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Volume 20, Issue 2, August 2023

Postcolonial Differentials in Algorithmic Bias: Challenging Digital Neo-Colonialism in Africa

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DOI: 10.2966/scrip.200223.101

Abstract

As digital technologies become the dominant driver of the global economy, Africa finds itself once again faced with the prospect of developmental stagnation. In an increasingly technological age, parallels to the colonial era can be made, particularly in reference to the detrimental impact on the African economy and the continent's developmental trajectory. AI, which drives these technologies, is informed by algorithms. The biases inherent in these algorithms lead to digital discrimination. This discrimination has resulted in a new form of colonialism, referred to as digital neocolonialism, which denotes the exclusionary barrier that has been created by algorithms. This work challenges algorithmic bias through the application of postcolonial theory, which calls for a dismantling of colonial imposition by reimagining and reframing the concept of the 'other'. The gaps in current AI systems, and the power imbalances created, are interrogated through an analysis of bias and its impact. Through a postcolonial lens, a call is made for more inclusive AI systems, and datasets that challenges the assumed neutrality of algorithms.

Keywords

Artificial intelligence; algorithmic bias; Africa; postcolonial theory; neocolonialism

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1 Introduction

There is an inherent mis-framing and conceptualisation that artificial intelligence (AI), machine learning, and technology driven solutions are neutral.¹ What is emerging is that there are precarious and primarily invisible biases in the algorithms that form the basis for AI.² This study posits that postcolonial theory provides a lens to probe the power dynamics created by colonial expansion and penetration, which produce an asymmetric relationship between former colonies and those who ruled them. These lenses can be used as a heuristic tool to examine the bias that manifests in algorithms and interrogate whether there is a new and more sinister creation of the 'wretched of the earth' within a data-driven world. Furthermore, these tools can be used to explore the power that resides in the historically subjugated, that can be used to push back against the re-inscription of colonial logics in new and uncertain forms. While there is an acknowledgment that there has been an "algorithmic colonisation of Africa"³, there is scope to interrogate the impact of these biases and whether there is a link between algorithmic biases and developmental gaps on the continent. The application of postcolonial theory, centred around challenging 'othering', interrogates the power imbalance created by AI systems and the exclusionary lens through which the fourth industrial revolution (4IR) is viewed. This paper locates postcolonial theory in a contemporary context and defines bias and discrimination in the context of AI. A call is then made to reframe these systems within the context of the continent so that the datasets and resulting algorithms are more inclusive, based on a transformative paradigm.

¹ Xavier Ferrer et. al, 'Bias and Discrimination in AI: a cross-disciplinary perspective' (2020) IEEE Technology and Society Magazine 72.

² Tshilidzi Marwala, *Rational Machines and Artificial Intelligence* (Academic Press 2021).

³ Abeba Birhane, 'Algorithmic Colonization of Africa' (2020) 17(2) SCRIPTed 389
<<https://script-ed.org/?p=3888>> accessed 26 June 2023.

An example of inherent biases that has led to digital discrimination, particularly within Africa, is found in the neo-colonial approach to AI. These biases result in perversities in their applications reproducing historic patterns of inequalities, bias, discrimination, and prejudice. Therefore, the assumed neutrality is a myth that throws into sharp relief the power differentials within regions. The lack of neutrality is projected to have devastating consequences for the economic trajectory of the continent, particularly as the digital economy becomes entrenched. There is an argument to be made that the vestiges of colonial pasts have surfaced in unprecedented forms with AI tilting again the power dynamics. Postcolonial theory thus enables an application of an interpretive framework to explore the inherent dissonance in AI with a view to creating awareness and identifying the vacuum in policies, systems, structures and possibly institutions that fail to safeguard the interests of the perceived 'other'.

2 Locating Postcolonial Theory

Postcolonial theory is an analysis of the legacies of colonialism from various standpoints including but not limited to the political, economic, cultural, and social impact of colonialism. In particular, the discourse interrogates the power dynamics created by the control and exploitation of a region by an external group.⁴ The colonial period was defined by the process of imposing European constructs and standards on non-Western nations, particularly in the 19th and 20th century. This was done through acquiring, dominating, and exploiting territory with the imposition of Western, in particular European, ideals.⁵ Basaglia defines

⁴ Isabella Basaglia, 'Contribution of Post-Colonial Theory to the Construction of Identity in International Relations' (2012) 8 *Cross-Sections* 71.

⁵ *Ibid* 79.

postcolonial theory as, “a range of critical perspectives on the diverse histories and geographies of colonial practices, discourses, impacts and, importantly, their legacies in the present.”⁶ Postcolonial theory thus calls for the dismantling of Eurocentric notions of discourse while challenging the stereotypes created by these perceptions through the creation of an identity within the so-called ‘colonial space’.

Postcolonial theory has been informed by the work of Said, Spivak, and Bhabha. Said’s theory of Orientalism has been used to explain the systematic oppression and exploitation of the East and has called for combatting discourses from within this region. This theory draws on explanations of ‘othering’, or the reductive labelling and defining of ‘subaltern natives’ as conceptualised by Spivak.⁷ Said states that the function of orientalism is “at one and the same time to characterize the Orient as alien, and to incorporate it schematically on a theatrical stage whose audience, managers, and actors are for Europe, and only for Europe”.⁸ The phenomenon of ‘othering’ can thus be seen as a tool of oppression. Similarly, postcolonial theory is applicable in the African context, in that it broadly explains the ‘othering’ and thus subordination of the colonial subject.

The discourse surrounding Africa, which presents the continent as inferior, barbaric, and savage, allowed the West to assert its superiority. In comparison to the Orient, the concept of ‘otherness’ has been stretched to ‘absolute otherness’ implying even greater inferiority.⁹ The ‘othering’ of African people refutes the very concept of human nature among Africans or a common

⁶ Ibid.

⁷ Gayatri Spivak, ‘Subaltern Studies: Deconstructing Historiography’ in Ranajit Guha and Gayatri Spivak (eds), *Selected Subaltern Studies* (OUP 1985).

⁸ Edward Said, *Orientalism* (Random House 1978), 1.

⁹ Achille Mbembe, *On the Postcolony* (University of California Press 2001), 1.

humanity between the West and Africa. Mbembe explains how African discourse has been shaped by this phenomenon of 'othering': "It is now widely acknowledged that Africa as an idea, a concept, has historically served, and continues to serve, as a polemical argument for the West's desperate desire to assert its difference from the rest of the world."¹⁰ The current international systems in Africa have been formulated around colonial systems of rule informed by the very notion of 'othering' and by implication subordination. Thus, postcolonialism seeks to challenge the discourse and the rhetoric surrounding Africa that emerged during colonialism.¹¹

Postcolonial theory also stretches beyond the colonial period in that it focuses on the oppression and domination that continues to operate in the contemporary world.¹² The word 'post' marks the ongoing impact of colonialism on a former colony.¹³ Furthermore, postcolonial theory is applicable to neo-colonialism, which denotes contemporary instances of Western hegemonic rule albeit through the operations of international capitalism rather than by means of direct rule.¹⁴ It can thus be surmised that these postcolonial power dynamics are applicable in other contemporary contexts, such as the 4IR, and in reference to algorithmic bias in particular, which serve as instances of neo-colonialism. It is argued that 'problematic applications' of AI exist as 'instances of coloniality'. In particular, the application of decolonial theory explains modernity through the

¹⁰ Ibid 3.

¹¹ Basaglia (n 4).

¹² Crawford Young, 'The end of the post-colonial state in Africa? Reflections on changing African political dynamics' (2004) 103(410) *African Affairs* 23, 23-24.

¹³ Ella Shohat. 'Notes on the 'Post-Colonial' (1992) *Social Text*, No. 31/32 (Third World and Post-Colonial Issues) 99.

¹⁴ Nagesh Rao, "'Neocolonialism' or 'Globalization'?: Postcolonial Theory and the Demands of Political Economy' (2000) 1(2) *Interdisciplinary Literary Studies* 165.

lens of coloniality and challenges this.¹⁵ This contemporary framing of colonialism builds on postcolonial theory as many proponents argue that following independence, structures of dominance and exploitation persist, driven by new elites. Decoloniality can thus be viewed as a 'praxis' of 'undoing and redoing'.¹⁶ Both postcolonial and decolonial theories challenge the Western imposition of 'modernity', and thus both theories can be applied to neo-colonial contexts.¹⁷ Based on the tenets of postcolonial theory, it can be argued that the decolonisation of AI will require algorithms that are informed by African datasets in order to challenge the existing bias that is both discriminatory and exclusionary.

Coloniality is evident in AI as it "exhibits structural inequalities that can be contextualised historically as colonial continuities" in that they point to a deepening of bias, fissures within societies, and deepening inequity.¹⁸ AI has become a pervasive feature of contemporary society, and it is important to question whether this is a more subtle form of discrimination that is emerging requiring our attention. While this is not dispossession of countries, land, or natural resources as under colonialism, it is still insidious and has infiltrated all spheres of society in the form of 'digital neo-colonialism'.¹⁹ The assumption that AI and digital technologies are neutral sits at the foundation of new inequalities and biases that will produce systemic challenges in digital governance and innovation. In order to mediate the perversities of AI further exacerbating

¹⁵ Shakir Mohamed et. al, 'Decolonial AI: Decolonial Theory as Sociotechnical Foresight in Artificial Intelligence' (2020) 33 *Philos. Technol.* 659.

¹⁶ Walter D. Mignolo and Catherine E. Walsh, *On Decoloniality: Concepts, Analytics, Praxis*, (Duke University Press 2018), 120.

¹⁷ Gurminder K Bhambra, 'Postcolonial and decolonial dialogues' (2014) 17(2) *Postcolonial Studies* 115.

¹⁸ Mohammed et al. (n 15) 671.

¹⁹ William Gravett, 'Digital neo-colonialism: The Chinese model of internet sovereignty in Africa' (2020) 20(1) *African Human Rights Law Journal* 125.

cleavages in society, and in the relationship between Africa and the West, there are three proposals to mitigate the replication and reproduction of biases inherent in society. These proposals include context aware technologies; reverse tutelage, which is an inclusive approach that advocates for inclusion of those most affected; and solidarity for marginalised groups to be supported and provided with resources.²⁰ Whilst these proposals are affirming and advocate for a transformative paradigm, it works on the assumption that these can be retrofitted for algorithmic biases that are engrained in systems.²¹ These proposals could be the basis for future developments, but would require widespread adoption universally. Moreover, it is necessary to question whether a more radical overhaul is needed to mitigate algorithmic bias, which the following section explores.

3 Understanding Bias in the context of AI

The study of psychology indicates that biases, particularly cognitive biases, are a product of human nature.²² The techniques of AI are modelled on the workings of the human brain. Although AI in its most ideal form should be free of bias and heuristics, the people who develop these systems are not and neither are the approaches used neutral. It could be argued that the intention underpinning the development of AI systems is either deliberate with built-in bias in the design, or accidental due to flaws in the data used.²³ Humans make systemic simplifications and diversions from heuristics in the decision-making process, which leads to

²⁰ Mohammed et. al (n 15) 672.

²¹ Mohammed et. al (n 15) 672.

²² Norma Graciela Cuellar, 'Unconscious bias: What is yours?' (2017) 28(4) JTCN 333.

²³ Marwala (n 2).

cognitive bias.²⁴ Rationality is based on the use of information and logic to efficiently arrive at a conclusion while bias is considered a deviation from rational judgement.²⁵ Machines represent “the ideal concept of intelligence” and maximise utility.²⁶ Delving into the meaning of rationality, Simon referred to the phenomenon *bounded rationality*.²⁷ Rationality is thus considered bounded, or constrained, because of limits to human thinking capacity, available information, and time. Marwala further argues that unbounded rationality, or perfect rationality, is an elusive concept and consequently, rationality even in AI is constrained.²⁸ Bias and discrimination, in this instance, refer to the phenomenon of placing certain groups at a systemic and systematic disadvantage.²⁹ Discrimination can be defined as the unfair or unequal treatment of a person or group based on attributes ranging from income, education, gender, to ethnicity.³⁰ AI systems make automated decisions, such as calculating credit scores, determining insurance pay-outs, and making health-care assessments for providers. Yet, these systems can often make contestable decisions based on the data provided to the algorithms that inform AI, which, in turn, automates decisions. Algorithmic bias is defined as any deviation from the standard, which is often instrumental to understanding statistical patterns in the datasets.³¹ This process is important for classifying data. However, this classification becomes a concern when ‘problematic instances of bias’ lead to digital discrimination,

²⁴ Johan E Korteling et. al, ‘A Neural Network Framework for Cognitive Bias’ (2018) 9 Front Psychol. <<https://www.frontiersin.org/articles/10.3389/fpsyg.2018.01561/full>> accessed 26 June 2023.

²⁵ Marwala (n 2).

²⁶ Ibid.

²⁷ Herbert Simon, *Models of bounded rationality* (MIT Press 1982).

²⁸ Marwala (n 2).

²⁹ Ferrer et. al (n 1) 72.

³⁰ Ibid.

³¹ Ibid.

which occurs when algorithms place certain individuals or groups at a disadvantage because of their personal data. Digital discrimination is a replication of prejudices and thus discrimination that occurs in the 'offline world'³² leads to discriminatory outcomes based on gender, race, and income, location and lifestyle.³³ According to the Brookings Institute, "Bias in algorithms can emanate from unrepresentative or incomplete training data or the reliance on flawed information that reflects historical inequalities. If left unchecked, biased algorithms can lead to decisions which can have a collective, disparate impact on certain groups of people, even without the programmer's intention to discriminate."³⁴ Three forms of bias have been identified.³⁵ Bias in modelling occurs where bias is introduced deliberately to either mitigate the inherent bias in data or in the development of models using categories for what is termed as 'subjective' judgements. The second and arguably the most common form of bias can be found in algorithms which are based on historic data which may not accurately represent population characteristics. This inadvertently leads to bias in decision making. The third category is bias in usage that arises when algorithms are not purposefully utilised, but applied to situations or problems for which they were not intended. The results can lead to gross inaccuracies in application and interpretation.³⁶ Ferrer et al. state that "defining what constitutes discrimination is a matter of understanding the particular social and historical

³² Natalia Criado and Jose M. Such, 'Digital discrimination' in Karen Yeung and Martin Lodge, *Algorithmic Regulation* (OUP 2019).

³³ Cathy O'Neil, *Weapons of math destruction: How big data increases inequality and threatens democracy* (Broadway Books 2016).

³⁴ Nicol Turner Lee et. al, 'Algorithmic bias detection and mitigation: Best practices and policies to reduce consumer harms' (*Brookings*, 22 May 2019)
<<https://www.brookings.edu/research/algorithmic-bias-detection-and-mitigation-best-practices-and-policies-to-reduce-consumer-harms/>> accessed 26 June 2023.

³⁵ Ferrer et. al (n 1) 72.

³⁶ Ibid.

conditions and ideas that inform it and needs to be reevaluated according to its implementation context".³⁷ At least three examples can be made of simple instances where digital platforms have become hotbeds of discriminatory practices through the sharing and use of user data. One example is that the Airbnb online accommodation marketplace has regularly faced claims of racial and ethnic discrimination in the profiling of guests and pricing of rentals in particular regions.³⁸ A further example is how aggregation of data by banks and other creditors can result in people from low-income neighbourhoods facing lower credit scores or higher lending costs – a phenomenon that has been widely publicised in South Africa by usury expert Emerald Van Zyl, who has taken major banks to court over claims of racism in bond and vehicle finance recalculations.³⁹ The final example took place in 2019 where a UPenn report found that Black professionals in the United States receive 30% to 50% less job call-backs when their racial or ethnic identity is included in their resumes.⁴⁰

While bias is a useful concept related to discrimination, there is not a linear relationship between the two: biases do not inherently represent a form of discrimination towards a particular group, and they may also be necessary to reduce the randomisation element of algorithms that would render them ineffective. Rather, it is necessary to determine how biases may lead to discrimination and how to build systems that can mitigate against normative

³⁷ Ibid.

³⁸ Benjamin Edelman and Michael Luca, 'Digital Discrimination: The Case of Airbnb.com' (2014) Harvard Business School Working Paper 14-054 <https://www.hbs.edu/ris/Publication%20Files/Airbnb_92dd6086-6e46-4eaf-9cea-60fe5ba3c596.pdf> accessed 26 June 2023.

³⁹ Sizwe Dlamini, 'Racist banks stealing from the poor, claims financial investigator' (*IoL*, 6 April 2022) <<https://www.iol.co.za/capetimes/news/racist-banks-stealing-from-the-poor-claims-financial-investigator-8c125388-7dee-4e86-8ef5-43c225c9a8cd>> accessed 26 June 2023.

⁴⁰ Dawn Zapatta, 'New study finds AI-enabled anti-Black bias in recruiting' (*Thomson Reuters*, 18 June 2021) <<https://www.thomsonreuters.com/en-us/posts/legal/ai-enabled-anti-black-bias/>> accessed 26 June 2023.

biases.⁴¹ Although, there is an implication in the examples above that the algorithms are biased – this may well be the case; what cannot be discounted, is the bias inherent in the scope of work, purpose, and intentions which are the basis on which algorithms are developed. An argument is made for ensuring that the processes in place for the development of algorithms must have "technical diligence, fairness, and equity from design to execution. That is, when algorithms are responsibly designed, they may avoid the unfortunate consequences of amplified systemic discrimination and unethical applications."⁴² It can be inferred that this process places responsibility for the elimination of algorithmic bias on developers and neglects the overarching power dynamics, intentions, objectives and purposes of development which may already be biased in the framing. Thus, there is an argument to be made that colonial legacies, with their inherent unequal power relations, persist with AI and therefore, there is scope for the application of postcolonial theory to AI. Within this context, Ballim and Breckenridge ask a pertinent question: "African people, firms and societies have produced, have been monopolised and discounted by metropolitan corporations with the energetic assistance of local elites. Will the growing power of the centres of AI in the United States and China – and the global monopoly power of a small number of firms secured by AI – produce a new era of data-driven extraversion and dependency?"⁴³ A difficult truth is that these currently framed technological shifts do not always work in the African context and impacts the entire African diaspora. As Ballim and Breckenridge argue, "the dense, hidden, and ingrained structures of racism that infect the autonomous development of algorithms" pose

⁴¹ Criado and Such (n 32).

⁴² Nicol Turner Lee et. al (n 34).

⁴³ F. Ballim and K. Breckenridge, 'Divinatory Computation: Artificial Intelligence and the Future of the African continent' (2018) Academic paper
<https://wiser.wits.ac.za/system/files/documents/Ballim_Breckenridge_AI_final.pdf>.

one of the greatest dangers.⁴⁴ This danger is largely a reflection of the lack of African datasets available.⁴⁵

4 Bias Through a Postcolonial Lens

The relationship between bias and discrimination is critical in light of the discussion on postcolonial theory. Mhlambi states, “Underlying systems built on top of legacies of slavery, genocide, and colonialism that shape the way we build AI, how we use AI, and the problematic role that AI plays in society. The core idea is that the legacy of colonialism continues today, it is just happening in different form—in literature, this is described as ‘coloniality’.”⁴⁶ AI has become a pervasive feature of contemporary society, and it is important to question whether this is a more subtle form of discrimination that is emerging requiring our attention. While this feature of discrimination is not dispossession of countries, land, or natural resources as under colonialism, it is still insidious and has infiltrated all spheres of society in the form of ‘digital neo-colonialism’.⁴⁷ The assumption that AI and digital technologies are neutral sits at the foundation of new inequalities and biases that will produce systemic challenges in digital governance and innovation. If bias creates conditions for discrimination and, in turn, creates injustices, how do we address the risks of deepening patterns of discrimination, and creating spaces where infractions are not visible to the human eye? One argument is that the impact of AI, and by implication, algorithmic biases in Africa, is akin to colonisation, particularly as the technology

⁴⁴ Ibid.

⁴⁵ Tshilidzi Marwala, *Closing the Gap: The Fourth Industrial Revolution in Africa* (Pan Macmillan 2020).

⁴⁶ Sabelo Mhlambi, ‘Can an Ancient African Philosophy Save Us from AI Bias?’ (*BU Today*, 11 February 2021), available at: <<https://www.bu.edu/articles/2021/can-an-ancient-african-philosophy-save-us-from-ai-bias/>> accessed 26 June 2023.

⁴⁷ Gravett (n 19).

is based on Western perspectives and interests. “Not only is Western-developed AI unfit for African problems, the West’s algorithmic invasion simultaneously impoverishes development of local products, while also leaving the continent dependent on Western software and infrastructure.”⁴⁸ From the perspective of Chinese digital expansion, African states are also vulnerable to the influence from new digital powers whose agendas are shaped by their own governance norms.⁴⁹

It can thus be argued that the 4IR, of which AI is a prominent feature, can be seen through an exclusionary lens. Africa has been articulated as a ‘passive observer’ to previous industrial revolutions, although this position is both ideologically and empirically flawed.⁵⁰ As alluded to previously, this is an instance of discourse around Africa that has led to its ‘othering’. Thus, the implied lag in development, infrastructure deficits, and vast scientific and technological gaps are in part symptomatic of this tendency to label Africa as a ‘passive observer’ rather than actual passivity.⁵¹ Instead, the colonial experience and its impact should be seen as an interruption to existing patterns of endogenous development on the continent, including the medical and physical sciences. Moreover, the trans-Atlantic slave trade positioned Africans as major carriers of the industrial revolutions on which their labour was built.⁵² It can be argued that it is colonialism that has led to this lag, which has led to ‘passivity’ on the continent. Colonialism led to an intriguing dichotomy as Africa developed Europe at the same rate as Europe underdeveloped Africa.⁵³ The real challenge, which this perception of ‘passivity’ relies on in a contemporary context, is that

⁴⁸ Birhane (n 3).

⁴⁹ Gravett (n 19).

⁵⁰ Marwala (n 45).

⁵¹ Ibid.

⁵² Everisto Benyera, *The Fourth Industrial Revolution and the Recolonisation of Africa: The Coloniality of Data* (Routledge 2023).

⁵³ Walter Rodney, *How Europe Underdeveloped Africa* (Bogle-L'Ouverture Publications 1972).

African artisans, scholars, and scientists have been systematically excluded from the development of solutions and innovations on the continent, as their expertise is often diverted through the learning centres and manufacturing spaces of the West. These solutions and innovations from African artisans, scholars, and scientists could produce a specifically African concept of science and technology. It can be inferred by this argument that the imposition of AI systems from the West and the implicit algorithmic bias poses a challenge to the development and use of AI on the continent. However, the pace and reach of global change signal that AI is here to stay and has had significant inroads in all spheres of society. It is therefore necessary to probe how biases in AI can be addressed to reduce the potential for these biases to crystallise existing patterns of inequality and representation. Here, postcolonial theory provides a crucial framework to challenge these biases. Though there are variances in postcolonial theory, there is consensus that there is a power differential at play with little recourse for redress.⁵⁴ Using the notion of the 'other' enables an interpretation of algorithmic bias in digital discrimination and its impact on reimagined 'colonial' subjects. It is inadvertently a case of history repeating itself, as the reach of technology is so vast that the undoing of bias is seemingly impossible. Without addressing this discrimination and the exclusionary nature of bias, the continent's socio-economic development will remain stunted.⁵⁵

5 Conclusion

Africa is facing new and pervasive forms of colonialism, which threaten to stunt the continent's development, as the 4IR, which can be viewed as exclusionary,

⁵⁴ Mbembe (n 9).

⁵⁵ Marwala (n 45).

takes hold as a dominant economic system. The anticipated lag in development mirrors the impact of colonialism in Africa, where the continent was also excluded from the dominant economic system at the time. Nkrumah, in his seminal work in 1965, warned that neocolonialism would emerge as the final stage of imperialism and would have a regressive impact on development.⁵⁶ As the digital economy gains traction, it is apparent that so too is digital neocolonialism. Post-colonial theory, although related to the dismantling of Eurocentric structures following Western territorial and cultural domination, is pertinent against the context of neocolonialism. AI, in its current form, is demonstrably not free from the biases that lead to digital discrimination. The power differentials created by these biases calls for a reimagining of the 'other' and implies a righting of the power imbalances through the tenets of postcolonial theory. For AI practitioners, the reimagining of power imbalances will likely require more inclusive datasets and expertise from the continent as a primary focus. As the postcolonial lens with which AI is viewed in this paper demonstrates, there may be other possible interventions. In this paper, the nuances and detrimental impact of digital discrimination have been explored. There is clearly a need for interventions as has been advocated by Marwala.⁵⁷ These interventions include policy development, ethical charters, the creation of new datasets that would combat the imposed discriminatory systems and an oversight body such as the AI regulatory oversight and ethical advice bodies present in the United States, the United Kingdom, Norway and India. The efficacy of these bodies in serving the interests of the 'othered' is yet to be explored, monitored, and evaluated. The tectonic shifts in AI, however, require

⁵⁶ Kwame Nkrumah, *Neo-colonialism: The Last Stage of Imperialism* (Thomas Nelson and Sons 1965).

⁵⁷ Marwala (n 45).

both vigilance and agility to contend with bias and discrimination. Post-colonial approaches to containing bias and discrimination that was allowed to prevail during the colonial period has arguably enabled an historic perspective on the dangers of unchecked AI development. The biases inherent in AI systems are often invisible and therefore, the 'other' is a silent observer unaware that these biases could have significant detrimental consequences for them. Without intervention, however, there is a risk that Africa's development trajectory will be stunted, as it is effectively excluded from global economic systems. The approach to AI cannot assume neutrality in the manner that the examples of algorithmic bias demonstrate. Rather, the shift must move beyond interrogating the impact of these biases to challenging them through active participation.