bear the name of "Roquefort cheese".

This is where William Faehndrich Inc., comes into the picture. William was a New York based cheese importer which imported cheese for its American customers from various parts of Europe. These included sheep's milk blue-mold cheese from Hungary and parts of Italy. However, it was not the act of importing that made it troublesome but the fact that William Inc., was naming these imported wheels of cheese as "Imported Roquefort Cheese". William Inc. was implying that the cheese they were importing had actually been imported from Roquefort, i.e., France and not from Italy and Hungary where it was actually being imported from falsifying the source from where the cheese originated from.

The main issue which the court broke down into two parts were whether the use of "Roquefort" by William constituted false and misleading advertising, riding on the success of the original Roquefort and confusing customers with that of the original product and further whether this act was in violation of the Lanham Trade-Mark Act and any international treaty present between the countries.

Just like with trademarks, the court first examined the label of William Inc's. cheese and compared it with the label of Roquefort's label. Then, it looked at whether the label was misleading customers or a mere act of imitation. Upon in depth examination, it became clear that the label of William Inc's. cheese was exactly identical to that of the original Roquefort cheese that was being sold in the United States. Further, this was a clear indication that Willaim wanted to mislead consumers into believing that his cheese was from Roquefort, and it had been imported from there. Upon establishing these facts, the court stated that this act of copying Roqueforts label was in violation of the Lanham Trade-Mark Act's provisions against false and misleading designations of origin.

Without any solid defence from William Inc's. side, the court ruled in favour of the Community of Roquefort, reinstating that no one is allowed to use Roqueforts certificate mark without proper consent and approval and further went on to issue a permanent injunction against Willaim Inc. to prevent them from using the mark again. This case reinforced the importance of protecting geographical indications so as to maintain the authenticity of the products and make sure customers are not mislead or deceived from receiving the original product.

Overall, with these cases and legislative changes, we can see that trademark law and GIs have evolved over time, introducing the concept of vigilance, adaptability to the digital age and ensuring that brands are free to carry out business without the fear of losing out on potential revenue from other competitors misusing their marks.

With this, we see the tremendous number of changes, amendments, corrections intellectual property law has gone throughout the years. This has only been possible due to people rising up and questioning the law itself. Thanks, their efforts and the courts jurisprudence, IP law has continued to refine itself and adapt itself to the challenges that have been presented to it. By studying, analysing, and examining the landmark cases that have shaped copyright, trademark, and patent law we can understand the importance and significance of IP laws and the role they have played in shaping the world we know today. From innovation, growth to protecting developers, creators and artists as well as helping the economy grow, IP laws haven't left a sector untouched. The ongoing adaptation and

evolution of IP law to the coming AI era are crucial in maintaining a fair and balanced system moving forward.

In the next chapter, we will explore the latest problems that are being presented in the form of AI generated content and look at the sever implications and contradictions it has not only with traditional IP law but on the real world. Will IP law crumble and crack or will AI adapt towards IP law, lets explore this question in the next chapter.

PART III. THE INTERSECTION OF AI AND IP LAW: IMPACTS & IMPLICATIONS

With the continuous evolution of AI and its integration into various sectors of the modern industry, we have come to see that its implications on traditional IP law are much more profound than we thought it to be. As mentioned in previous chapters, IP law has gone through multiple amendments, adapting anytime new challenges were presented. However, seeing the capabilities, power and ingenuity of AI and its ability to create, innovate and replicate material at an inhuman speed has drawn a lot of doubt and concern to whether current IP law can keep up with AI's pace.

This is because the traditional IP framework which was meticulously designed and drafted was made so for human creators, human authors, and traditional forms of inventions. No one had envisioned machines being authors one day, thus the reason why AI's capabilities today pose paradoxes and problems to not only the entire framework but also judges from different jurisdictions and lawmakers.

In the following sections, we will shortly examine the intersection of AI with that of traditional IP law and see what kind of impacts they create for each field, namely; Copyright, Trademark, and Patent followed by implications due to these impacts which can be seen in the form of recent court rulings and legislative measures that showcase how IP law is being adapted and changed in various parts of the world to help build a more robust and fair IP system.

3.1. The Impact of AI on Intellectual Property

When dealing with copyright law, the major issue which stems up when dealing with AI is that of the determination of authorship and ownership. The U.S. Copyright Office has traditionally recognized only human authorship, but the capability of AI to generate and create content autonomously without human intervention has blurred the line of authorship and leaves not only courts but judges and lawmakers confused.

Further, generative AI models, such as OpenAI's ChatGPT and DALL-E, create content by processing vast amounts of data, including copyrighted works. This raises questions about whether AI-generated content can be copyrighted and whether using copyrighted material to train AI models constitutes infringement.

Cases with instances of infringement on authorship, copyright and ownership have been filed across the world in multiple jurisdictions. Whilst artists are pushing for strict measures to be implemented, Authors like Deven Desai and Mark Riedl researchers from Georgia Tech **(Tech, 2024)** are pushing back against any sort of legislative trample by raising awareness about how court rulings against the development and growth of faster and smarter AI could force academic researchers to construct new AI models with limited training data which in turn restricts the AI making it less capable. They emphasise the right for AI to grow in a place without legal restrictions and bounds where researchers like them could help advanced AI into its next phase. Their ultimate goal being a balanced approach that respects both creators' rights and the potential for innovation whilst leaving AI unchained.

On the other hand, examining deep into the depths of intellectual property law, we see that trademark law faces its own set of challenges in the form of AI transforms that automate branding, marketing, and consumer interaction. The rise of sophisticated AI systems capable of creating logos, slogans, and even entire marketing campaigns complicates the enforcement of trademark rights.

Patent law is equally impacted by AI's rapid advancements. The ability of AI to generate novel inventions and improve existing technologies faster than humans presents a significant challenge for the patent system. Questions arise about the patentability of AI-generated inventions, the criteria for inventorship, and the potential need to redefine what constitutes a "non-obvious" innovation in an era where AI can rapidly iterate and optimize solutions.

Additionally, to monitor the amount of AI infringements as it is happening in the thousands today, it becomes a necessity to implement a robust mechanism to detect and prevent trademark infringement in the digital space.

Whilst AI can help in the enhancement to human creativity, it is more than likely to displace human creators now in the coming age. The biggest impact ChatGPT has had according to Toby Walsh from UNSW Sydney is that of job security and specially misinformation/disinformation. **(Toby Walsh, 2023)**

The professor argues that job security has become a big issue when regarding AI implementation into the workforce. It’s stated that the effect AI has on jobs is like comparing the tip of the iceberg; before, blue collar works feared their jobs would be taken away by machines and they were right in this regard, robots, machines, automated ‘arms’ replaced the majority of factory workers worldwide, saving millions for the business in the long term whilst improving efficiency and speed. Now, white collar workers such as

graphic designers, accountants and lawyers have started to worry about their jobs being automated because of the rapid advances of the AI.

A recently conducted study by the UNSW along with Professor Walsh showcased that the average salary of jobs revolving around writing or editing have fallen drastically, further this trend is not only affecting a single economy but prevalent around the economies of the world, seeing a minimum reduction of salaries from 10% upto 30% since ChatGPT was launched.

Another major challenge that AI has created which is quite prevalent in today's day is that of generative AI tools such as ChatGPT being used to create misinformation and spread disinformation amongst the public. This concern goes beyond synthetic text, to deepfake audio and videos that are indistinguishable from real ones meant to fool people into believing an alternative point of view and causing confusion, panic, and mass hysteria.

Various examples can be seen today of how deepfakes are utilised to lure people and change public opinion. A recent study conducted by the International Press Institute found that deepfakes played an unfortunate role when it came to the 2023 Slovak parliamentary election campaign. **(Sólymos, 2023)**

Two days prior to the election, a fake audio clip about electoral fraud that allegedly featured a well-known journalist from an independent news platform and the chairman of the Progressive Slovakia party reached thousands of social media users. This audio clip caused a lot of confusion amongst the voters and mistrust in their elected figure.

Solymos suggests in her report that these deepfakes certainly have a material impact, but also a larger geopolitical impact. Just 1 deepfake was enough to change the outcome of the elections, if there were thousands of deepfakes narrating lies and changing the views of people, it would be disastrous for the country.

Further, according to The Economist, more than four billion people voted in various elections this year from India to USA. Combining the power of social media and deepfakes is a deadly combination. The impact from this might not only be small scale but could be viewed as a geo-political disaster, raising tensions around the world and fear mongering people into believing certain narratives.

As these problems indicate, not only is the traditional IP law framework under strain but various other laws as well. Courts around the world are beginning to address these issues through landmark judgments, setting precedents that help modernize laws to accommodate the unique characteristics of AI. This evolving legal landscape is critical for fostering innovation while ensuring that protections provided by the rule of law remain effective and equitable in the age of artificial intelligence.

Now that we have a fair idea of the impacts of AI on our society, we will now examine the implications that AI has had on Intellectual Property so far.

3.2. The Implications of AI on Intellectual Property

Traditional IP laws when presented face to face with AI generated content seem to go around in circles with no clear solution. One of the biggest issues has been that of authorship.

Traditionally speaking, authorship is attributed to humans, from the likes of famous authors such as Shakespeare, Austen or Picasso, people who have put their minds and hearts to create written work, compose music or create inventions. Till now, authorship was only associated with humans but in today's age, AI can generate creative content as well be it poetry, music, or articles without significant human intervention, raising the question whether AI should also be given the status of authorship and whether it could also be considered an author in a legal sense.

Another issue closely following by when it comes to AI generated content is the question of originality. In the traditional sense of IP law, any creative work which is to be protected by copyright law must be original, i.e., it should come from the intellectual prowess of the author.

However, AI generated content; since it utilises machine learning and works on vast amounts of datasets, uses millions of *original* works created by various human authors to train itself to recognise certain patterns and traits. After the AI becomes competent in learning the patterns and styles, it starts to generate content that becomes indistinguishable from that of human creation.

The courts from around the world have had mixed opinions when it comes to both originality and authorship but recently, a landmark ruling judgment in China looks to change it all. In a recent case decided by the Beijing Internet Court **(Loke-Khoon Tan, 2024)** the court answers important questions of :

(1) whether AI-generated works are protectable by copyright, and

(2) if yes, who owns the copyright.

The Chinese court broke down the problem of this case into three simple sections. They examined the intellectual prowess that went into developing the AI generated content, they examined the concept of originality and whether AI created works can be copyrightable and be allowed to fall in the purview of ownership.

Whilst examining the Intellectual prowess, the court noted that the plaintiff hadn't simply taken images from search engines or used predesigned elements when it came to

creating the AI generated image. Instead, the plaintiff had used detailed and specific prompts to create his initial image which he then further adjusted and refined using additional prompts finally arriving at the desired result. The court ruled that the action of thinking, choosing, and inputting specific and detailed prompts sufficiently showcase the plaintiff's intellectual prowess.

Further, when it came to the concept of originality, the court did state that it depends on a case-by-case basis but overall, the work being made should reflect the author's expression. If the work can be remade using a set of procedures, formulas, or a specific structure then it will not be deemed original. However, in this case the court observed that the specific and detailed use of prompts to create the image showcases the authors expression of his ideas. Even though it was created online, the effort of fine tuning and refining the image by using additional prompts also showcases the plaintiff's subjective choice and original judgement.

Consequently, the Chinese court also categorised the AI generated work as "*work of fine arts*" in accordance with Article 3 of the Chinese Copyright Law, acknowledging the artistic nature of AI-generated images and confirming their place within the realm of copyrightable works.

Finally, on the issue of ownership, the court emphasised that a copyright should be owned by an author who is supposed to be a natural or legal person however since AI does not fall into any of these categories, it cannot be an owner. Then, would the ownership fall on the company that developed the AI or the licenser for the software? The court also rejected both these ideas as they were not directly involved in the creation of the content in question. Considering all these facts, and the plaintiff's significance in creating the work, the court ruled that the plaintiff would be the rightful owner of the content created by the AI. **(Li v. Liu , 2023)**

The judgment carries significant implications for the future of AI and IP law in China, as it indicates that the Chinese courts would be willing to recognise AI generated content as original work and would rule in favour of authors who created them. This is the first time where a country has taken a proactive step when it comes to dealing with AI. The implications of this might not only be limited to China but seeing how this new law fares, might end up as precedent around the world, enforcing the rights of AI generated content.

In addition to the field of copyright, AI generated content has put pressure on patent and trademark law as well. Whilst patents are traditionally granted to authors for their novel, useful and non-obvious inventions, trademarks are granted to authors who have designed specific logos, phrases or designs that are recognisable to us such as the famous

McDonalds symbol with the letter *M* or the Adidas logo which are used to identify goods and services and distinguish them from others.

However, when it comes to both patent and trademark law, the advances of AI have put this sphere well within its grasp. AI is capable of not only generating new and novel inventions but also can work as a digital marketer designing attractive and eye catchy logos, designs and symbols that not only help in representation in the market but also compete with preexisting ones.

Today, many enterprises use AI marketers to help with these tasks, tasks which were once the responsibility of graphic designers, digital marketers, and video editors. These AI marketers based on the *weak* AI model, have a sole responsivity of producing certain outputs whether be it logos, symbols, catch phrases or even inventions. Many websites nowadays such as *WiX* today let you design your entire company's online infrastructure in a matter of minutes from your logo to your trademark, your website, and many other essential things. Now whether this AI meets the criteria set forth by patent law and trademark law and how AI would be awarded these rights of ownership when it comes to trademark and patent's if it does meet the criteria is still a question which remains to be answered.

Looking at another recent case from the UK, we can see how Patent law was dramatically challenged when AI was able to successfully develop an invention without the need for human intervention. The DABUS AI case **(Stephen L. Thaler v. Comptroller General of Patents, Designs and Trade Marks, 2023)** involved Dr. Stephen Thaler, who claimed that his AI machine, DABUS (Device for the Autonomous Bootstrapping of Unified Sentience), autonomously created two inventions without human intervention. Thaler filed patent applications naming DABUS as the inventor.

Upon filing the patent application, the main issue that arose was whether an AI machine could be recognized as an inventor under the UK's patent law. The case questioned whether the UK Patents Act 1977 allowed for the grant of a patent without a named human inventor.

Upon close examination, the UK Supreme Court unanimously ruled that since AI is not a natural person, AI cannot be classified as an inventor under the current IP law thus, AI cannot be named as an inventor under the patent application. The court further emphasized that the question was not about whether AI-generated inventions can be patentable or not but about the interpretation and focus on the existing Intellectual Property law.

Since this was a first case of an AI filing for patent rights, the judgement highlighted the need for legislative change ensuring that IP law remains relevant and fair whilst not hampering the progress of AI. In the coming future, the courts might encounter identical cases with similar facts, and this case of Dabus AI will serve as a precedent for helping making decisions.

Finally, examining the case of Getty Images **(Getty Images vs. Stability AI , 2024),** remarked as one of the most crucial and important cases till date that will determine the implications for the AI and creative industries. This case once decided will not only serve as a precedent but will be the deciding factor for whether AI will be truly free, or IP law will regain control.

Recently, in the beginning of 2024, Getty Images, a popular and well-known platform which provides stock images and digital media for personal and commercial use, filed a lawsuit against Stability AI, an AI developing and training company, for allegedly using millions of images from Getty's website without their consent and permission. Stability AI using deep learning techniques were collecting millions of images from online portals to train its AI tool, Stable Diffusion, which after analysing images and utilising deep learning techniques is able to generate high-quality image based on prompts entered by users. Getty Images claimed that Stability AI's actions of collecting unauthorized copyrighted content, is a violation of copyright laws for which they filed this lawsuit.

The core issue in this case was whether Stability AI's use of Getty Images' content without obtaining proper licenses or permissions constituted copyright infringement even if it was for training purposes. This problem is particularly important because it addresses the broader question of how copyrighted materials can be used in the development and training of AI systems since mostly everything on the Internet that is used to train an AI is already copyrighted.

The case raised 3 critical questions about the intersection of copyright law and AI technology:

1. Use of Copyrighted Content: Stability AI used copyrighted images without Getty's consent to train its AI models. The key legal question was whether such use falls under the fair use doctrine or whether it requires explicit permission and licensing from the content owner.
2. Responsibilities of AI Developers: The case highlighted the need for AI developers to ensure they have the necessary rights to use third-party content in their training datasets. It underscores the importance of respecting intellectual property rights while pursuing technological advancements.

3. Impact on Innovation: The outcome of this case could set a precedent for how AI companies can utilize copyrighted materials, balancing the need for innovation with the protection of content creators' rights. It could also influence the future development of AI models and the legal frameworks governing their training.

The case of Getty Images is still being decided in the court of law, with anticipation from both sides as to what the decision might be. This is because, the court's decision in will have significant implications for the AI and creative industries. If the court rules in favour of Getty Images, it will make it necessary for AI developers to obtain proper licenses for copyrighted content, potentially increasing the cost and complexity of developing AI tools. Further, the ones that already exist, such as ChatGPT, Co-Pilot or Gemini might also come under scrutiny.

On the other hand, a ruling in favour of Stability AI could massively expand the scope of fair use in the context of AI training, providing more flexibility for AI development and training but also undermining the financial interests of content creators. This case will shape the landscape of copyright law and AI, guiding future interactions between technology and intellectual property rights.

3.3. The Ethical Implications of AI-Generated Content

We have examined the impacts and implications, but we should also take a look at the ethical side of AI generated content. The increasing use of AI in content creation has raised significant ethical conflicts. While AI offers numerous benefits, such as speed, efficiency, and almost unlimited knowledge it also presents challenges that need to be addressed to ensure responsible use. Let’s examine some key ethical concerns associated with AI-generated content.

3.3.1. Biases and Discrimination

As previously mentioned, AI systems are trained on large datasets of human created content, which may contain inherent biases and stereotypes. These biases can originate from various sources, such as historical prejudices, cultural stereotypes, and unequal representation when it comes to gathering data. If these biases are not addressed and monitored during the training and development of AI systems, they may be reflected in the content that is generated by AI. **(Techbazzer, 2023)**

- Facial Recognition: One prominent example is facial recognition technology, which has been shown to be less accurate in identifying people with darker skin tones. This can lead to disproportionate targeting and discrimination

against marginalized communities. Studies have found that error rates for facial recognition are significantly higher for women and people of colour, perpetuating racial and gender biases

- Language Models: Similarly, AI language models trained on biased text corpora may produce outputs that reflect harmful stereotypes. For example, an AI-generated job recommendation system might suggest male-dominated roles to men and female-dominated roles to women, reinforcing gender biases in the workplace.

3.3.2. Spread of Misinformation and Disinformation

As AI systems become more sophisticated, they have the potential to generate content that is indistinguishable from human-created content. This poses a significant risk of spreading misinformation and disinformation, as it becomes challenging to identify and counter false or misleading information.

- Fake News: AI-generated text can be used to produce fake news articles that appear credible to readers. This can lead to the rapid dissemination of false information, making it difficult for the public to discern truth from falsehood. A notable example is the use of AI-generated fake news during election campaigns to influence voter behaviour and also manipulate stock prices. **(Yu, 2019)**

3.3.3. Accountability and Responsibility

The use of AI in content creation raises questions about accountability and responsibility. When AI-generated content causes harm or legal issues, determining who is responsible can be challenging.

- Liability: If AI-generated content infringes on someone's rights or causes damage, it is essential to establish who is liable. Is it the developer of the AI, the entity deploying it, or a combination of both? The lack of clear accountability can lead to difficulties in seeking redress and ensuring justice.
- Ethical AI Development: Developers and organizations using AI must adopt ethical guidelines and frameworks to ensure the responsible use of AI. This includes conducting thorough risk assessments, implementing bias mitigation strategies, and ensuring transparency in AI operations.

PART IV. THE FUTURE OF AI AND IPR: NAVIGATING TOMORROW`S CHALLENGES AND OPPORTUNITIES

In an age of technological advancement where artificial intelligence is integrated into all aspects of our life, we can clearly see from the previous chapters that the application of AI will not only bring massive opportunities, but at the same time an unprecedented challenge to the legal system. This chapter analyses the future transformative effects AI will have on IPR and covers its social-legal-ethical implications. This chapter will further build on previous discussions offering speculative new ideas and experimental approaches backed by reports from multiple jurisdictions and landmark cases to see how we can leverage the capabilities of AI while safeguarding our IP rights.

4.1. AI-Driven Innovation and Patent Law

AI's capacity for generating novel solutions challenges the traditional framework of patent law, necessitating a re-evaluation of concepts like inventorship and patent eligibility.

- Redefining authorship: As has been pointed out in Stephen L. Thaler v. Comptroller General of Patents, Designs and Trademarks; AI could not be said to have invented anything since it is not a natural person. I believe that a dual-inventor model can be implemented that will allow for cooperation between man and machine in some instances. If we can find this approach workable on both counts, human creativity can be accompanied and magnified by AI's calculation abilities. In particular, its assistance in the future could certainly be invaluable for modern biotechnology and green energy-production **(Thaler v. Comptroller General, 2023).**

  Further, with a working framework of dual authorship, in which human authors and AI provides input hand-in-hand, world-shaping advances can indeed come to fruition. Take for instance drug discovery, where AI is able to be the first to look through huge slabs of data (Stage 1 & Stage 2), human scientists then check and make sustainable tweaks to all this work then progress to more advanced stages of trials (Stage 3 & Stage 4) with remarkable speed and efficiency as most of the time taken on clinical trials are due to the first 2 stages. **(Abbott, 2018)**

4.2. Copyright Challenges in the Age of AI

The creative potential of AI necessitates a rethinking of copyright law to address issues of ownership, originality, and protection.

- AI as a creative partner: Rather than considering AI merely a useful tool, we should treat it as a creative partner that amplifies human creativity. Such a view will lead to creation of *Collaborative Works* with copyright shared between the developer of AI and the human creator. This architecture will acknowledge the unique contributions of each party and promote new forms of cooperation **(Ekbia, 2017).**

  Further, my personal recommendation is designing flexible copyright frameworks that can accommodate the dynamic landscape of AI-generated works. Works with a lot of human contribution in the form of prompts, creative thinking and tweaking might then receive strong protection, while those with an AI-focus, fewer prompts and less changes or alterations could grant more permissive usage rights. Such an approach strikes a balance between rewarding human creativity and enabling innovation driven by AI.

- Work made for hire: Since copyright may be assigned to the institution that owns and uses the AI system, AI-generated content may be treated as work made for hire. This method would collectively solve ownership issues in one stroke; as giving ownership and creation to the company or person who pays AI for work to be done means they maintain all rights under it regarding utilizing, distributing, and licensing the content.

- A completely new Copyright: Another alternative would be to have a new form of copyright specifically for A.I. created works. This would mean putting in place competing rules of ownership and licensing that reflect AI's unique status as a creator. Shouldn't this question be answered in a straightforward way, namely, that the AI's creator, or perhaps the operator should own the copyright, depending on the contribution they made to the creative process? (As mentioned previously in **(Li v. Liu , 2023)**). This scheme would need to address the issue of who owns rights — and how to manage the licensing of AI-generated work and create a fair revenue-sharing mechanism.

4.3. Ethical and Legal Considerations

The integration of AI into content creation and innovation raises critical ethical and legal issues that must be carefully managed.

- Bias Mitigation and Ethical AI: We have previously mentioned that AI may breed prejudice against certain groups of people in regard to the colour of their skin, ethnicity, or place of origin. The way forward is to implement comprehensive bias mitigation strategies; This could include using more various and representative datasets, all-the-time monitoring and making sure that transparency in AI algorithms offsets which are skewed are balanced by having a checks and balance system. Moreover, it is proposed that setting up an ethical AI certification program may provide economic incentives for companies graphing pledging to conduct their businesses with firms up to high standards of fairness, accountability, and transparency **(Binns, 2018).**
- Regulating AI Liability: It is imperative to introduce regulatory measures and laws that stipulate clear accountability for AI-generated content as we have discussed before, AI content if misused can cause mass defamation and also confusion and paranoia amongst the general public. When drawing up the standards, it can be ensured that the developers, operators, and users of any equipment claimed in safeguarding life or property sovereignty are held accountable for ethics lapses and other occurrences violations. This will help to build trust in new technologies like advanced robotics service. A permeative report published by the OECD in 2019 talks about these kinds of issues which we might face in the future, leveraging the ideas and concepts from that report, and also keeping in mind Stability AI's case in the America, we see that holding companies and organisations liable and accountable is becoming a necessity. **(OECD, 2019).**

4.4. The Role of Policy and Regulation

<u>Adaptive regulatory frameworks & International Collaboration</u>:

An adaptable regulatory framework is required in which static national approaches are replaced by flexible means able both to follow development trends and keep pace with advancing technologies. For example, the European Commission (2021) emphasize the necessity of regular reviews by multiple stakeholder groupings from different segments of

society. Their recommendation was that these meeting of stakeholders should occur at least once every year so that decisions are taken instantly on current circumstances which would in turn allow future technologies to progress without any hindrances. Such meetings will allow the formulation of new strategies and plans which will permit AI technologies to work without crossing any legal boundaries. Moreover, researchers such as Dr. Vahid Behzadan argue for a balance between AI's economic potential and safety concerns, emphasizing the necessity of a grand international collaboration to set clear priorities and guidelines for AI. This is not only because AI has an impact across national boundaries, but this will further make sure that national interest does not conflict with the growth of AI, for example AI rules should be equal for people and developers whether those people live in France, USA, or the Isle of Man.

In regard to international collaboration, we can see that the calls for an international AI ethics standard and data privacy regulation go back all the way to 2014. This was to ensure that rules are clear throughout all territories regardless of jurisdiction. Brynjolfsson and McAfee **(Brynjolfsson, E., & McAfee, A. , 2014)**contend that unified regulations will prevent juridical contradictions and promote international exchange. Furthermore, the Organisation for Economic Co-operation and Development (OECD) stated that updates and legislative reviews are key for adaptive regulatory frameworks to remain relevant. OECD went on to propose a certification program for AI's in its 2019 recommendation of the Council on Artificial Intelligence **(OECD, 2019)**. Such certifications if implemented fully tomorrow would provide trusted benchmarks for AI deployment, training and usage ensuring compliance with high ethical standards that are compliant worldwide.

Renowned scholars such as Kerry and Meltzer have participated in strengthening international cooperation in regard to AI. They have in their reports **(Kerry, 2021)** stressed the need for democratic principles and responsible AI development as essential elements in effective regulation. Cordella and Gualdi in their study on Italy's ChatGPT ban **(Cordella, 2023)** found that technology-neutral frameworks even like the GDPR were unable to address the particular challenges posed by AI demonstrating a need for more specific regulations.

For now, regular audits need to be conducted and algorithmic transparency should be mandated to ensure that AI technology mitigates biases and prevents discrimination. The international nature of AI necessitates comprehensive treaties and agreements, documents which are still being drafted till this date. Currently, all known documentation is still in the initial phase of recommendations but with the

pace AI is going at, these agreements and treaties need to be formalised as soon as possible. If formulated, transnational regulations will help prevent what we now have - disparate national regimes that might inhibit AI development and cause unnecessary legal hiccups.

In conclusion, effective policy and regulatory frameworks are indispensable for harnessing the potential of AI while mitigating its risks. By embracing adaptive regulatory mechanisms, fostering international collaboration, and implementing rigorous ethical standards, we can create a robust governance structure that supports innovation and protects societal interests. The evolving nature of AI necessitates continuous legislative refinement and global cooperation to ensure a safe and equitable future for all.

CONCLUSIONS

Artificial intelligence (AI) and intellectual property rights (IPR) form a complex relationship that must navigate a constantly evolving legal landscape as we look to the future. Despite AI's potential to transform the landscape of content creation and ideation, it also presents new expectations based on the general principles of IP law, such as authorship, originality, and ownership.

The existing legal framework, which was designed for human creators, was unable to consider the unique properties of content output by digital systems. As AI systems continue to develop, questions of the rights and responsibilities of AI developers, how to safeguard the rights of creators, and the ethical implications of AI-generated content are becoming more serious and pressing.

A new way to account for authorship and ownership is needed. With rapid developments in AI, we may soon have to treat these systems as co-authors or co-inventors or create entirely new legal designations for such works. It is also advisable to implement ethical guidelines and strategies to mitigate bias in content generated by AI to maintain fairness, transparency, and objectivity. These include promoting international dialogue to formulate international treaties and ways of governance as well as consensus building, and developing a flexible regulatory approach that doesn't hinder the progress of AI and can also accommodate the unique nature of works generated by AI.

Thus, in my understanding, AI is like a double-edged sword. It offers great potential if we harness its power but also requires us to revisit and update existing IP laws that we currently have in place. By examining the challenges and opportunities presented by AI, we should work towards harmonising it with that of IP law, ensuring that the rights of creators, innovators and contributors are not infringed. This will not be an easy task, we have to adopt an approach to redesigning legalities, introducing aspects of ethical codes, and promoting international and intercontinental partnerships which will see it its success. This is the only way we can ensure a fair and equitable IP regime that supports both human creativity and AI innovation in the digital age.

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Summary

The Application of Intellectual Property Rules to AI Generated Content

Siddhartha Mishra

This thesis explores the complex relationship between artificial intelligence (AI) and intellectual property (IP) law, specifically the challenges and opportunities that AI-generated content presents for copyright, patent, and trademark law.

The thesis begins with a brief definition of AI and its variety (including machine learning, deep learning, and NLP), how they function and enable AI systems to generate a diverse content. It then turns to the history and importance of how we need IP law, highlighting how it is key to driving economic development, generating revenue, maintaining a competitive edge, and building consumer confidence.

The thesis hook focuses on addressing the intersection of AI and IP law, raising key issues such as authorship, originality, and property of AI-content. Throughout the paper, landmark cases such as *A&M Records v. Napster*, *Google v. Oracle* and *Starbucks Corp. v. Wolfe's Borough Coffee* are used to explain how IP law adapted to the challenges presented by the digital age. Further, the thesis examines recent rulings from various jurisdictions such as from the *Beijing Internet Court* regarding AI-generated images, the recent UK Supreme Court ruling in the *DABUS AI case* and the *Stability AI case* from the United States Supreme Court — all providing a peek into an evolving legal landscape and how IP law is adapting to AI.

The thesis also touches upon socio-ethical issues of AI-generated content, ranging from discrimination to misinformation and accountability and how all of this ties up to our IP right. In its suggestions, the thesis advices that future frameworks of IP law should consider AI as a creative partner. Further, authorship and the copyright act should also be redefined. The thesis stresses the need for adaptive regulatory strategies, international collaborative solutions, and ethical guidelines to address possible risks, protect human wellbeing, and ensure an equitable and balanced intellectual property system.

The thesis concludes by stating that it can't be denied that the prospects of AI are endless, however, IP laws still leave a lot to be desired. If the best possible adequacy and revision for the present-day scenario of IP law is not adapted, then AI will not be able to progress smoothly as it will constantly be plagued by legal battles and restrictions.