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Artificial intelligence and diagnostic healthcare: A Protestant perspective

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This article examines how artificial intelligence (AI) is integrated into healthcare diagnostics, viewed through the perspective of Protestant Christian ethics and framed by the theological concept of the kingdom of God. As AI transforms medical diagnostics – boosting precision, efficiency and access – this study investigates deeper than basic utilitarian or spontaneous religious reactions to consider ethical importance. Rooted in the *sola Scriptura* approach, it applies a consistent biblical interpretation to determine whether AI harmonises with scriptural principles. The kingdom of God, a central biblical narrative, reflects God's active reign over creation, spotlighting themes of healing, justice, and renewal. Jesus's healing works are understood as expressions of God's authority and hints of a future, complete restoration. Artificial intelligence's knack for spotting diseases like cancer or Parkinson's via cutting-edge imaging is seen as part of humanity's partnership in God's mission to heal. Yet, this study does not shy away from ethical hurdles, for example biased algorithms, breaches in patient privacy and the risk of impersonal care, but measures these against the kingdom's standards of fairness, empathy, and respect for human worth. Ultimately, it argues that AI, when guided by ethical principles, can perform as an instrument of the kingdom – enhancing life, easing pain, and supporting God's redemptive plan.

Contribution: The article urges the church to thoughtfully and proactively shape AI's role, ensuring it embodies gospel values, and serves the well-being of all creation.

Keywords: artificial intelligence; diagnostics; algorithms; kingdom of God; healing as divine mandate; church's ethical responsibility.

Introduction

Artificial intelligence (AI) has rapidly become a part of the modern world. Artificial intelligence will inevitably have a significant influence on all of us now and in the future, making it important to pay attention to this topic (Lennox 2024:12, 65).

Artificial intelligence is currently used in the healthcare environment across four interconnected domains. This technology is used for patient care (AI applications monitor foetal health via wearable devices and alert doctors about anomalies such as irregular heartbeats, and are increasingly doing medical operations), supports physicians (AI can check a doctor's prescription to confirm the correct dosage), is used in medical research (AI can help design new medications by testing millions of chemical combinations digitally before attempting them in a laboratory), and lastly, which is the focus of this article, AI is effectively used in diagnostic imaging (Calo 2024:219; Rahman et al. 2024:1–5).

The primary objective of this article is to evaluate AI and diagnostic healthcare, or stated differently, to provide a Christian ethical perspective on this technology. There are two reasons why a Christian perspective is needed. On the one hand, some people claim that AI and medical diagnostics should be accepted as a matter of course on rational and utilitarian grounds. Indeed, 'many of these uses of AI within healthcare do not in principle seem ethically problematic. What is objectionable, after all, about making better diagnoses?' (Miller 2022:152–153). On the other hand, some suggest that Christianity, and possibly other religious traditions too, instinctively oppose artificial intelligence (AI). This opposition is considered *instinctive* because it supposedly emerges spontaneously from fundamental religious sentiments without requiring deep theological reflection (Calo 2024:220).

In contrast to the rational and utilitarian starting point, this study adopts the Protestant epistemology as a foundation. This epistemology is based on one of the five founding principles

of Protestantism, namely the principle of *sola Scriptura*, which asserts Scripture as the sole source of ethics (Nullens & Volgers 2010). Vorster (2015:9) points out that in following this tradition, everything must ultimately be tested against Scripture alone. He Vorster (2015:109) therefore views the Bible as a guide, a guard, a compass, and a source of examples for the practice of Christian ethics. All actions and technology must be assessed to determine if and for what reason they are acceptable to God because the Bible is the ultimate authority and judge for all aspects of life (2 Tm 3:16). This means that every innovation in medical diagnostics, including AI, must align with biblical principles to ensure that it is acceptable to God (Eph 5:10). Artificial intelligence cannot be automatically accepted or rejected based solely on utilitarian ethics or instinctive feelings. It must be indicated from Scripture whether, why, and where this technology fits into the biblical narrative before it can be accepted or rejected. From the above discussion, the research question emerges: Can AI and medical diagnostics be grounded in Protestant ethics, and if so, how?

The central theoretical premise of this study is that AI and medical diagnostics can be grounded within a theological framework of the kingdom of God. Bright (1980:7) makes a striking statement in his seminal book that the concept of the kingdom of God is the primary narrative in Scripture. The kingdom of God is the most comprehensive theological concept or theme found in the Bible, as it not only focuses on the spiritual salvation of humanity (the church), but also indicates God's presence and influence outside the church (the world) (König 2006:286; Vorster 2007:132). The choice to use the theme of the kingdom of God in evaluating AI and medical diagnostics is indicated by the Bible itself. In this regard, reference can be made to the connection between kingdom, healing, and justice (Mt 4:23; 6:33; König 2001:185–186). In the Gospels, Jesus's healings are often found alongside themes such as forgiveness, sympathy, and faith, indicating that healing forms a fundamental part of the kingdom of God (Mt 9:1–8). Healing practices and debates comprise approximately one-fifth of the content of the Gospels; so, we can conclude that healing forms an essential part of Christ's reign work (Hurding 1995:431). The concept of the kingdom is of the utmost importance and is illustrated by the fact that the theme of the kingdom is central to Christ's preaching and ethics (Chilton 2011:452; Green 1995:529). The importance of the theme of the kingdom for the message about health is derived from the fact that Jesus refers to the 'gospel of the kingdom' in Matthew 4:23. The message of the kingdom for healing (and justice) forms part of the essential message of Christ.

This study employs a qualitative, literature-based research methodology, drawing exclusively on theological, philosophical and scientific sources. The analysis synthesises existing scholarship on the kingdom of God, AI, and medical diagnostics to explore their conceptual intersections and ethical implications. In the first section, AI and healthcare are discussed. This section broadly focuses on the history, characteristics, application, and possible disadvantages associated with AI when used for medical diagnostics. In the second section, a hermeneutical approach is explained, after which the kingdom of God is discussed. This section explores the following questions: Who rules? Over what is ruled? and also How is it ruled? Lastly, AI and medical diagnostics are evaluated in light of the kingdom narrative.

Artificial intelligence

History and types

A brief overview of the history of AI can provide a perspective on humanity's advance and continuous quest to mimic human intelligence with the deep desire to promote human health more effectively. This subparagraph briefly addresses the different types of AI.

In ancient and early history, Greek mythology contains stories of the Greek gods creating a bronze robot to protect Crete, indicating the human fantasy of ingenious machines (~700 BC). During the Middle Ages (1206), the Muslim inventor, Al-Jazari, developed mechanical toys that dispensed water and played music through machines that followed instructions. Blaise Pascal developed a mechanical computer in 1642 that laid the groundwork for automatic calculations. In modern times (1800–1950), Charles Babbage (1837) developed a machine that could perform mathematics using punch cards, and Ada Lovelace wrote the first computer programme in 1843. Alan Turing (1936) developed a simple machine that could solve problems step by step, laying the foundation for modern computers that can automatically execute instructions. Turing (1950) designed the famous *Turing test*, which states that if you talk to a human and a computer, and cannot distinguish between the two, there is probably intelligence involved. During the Dartmouth conference (1956), the term *artificial intelligence* was officially coined by John McCarthy, and AI was also recognised as a new field of research.

The period between the 1960s and the 1990s is known as a time of growth and challenges for AI. In 1966, the first chatbot, ELIZA, was created, which could recognise words and talk to people. In the 1970s, expert systems such as the MYCIN computer programme were developed, which helped doctors in diagnosing bacterial infections and could help recommend the correct antibiotics. The 1980s are known as the period of AI winter, when funding and enthusiasm drastically decreased. Despite the AI winter, in 1986, an algorithm was designed that helped computers to correct their own mistakes and thus learn, and in 1997, the IBM computer (*Deep Blue*) beats the world champion in chess. The period from 2000 to 2019 is considered a period of AI revival and the Internet era. In 2011, the IBM Watson computer won a complex quiz show called *Jeopardy!* demonstrating that AI can comprehend and respond to a great deal of information. After being provided with a large amount of information, AlexNet (2012) made exceptional progress in detecting objects in photos. In 2016, the AlphaGo computer (by Google DeepMind) made headlines when it defeated the world champion in the most complex ancient board game, called *Go*. From 2020, AI development accelerated. In 2020, OpenAI introduced GPT-3

to the world. From 2021 onwards, Intervision AI systems have been utilised to diagnose coronavirus 2019 (COVID-19) and lung cancer faster and more effectively. DALL-E 2, which creates realistic images and artwork, was introduced in 2022, while in 2023, ChatGPT tremendously improved AI systems' interaction with humans (Harari 2024:331–333, 367; Lennox 2024:16–17, 20, 66).

Different types of AI are distinguished in the literature. We know AI as a computer equipped with a database and an algorithm developed to recognise specific patterns in the data. The algorithm is designed to perform one and only one task that requires human intelligence (which is discussed in more depth later). The term *artificial* (from the Latin words for *skill* and *create*) indicates that it is not natural, not innate, but rather simulated intelligence. This AI, which can only perform one task, is generally known as narrow or weak AI and is currently the only type of AI available. In the field of more speculative and futuristic AI, there is great interest in building systems that can mimic all human intelligence and even do more, known as general or strong AI. General AI would, for example be a computer that can act like a human in every way, simultaneously performing translations, recognising faces, composing music and conducting research. Even more speculative and futuristic is artificial superintelligence. This technology would be much more ingenious than humans because it would be able to think, learn, and solve problems better and faster than humans. The major concern with this AI is the 'control problem', which proposes that in the future, if not properly managed now, AI will take over control of humanity (Harari 2024:271–272; Lennox 2024:8–12).

The attention shifts to what AI essentially is, and the implications of AI for the promotion of health will now be discussed.

Characteristics and application

It is important to determine what AI entails (how it works) and what its implications are for the promotion of health, because without knowledge of these two matters, there can be no reliable assessment of the technology.

What is AI? AI is a field within computer science that aims to develop systems (computer, mathematics, software) that can perform tasks that typically require human intelligence. These tasks include reasoning, learning from experience, understanding human language and recognising patterns. Artificial intelligence systems, acting as or like intelligent agents, receive information from the environment and take actions to achieve specific goals, in the process mimicking or simulating human cognitive abilities, or even surpassing them in certain areas. However, it is important to note that AI is just a computer programme like any other – it runs, takes inputs, processes them, and delivers an output. For this study, it is not necessary to discuss the difference between human and artificial intelligence in depth, or to indicate the relationship between intelligence and consciousness, except to make the statement that systems have no goals of their own; goals must be given to the systems to function meaningfully (Lennox 2024:15; Russell 2019:9–10).

Within AI, several core subfields can be distinguished, such as machine learning (ML), where systems are provided with large amounts of data (e.g. pictures of a tree, numbers, texts) with information for the system on what the data means (this is what a tree looks like) to recognise patterns itself (that is a tree); natural language processing, where the system is taught to understand and generate human language (ChatGPT); computer vision, where systems are taught (like Baidu) to interpret visual information (such as face recognition images and videos); and lastly, robotics, where AI systems are integrated with physical systems for automatic functioning (such as self-driving cars).

Core to the understanding of AI and healthcare is, firstly, the functioning of the algorithm; and secondly, the methodology of ML. An algorithm is essentially a step-by-step instruction for the completion of a predetermined task. A more precise definition of an algorithm is 'a precisely defined set of mathematical or logical operations for the performance of a particular task'. Suppose you want to sort a list of numbers from the smallest to the largest. You should write a step-by-step instruction (algorithm) that gives the computer the command for sorting the numbers. For example, compare two numbers and swap them if they are in the wrong order. Another example of an algorithm is the instructions in a cookbook for the purpose of baking a cake. This is a clear and explicit instruction that does not change or adapt; the recipe follows the rules you have inputted, and it works in the same way each time, as long as the instructions are followed.

Machine learning, the engine that drives AI forward with dynamics, is a branch of computational statistics focused on designing algorithms that can use new data to build analytical models, without explicitly programming the solution. An ML system collects data, identifies patterns, and makes decisions based on those patterns. Suppose you want to teach a computer to distinguish between a photo of a dog and a cat, but you do not want to input the rules each time, such as 'a cat's ears are pointed' or 'a dog has a snout'. Instead, a large number of photos (existing data) marked *cat* and *dog* are inputted into the ML computer. The computer analyses those photos, perceives subtle differences, or recognises clear patterns (hair types, ear shape, body structure) – all things for which you have not given specific instructions. After this, the computer builds with its algorithms an internal mathematical model – a pattern that corresponds to what makes a cat a cat and a dog a dog. After the system has learned these patterns, it can look at new photos it has never seen before, and decide whether it is a cat or a dog (Bohr & Memarzadeh 2020:35–36). However, it is important to note that in many contemporary advanced AI systems, the human element in the operation of the system is limited, or almost non-existent. In much of the early work in AI, people explicitly designed algorithms to solve a specific problem. However, this is not so common in AI anymore. Instead, a general learning algorithm is designed, and it then *learns* a solution to the problem. Often, the human

developers do not even know about the existence of the algorithm that solved the problem, and they often do not know how the system arrives at its conclusions (Harari 2024:198–204; Lennox 2024:14–23).

It is not relevant for this study to pay attention to speculative AI such as broad and superintelligence, or the difference between artificial and human intelligence. Currently, AI applications in the field of health fall within narrow AI, and for this study, the summary by Lennox (2024:15) is sufficient (cf. also Russell 2019:9–10).

What matters is competence in completing a prescribed task, not consciousness of what that task happens to be. The machine may not be conscious in the same way we are, but it is programmed to respond cognitively in the ways that we do. In short, it acts like a human being, although it does not think or feel like a human being. Therefore, intelligence can be thought of informally as the capacity to solve problems, whereas consciousness is the capacity to have subjective feelings and experiences (*qualia*).

To summarise: what ML does better than humans, is to identify specific patterns from mass data – much more data than the human brain can handle. One area where ML is actively used today, is medicine, where it can help to make diagnoses from more than 10 000 known diseases – conditions for which a new article is published approximately every 30 s. The selection of a particular diagnosis must *consider* various other factors, such as a patient's medical history and genetic health. And curing diseases means the continuous development of new medicines, which implies the assessment and minimisation of risks. All these matters fall within the realm of AI systems (Harari 2024:xv, 36; Lennox 2024:23).

In light of the above explanation of what AI is, the attention now turns to the relationship between AI and healthcare, particularly how AI is applied within diagnostic healthcare imaging. Formal diagnostic AI systems are now commonly used in medicine (Bohr & Memarzadeh 2020:34), and it is claimed that diagnoses made by AI systems are particularly accurate (Obuchowicz et al. 2025:1–12). Artificial intelligence algorithms can analyse medical images to identify patterns or abnormalities that can easily be overlooked by the human eye (Calo 2024:219).

To identify disease conditions in X-rays, data scientists must first *teach* the algorithms (the computer) what to look for. An AI system consists of a database of thousands of X-rays of patients' lungs in various states of health, with an expert description of each possible state of health. The system compares an X-ray of the patient's lungs with its database to determine if the patient has a specific cancer. More specifically, AI extracts visual patterns from the X-ray image and compares them with patterns (models) in its database (Lennox 2024:25, 69).

Engineers at the University of Toronto have designed a new approach where they use ML (by using a limited available number of X-rays from patients) to create computer-generated images (analytical models, X-rays) of disease conditions, which in turn are used as augmented databases to *teach* algorithms (computers) to diagnose disease conditions (Bohr & Memarzadeh 2020:36–38; Lennox 2024:68). The ethical advantage of using augmented databases is that images (models) can be shared with stakeholders outside the hospital without violating the principles of privacy or confidentiality. Researchers have compared diagnoses between algorithms that have been trained on patients' X-rays to those trained on computer-generated images and concluded that the latter is 20% more accurate, while the accuracy of the diagnosis of rare diseases is up to 40% more accurate. This is because disease patterns and anomalies that escape the human eye can be better identified (Lennox 2024; MacInnis 2018:68).

Thousands of computed tomography (CT) scan images can be input into a database, which can through ML, create a model to be used to effectively diagnose lung cancer, strokes, and breast cancer (Lennox 2024:69; Obuchowicz et al. 2025:13–15). Artificial intelligence has been developed that can analyse the human heart through magnetic resonance imaging (MRI) in 20 s and diagnose a potential disease while the patient is still in the scanner, instead of waiting 30 min or longer for the doctor. With this, the *diagnosis* of the AI system is already 40% more accurate than that of doctors. In this way, the process is expedited, and the cost is reduced (Lay 2022:25; Lennox 2024; Obuchowicz et al. 2025:1, 13–15).

There are already several databases of the human eye that are scanned (by optical CT scans) and prepared by ML to diagnose various diseases. Interestingly, the software (algorithms) was not initially programmed to recognise a specific eye condition. The computer was fed with a 1000 images of healthy and diseased eyes, and it figured out for itself what the difference is. Systems are currently being used to diagnose diabetic retinopathy (Lennox 2024:69). The journal, *Neurology*, describes how AI systems are used to diagnose Parkinson's disease 7 years before symptoms appear, by analysing eye-scanned data (Lennox 2024:25; Thomas 2023).

Informal diagnostic systems, such as health applications, are also used today. Health applications help users to self-diagnose by allowing them to input symptoms, which are then analysed with algorithms and medical databases to diagnose possible disease conditions promptly. These apps, such as Ada and Symptomate, ask follow-up questions and take personal data such as age and gender into account to improve their diagnosis. Applications also make recommendations on whether medical help is needed and whether symptoms should be regularly monitored and should include follow-up functions for continuous health management (Zhong, Cao & Xue 2024:2–7).

Although still on a smaller scale, reference can also be made to the development of a ML system that can diagnose the possible onset of an epileptic seizure. This technology has been approved by the American Food and Drug Administration. A smartwatch (Empatica E4 smartwatch),

in collaboration with an AI algorithm, looks for patterns of movement and electrical changes in the patient's skin that could indicate the possibility of a seizure. When patterns are detected, the person is warned (so that if erroneous, the warning can be cancelled) and AI summons a caregiver for assistance. In this way, the chances of sudden and unexpected death are prevented (Gaurav et al. 2024:801; Lennox 2024:71).

In line with the above technology, an application (Youper) has been developed that, through wearable AI-based sensors, can analyse facial expressions, speech, and gestures and thus determine if someone is falling into depression or anxiety long before a formal diagnosis would be considered. In this way, severe psychological conditions, or even suicide, can be prevented (Lennox 2024:71; Zafar et al. 2024:1–16).

Possible benefits associated with the use of these applications are the early discovery of symptoms and potential health risks, health monitoring, health awareness, and involvement – convenient access to health-related information available to all people, as well as large amounts of user data, leading to greater self-insight into the personal health status (Lennox 2024:70–71; Zhong et al. 2024:2–6).

Possible disadvantages

From the above discussion, it is clear that the use of AI within the field of diagnostics is particularly accurate and fast. It is known that AI is only as good as the data on which the algorithms are trained.

While these technologies show great potential for improving diagnostic efficiency and accuracy, they also pose significant risks and therefore warrant careful consideration. Inaccuracy and misdiagnoses in the form of a false positive or a false negative diagnosis do occur. Machine learning can create distorted augmented images that can lead to incorrect diagnoses (Antun et al. 2020:30 088–30 090; European Parliament 2022:15; Obuchowicz et al. 2025:11–12). Another challenge is the possibility that erroneous AI results can negatively influence doctors' diagnoses. Research has shown that doctors who had received incorrect AI results, for example results indicating that there were no abnormalities, were more likely to make false negative diagnoses. Where AI incorrectly indicated that there were abnormalities, doctors tended to make more false positive diagnoses. This phenomenon is known as the 'appeal to authority' concept (Bernstein et al. 2023:8267–8269). Research has also indicated that medical images formed by CT scanning can be deliberately sabotaged to make incorrect diagnoses. Augmented images can be created that display fabricated cancer or that can remove real cancer growths. The danger exists that a hacker could add medical data to the existing data system and in doing so, seriously harm patients. The fact that hackers have been successful in other environments does not exclude this danger (Chu et al. 2020:1309–1311).

Mobile health applications (and other diagnostic AI systems) often learn from incomplete or one-sided information. This happens when the data used to train AI systems does not consider gender, race, ethnicity, age, socio-economic status, or geographical location (European Parliament 2022:20). The result of this is that the application, in some cases, gives less accurate medical advice to these individuals or groups. This is often called a 'garbage in, garbage out' problem: if the original information is biased, the AI's results will also be biased. This raises important ethical concerns about fairness and accuracy in AI-driven healthcare (Obuchowicz et al. 2025:11–12; Zawati & Lang 2024:1–7). Other possible disadvantages associated with mobile health applications are the risks of heuristic thinking that can delay necessary healthcare and cause severe anxiety (cyberchondria) through self-monitoring (Lennox 2024:69; Zhong et al. 2024:3–7).

Another problem is that AI diagnostic systems function as 'black boxes', which means that algorithms do not exist in isolation from human inputs, but once people create them (*baby* algorithms) and implement them, these algorithms can become *adult* algorithms that deliver outputs and *decisions* that are not explicitly pre-programmed by the developers, and which can even surprise the people who created them. Algorithms can learn things themselves that no engineer programmed and can make decisions that no human anticipated, and in this way endanger the health of patients (Harari 2024:193–229). After an algorithm has been trained, it takes a long time to untrain it. Without clear insight into the decision-making process, identifying and correcting errors becomes extremely difficult (Chustecki 2024:1–9).

There are legitimate concerns about the integration of AI into medical diagnosis and decision-making that might, for instance, become more transactional. The incorporation of AI into medical diagnosis and decision-making sparks valid concerns that care may become excessively transactional. A transactional approach emphasises efficiency and quantifiable metrics, such as cost savings or quick results, at the expense of personalised patient engagement. For instance, an AI tool might evaluate a patient's X-ray and suggest a diagnosis based purely on image data, ignoring the patient's unique medical history or emotional needs. This could reduce the patient to a mere data point, sidelining the compassionate, relational aspects of healthcare. Such a trend threatens the trust and comprehensive care central to effective medical practice (Calo 2024:225–226).

Having examined the evolution, applications, and challenges of artificial intelligence (AI) in medical diagnostics, it is clear that this technology offers remarkable advancements in disease detection, while posing significant ethical dilemmas, such as biases and opaque decision-making. Given these complexities, this article now shifts focus to address the research question: Can AI and medical diagnostics be grounded within Protestant ethics, and if so, how? The aim is to evaluate AI's role in healthcare through a Christian-ethical lens, specifically using the kingdom of God as a biblical framework to assess its alignment with the scriptural principle.

A kingdom perspective

Congruent hermeneutics

This section examines the kingdom of God and the perspective it offers on AI and medical diagnostics. Artificial intelligence and medical diagnostics, as discussed above, do not appear as modern phenomena in the ancient biblical texts (Vorster 2007:98). The question consequently arises how the Bible should be approached in formulating a Christian-ethical perspective on this contemporary technology (Vorster 2007:18–19). This article employs the hermeneutical model of the highly productive and experienced Reformed theologian, Vorster (2021:7–11), namely 'a hermeneutic of congruent biblical theology', as developed in his book, *Gift of life: Towards an ethic of flourishing personhood*.

A hermeneutic of congruent biblical theology offers a structured approach to scriptural interpretation based on four key guidelines. Firstly, the model acknowledges the widely accepted concept of presuppositions – the notion that interpreters approach the Bible with preconceived ideas shaped by their personal paradigms and theological systems, which must be continuously challenged to prevent biases from distorting interpretation.

Secondly, the model emphasises the importance of literary genres, recognising that the Bible contains various literary forms such as narratives, poetry, prophecies, and epistles, each requiring a specific interpretative approach to prevent descriptive texts from being applied as prescriptive directives.

Thirdly, the model advocates for grammatical-historical exegesis – a method that analyses a text's language and historical context to discover its original meaning, utilising tools such as lexicography and textual criticism.

Fourthly, congruent biblical hermeneutics emphasises that individual scriptural passages must align with the Bible's overarching theological message to prevent interpretations based on isolated verses from distorting the broader message of Scripture. Within this hermeneutic of congruent biblical theology, themes play a significant role by identifying recurring theological ideas such as creation, covenant, and the kingdom of God that connect different biblical texts across genres and historical contexts. These themes serve as threads woven throughout Scripture, connecting individual passages to the Bible's larger narrative and overall message. By tracing themes, interpreters can see how specific texts contribute to the whole, ensuring that interpretations align with the congruent theology of Scripture, rather than standing in isolation. Themes serve as a bridge between the *parts* (individual passages) and the *whole* (Scripture's theological coherence), preventing biblicism, such as treating a cultural description, as a timeless directive.

The question now arises: What does the kingdom of God mean? Subsequently, the kingdom of God and its relevance for AI and medical diagnostics are discussed by examining who rules (God), over what is ruled (everything), and how the rule is exercised.

Congruent theology

Who rules?

The theme of God's sovereignty appears throughout the Bible. The kingdom of God is theocentric because God rules (Vorster 2007:99). Although the phrase *kingdom of God*, does not explicitly appear in the Old Testament, the concept is nevertheless present (Green 1995:530). The theme of God's sovereignty is established at the beginning of creation. In Genesis 1:26–28, God creates heaven, earth, and humanity in his image, describing everything as good (Gn 1:31). Humanity, as God's image-bearers, receives the mandate to rule over the world, from which we can infer that God is the creating and governing God (König 2006:286). The prophets continued to proclaim that God is not only the Creator of heaven and earth but also reigns as King over all nations and the entire earth (Ps 47:2–3; 103:19). The prophets consistently preached about the coming day of the Lord, when God would visibly reveal himself as king over all creation through the establishment of the messianic kingdom on earth, with salvation and healing for Israel and all nations as visible signs (Is 9:6–7; 33:22, 24; 35:2–5; 40:10; Dn 2:44).

In the New Testament, we read of the kingdom of God and Christ (Eph 5:5; Rv 11:5) as well as the kingdom of heaven (Mt 3:2; 6:33). Biblical scholars agree that these terms can be considered synonymous, referring to the same concept rather than indicating two or three different kingdoms with distinct content (Green 1995:529; Vorster 2007:99). God rules through Jesus Christ, to whom he has given all authority in heaven and earth (Mt 28:18). As the head of both church and world, Christ sustains and governs the church and world according to God's eternal plan (Eph 1:10, 20–22; Col 1:15–23). Although God has been king and sovereign since the beginning of creation, in the New Testament, the arrival of Christ is the visible sign and advent of the kingdom (Mt 3:2).

What does it mean to rule? The concept of the King who rules or exercises sovereignty, encompasses the idea that God is dynamically and presently active (ruling, governing) in the world (Jn 5:17) for the benefit of humanity and creation (Gn 1:26–31; Ps 15:1, 90; 104:14, 27–28; Mt 5:45; Rm 8:28; Jr 29:11; Col 1:17). God's dynamic sovereignty refers to the active and continuous exercise of his authority and influence in the world (Chilton 2011:452). It indicates an ongoing and potentially interactive tangible form of rule, rather than a static or remote form of control. God in Christ does not rule alone. As image-bearers of God, humanity rules together with and like God. Image-bearers are described as co-workers or active agents in the kingdom of God (Col 4:11; Ladd 2017:467). The world is expected to rule benevolently and creatively like God, while the church is expected to proclaim to the world who rules, what is ruled over, and how the rule is exercised (Green 1995:531).

What is being governed?

God in Christ currently governs both the world and the church. The church exists because of God's sovereignty and

can therefore be considered a visible manifestation of God's governance. God rules in the hearts of individuals (Lk 17:21), which leads to their acceptance that Christ died for their sins on the cross, rose from the dead, and thereby brought salvation (Rv 12:10). The kingdom of God extends beyond the church and possesses a cosmological dimension, indicating that God's governance is universal in scope (Mt 28:18; Eph 1:20–22; Col 1:13, 16; Vorster 2007:28). This reality demonstrates that God governs the entire creation, all facets of human existence, the world, and history (König 2006:286). This comprehensive governance encompasses not only the church but also society at large (Moltmann 1993:12).

From the examination of the domains of the kingdom, one can discern that God's sovereignty also exhibits a present character (Mk 1:15), as evidenced through Christ's miracles. In Matthew 12:28, individuals are tangibly liberated from whatever impairs their lives (Ladd 2017:467). Through Christ, the kingdom actively operates in the world at present (Chilton 2011:452; Green 1995:530). Instances where individuals experience liberation from impairment, or where their lives are enhanced, may be interpreted as visible indicators of God's present governance in the world. The kingdom of God thus does not merely represent an anticipation of the arrival and existence of the future kingdom of God (Moltmann 1993:11–12). Although the kingdom of God constitutes a present reality, God's complete power and the kingdom's full realisation will only become actualised in the future (Mt 6:10) with Christ's second coming (Mt 8:11; Ladd 2017:467). The fact that Jesus characterises the kingdom as *near*, indicates that the kingdom has not yet fully materialised (Mt 3:2). Christ serves as both the indicator of the kingdom's present character and the manifestation of what is yet to come (Rm 6:10; 1 Cor 15:20).

In Matthew 6:33, Jesus instructs his followers to prioritise seeking God's kingdom and its righteousness – a calling that integrates the restoration of humanity's relationship with God through faith in Christ's redemptive work and the ethical pursuit of God's will. This righteousness, emphasised by Matthew's use of *dikaiosynē*, reflects the moral essence of God's salvific plan, which the community must enact. Yet, this pursuit unfolds within the dialectical tension of the kingdom's *already* and *not-yet* reality: though the kingdom has been inaugurated and evil has been defeated in principle (Mt 13:40–43; Eph 6:11), its full triumph is still pending. Consequently, good and evil coexist in the present age (Mt 13:24–30, 36–43), with harm – likened to *weeds* – sown across the kingdom's fields, depriving individuals of well-being and resources (Ladd 2017:467). This reality compels the community to actively seek justice by identifying and addressing unethical consequences such as those arising from AI technology and medical diagnostics, thereby advancing God's righteous reign (Vorster 2017:137).

How does God govern?

It has been previously established that God governs the church and world through Christ. For a proper understanding of how God governs, not only are Christ's words and actions significant (Mt 12:28), his crucifixion and resurrection, particularly, are of decisive importance, as they demonstrate his victory over death and malevolent powers (evil, chaos) (1 Cor 15:22–29, 55–57; Col 1:13–18; Van Wyk 2015:217). Despite the dialectical character of the *already* and *not-yet* of God's kingdom, which means that evil and death still constitute part of the present kingdom, Christ has bound, disarmed, and paralysed the evil powers and death. The binding signifies that the powerful Satan is restrained by the stronger Christ, implying that people can be liberated from evil (Mt 12:29; Ladd 2017:467). The disarming and paralysing produce the consequence that although evil and death remain a present reality, they can be successfully combated and overcome, in many cases only temporarily (Col 2:15; König 2006:286; Vorster 2007:134).

The Bible's general focus on healing and Jesus's particular emphasis on it can be understood against this background. God heals (2 Ki 5:1–15) and Jesus heals believers (Mk 5:21–43), while people without any prior confirmation of their faith are also healed (Mk 5:1–20). Even the disciples are commissioned to heal (Mk 6:6–13). The work of medicine mirrors the work of God in the world (Calo 2024:226). Douma (1997:49) is convinced that the narratives of Christ's healings indicate the duty to heal. The kingdom of God brings not only salvation in a religious sense but also the physical experience of health. During the healing of sick individuals, the kingdom is concretely experienced (Moltmann 1993:8). According to the Bible, someone who is (seriously) ill, is 'already in death', and someone who is restored to health, is 'raised from the dead' (Ps 30:3–4). Because evil and death in the present time are paralysed and already conquered, it is now possible to overcome evil (injustice) and the preliminary form of death, namely disease (König 2001:184–186). Moltmann (1993:8) articulates it as follows: 'Just like all serious illnesses are premonitions of death, we must also understand Jesus's healings of the sick as premonitions of the resurrections'. The victory over illness in the present time is important because it constitutes an ongoing sign of God's sovereignty as well as a sign of his triumph over death. Healing represents God's sovereign work and is a foretaste of permanent health in the future kingdom (Rv 22:2). During healing work, Christ's power and authority over the preliminary form of death are affirmed (Hurding 1995:434). Two important principles of the kingdom can be derived: the promotion of life through healing, and flowing from this, the principle of restoration.

The church is an instrument of the kingdom (Ladd 2017:469). Christ commands that the daily examples of healing in the church and to the world be proclaimed as the 'gospel of the kingdom', as the sign of victory over eternal death and the coming of the kingdom of eternal health awaiting citizens of the kingdom (Mt 10:7–8). The church is expected to be diaconal involved in healing (Moltmann 1993:13). Hurding (1995:434) is convinced that the gospel of the kingdom also includes the cosmological aspect of healing. Jesus's command to heal the sick, raise the dead, cleanse lepers, and cast out

demons, is a universal mandate (Moltmann 1993:13). Due to the unique focus on healing as part of God's universal governance, it can be expected that God, in and through Christ, would make the development of medicine and the promotion of health through trained physicians, part of the world's agenda.

Within the context of health and 'God' governance, the gradually developing character of the kingdom can be identified. Frame (1988:58) asserts a close correlation between the duty to heal and medical research in the Bible, stating: 'In biblical terms, medical research should be regarded as part of the process of healing people. As such, it has the same biblical mandate as medical treatment itself'. The parables of the mustard seed and growing seed, which describe the character of the kingdom (Mt 13:31–33; Mk 4:26–29), indicate that God's kingdom develops from a small and primitive beginning to a glorious and advanced kingdom (Vorster 2007:133–134). In light of this, the advancement of medical technology, such as AI and medical diagnostics, can be anticipated as part of God's kingdom.

Assessment

The theology of the kingdom of God, as articulated in Scripture, provides a robust framework for understanding the role of AI in medical image diagnostics, revealing how this technology can both reflect and advance God's sovereign and redemptive purposes in the world. At its core, the kingdom of God is the central biblical narrative, encompassing God's dynamic rule through Christ, which extends beyond spiritual salvation to influence all facets of creation, including health and justice. The Gospels highlight healing as a fundamental expression of this kingdom, with Jesus's miracles – such as restoring sight or curing the sick – serving as tangible signs of God's restorative power and victory over disease, described as a 'preliminary form of death' (Mt 9:1–8). Artificial intelligence in medical diagnostics aligns with these kingdom principles by enhancing human capacity to diagnose and treat illnesses, thereby promoting life and restoration. For instance, AI algorithms analysing X-rays, CT scans and MRIs can detect subtle abnormalities – like early-stage lung cancer, or Parkinson's disease – far beyond human capability, often with greater accuracy and speed. This technological advancement mirrors the kingdom's mandate to heal, as seen in Christ's command to 'heal the sick' (Mt 10:7–8), and reflects humanity's role as God's image-bearers, co-working creatively to steward creation benevolently (Gn 1:26–28; Col 4:11).

However, integrating AI into healthcare is not without ethical challenges that must be addressed using this theological lens. The potential downsides, such as biases in training data that lead to inaccurate diagnoses across diverse populations, the opacity of AI decision-making processes (the *black box*-problem), and the risk of transactional care that diminishes human dignity, resonate with the kingdom's call for justice, compassion, and righteousness (Mt 6:33). This call demands that AI be implemented ethically to avoid exacerbating inequities or reducing patients to mere data points. The kingdom of God, characterised by God's present-yet-progressing rule, confronts evil and injustice in the 'already but not yet' tension, where good and harm coexist until Christ's return (Mt 13:24–30). Thus, kingdom values must guide AI – fairness, transparency, and holistic care – to ensure it serves the common good and honours the sanctity of human life, which Scripture upholds as created in God's image.

The church, as an instrument of the kingdom, plays a pivotal role in the kingdom of God. Tasked with proclaiming the *gospel of the kingdom* (Mt 4:23), it must advocate for the responsible use of AI, ensuring that technological advancements align with God's love and care for humanity. This involves challenging biases, promoting accountability in AI systems, and safeguarding the relational essence of healthcare against dehumanisation. The gradual development of the kingdom concerning health, likened to a mustard seed growing into a vast tree (Mt 13:31–33), suggests that innovations like AI are part of God's unfolding plan, building on the biblical mandate for medical progress. Ultimately, when wielded with ethical integrity, AI in medical diagnostics becomes a powerful tool to manifest the kingdom of God in healthcare – combating disease, restoring health, and prefiguring the eternal wholeness promised in Christ's redemptive work (Rv 22:2). Thus, rooted in the theology of the kingdom of God, AI not only enhances physical well-being but also participates in the broader narrative of God's salvific mission to renew all creation.

Conclusion

This article explored the integration of AI in diagnostic healthcare through the lens of Protestant Christian ethics, specifically within the theological framework of the kingdom of God. As AI increasingly influences medical diagnostics – enhancing accuracy, speed, and accessibility – this study evaluates its ethical implications beyond utilitarian or instinctive religious responses. Grounded in the principle of *sola Scriptura*, the research employed a hermeneutic of congruent biblical theology to assess whether AI aligns with scriptural values. The kingdom of God, as a central biblical narrative, encompasses God's dynamic rule over all creation, emphasising healing, justice, and restoration. Jesus's ministry, marked by acts of healing, is interpreted as a manifestation of divine sovereignty and a foretaste of eschatological wholeness. Artificial intelligence's capacity to detect diseases such as cancer and Parkinson's through advanced imaging technologies, is viewed as a continuation of this healing mandate, reflecting humanity's role as co-workers in God's restorative mission. However, the study also addressed ethical concerns, including algorithmic bias, data privacy, and the depersonalisation of care. These challenges are evaluated against the kingdom's call for justice, compassion, and human dignity. The article concludes that AI, when ethically implemented, can serve as a tool of the kingdom – promoting life, alleviating suffering, and advancing God's redemptive purposes in the world. The church is called to engage critically and constructively with AI, ensuring its use reflects the values of the gospel and contributes to the flourishing of all creation.

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