DIGITAL THEORY, CULTURE & SOCIETY
https://journal.c-dics.com

DIGITAL THEORY, CULTURE & SOCIETY
ISSN 3031-707X
Center for Digital Culture Studies (C-DICS)

Volume 2, Issue 2, December 2024 **Page 121–130**

Artificial intelligence and decoloniality: Insurgent arrangements and the question concerning cosmotechnics

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DOI: https://doi.org/10.61126/dtcs.v2i2.49

ARTICLE INFO

Keywords:
artificial intelligence
decoloniality
technodiversity
cosmotechnics
non-Western cosmology

ABSTRACT

This article examines the intersections between technology and coloniality, with a particular focus on the role of artificial intelligence (AI) in perpetuating colonial power structures and reinforcing exclusions. The study examines the ways in which historically marginalized groups—including Black people, the poor, women, Indigenous peoples, queer individuals, and those from peripheral areas—are reinterpreting AI, transforming it into a tool of resistance against the oppressive logics of Eurocentric modernity. The methodology is based on a qualitative approach, comprising interviews, an analysis of audiovisual materials, digital platforms, and social media. The research identified initiatives that propose technological alternatives based on diverse epistemological and ontological frameworks, thereby challenging the dominance of modern/colonial technological paradigms. The analysis of the data revealed that these groups adopt collaborative methodologies, with a particular focus on the inclusion of marginalized populations and the creation of new technological epistemologies. The findings demonstrate that these communities are developing technological arrangements based on non-Western cosmologies, thereby challenging Western dominance in technology. These practices not only adapt existing technologies but also create new forms of technological interaction that reflect their specific realities and contexts. The study concludes that the decolonization of technology is both possible and necessary, with the adoption of cosmotechnics that respect cultural and epistemological diversity, paving the way for fairer, plural, and inclusive technological futures.

Citation suggestion:
Aguiar, C. E. S., & da Silva, D. K. M. (2024). Artificial intelligence and decoloniality: Insurgent arrangements and the question concerning cosmotechnics. *Digital Theory, Culture & Society, 2*(2), 121–130. https://doi.org/10.61126/dtcs.v2i2.49

Received 22 October 2024; Received in revised form 1 November 2024; Accepted 5 November 2024; Published online 25 December 2024.

Introduction

Coloniality is the persistence of the logics of domination and exploitation that arose with colonialism (Quijano, 2005). It continues to be a hegemonic force in the modern world, largely sustained by technology. Eurocentrism, the basis of this hegemony, has been consolidated both through technological devices and the instrumental rationality embedded in them. With the advancement of digital technologies such as datafication and algorithmization, this extractivist logic—whether of data, attention, or labor—perpetuates colonial power structures (Couldry & Mejias, 2019). This reveals the continuity of the colonial paradigm, showing that the formal end of colonialism did not put on end its exploitation logics. Modern technology, far from being a rupture, deepens colonial appropriation dynamics, renewing control over resources and populations in a digital age.

This raises a central question: the relationship between technology and coloniality. How does this interaction continue shaping domination in the 21st century? Coloniality is sustained by technological devices and is reinvented by new technologies that consolidate a rationality of control, exploitation, and exclusion. Technological advancement, instead of liberation, has been a vehicle of oppression, especially for peoples of the Global South, whose histories, cultures, and resources are forced to integrate into the global economy (Quijano, 2005). An urgent question arises: is true decoloniality possible? Should we reject modern technology, which reflects Eurocentric values of exploitation and accumulation? Or can we reconfigure it from new perspectives, breaking with the coloniality of power?

The literature shows that modernity, since its origins, is tied to a logic of domination. It was consolidated by military force and the imposition of technical rationality. Mignolo (2017) and Quijano (2005) argue that modernity is neither neutral nor universal but rooted in a Eurocentric ideology that justifies the exploitation of non-European peoples. Colonialism was the vehicle of this civilizing mission. It was not limited to territorial conquest but also imposed ways of thinking, organizing society, and instrumentalizing nature for control. This technocentric logic deepened with the end of formal colonialism. Coloniality now manifests through economic globalization, militarization, and technologically mediated communication networks (Aguiar & Silva, 2023). Modern technologies like cinema, radio, and television disseminated the Eurocentric worldview, transforming technique into a powerful means of cultural and epistemological domination.

However, technology is not just tools of ideology. They embody modes of knowledge and rationality that, when universalized, colonize the imaginations of Global South peoples. Yuk Hui (2017) argues that modern technologies are more than artifacts. They materialize a technocentric worldview, aligning the destinies of non-Western peoples with the narrative of Western progress and development. This domination, which we call technocoloniality, was only possible with the omnipresence of technology. Martin Heidegger (2019), when discussing modern technique, describes it as a structure that subjects the world and people to the logic of extractivism and accumulation. However, Heidegger fails to recognize that this technical domination unequally affects populations. Achille Mbembe (2020) explains that non-European peoples are treated as "stock," a reserve to be exploited and integrated into the global productive logic when convenient, perpetuating the racial and economic exploitation of early colonialism.

The contribution of this research lies in the cosmotechnics approach, which reconceptualizes the relationship between technology and decoloniality in the field of communication. Rather than rejecting modern technology, the study suggests that it is possible and necessary to decolonize technology by reconfiguring it with non-Western epistemologies and cosmologies. Cosmotechnics a concept by Hui (2017), proposes that each culture has its own ways of understanding and relating to technique, without following the Eurocentric model. By recognizing the plurality of worldviews and epistemologies, we can create new technologies that respect cultural particularities and break with the extractivist and dominating logic of Western modernity. This study has three objectives. The first is to reconstruct the role of technology in the constitution and perpetuation of the coloniality of power, showing how technology was used as an instrument of domination. The second is to reflect on the possibilities of a decoloniality of technology, questioning whether it is possible to re-signify modern technology with a cosmotechnics perspective. The third objective is to map and analyze decolonial sociotechnical arrangements emerging in contemporary times, focusing on appropriations of artificial intelligence by groups resisting colonial logic. These insurgent practices create openings in the dominant technological system, proposing new uses of technique that break with Eurocentric instrumental rationality and create possibilities for resistance.

Method

This study adopts a qualitative approach, grounded in decolonial studies and the concepts of technodiversity and cosmotechnics, to analyze the intersections between technology and coloniality, with a focus on artificial intelligence (AI). The theoretical framework provides a critical foundation for understanding how technology has been used as a tool of domination, perpetuating colonial structures. Furthermore, alternatives aimed at re-signifying these technologies through non-Western perspectives and cosmologies are explored. The research seeks to understand how AI can be appropriated by different groups and cultures to break away from the prevailing colonial logic.

Data collection was conducted between January and April 2024, focusing on mapping initiatives that adopt a decolonial approach to AI. The collection included a wide range of materials, such as digital platforms, blogs, organizational websites, social networks, and audiovisual records documenting the practices and discourses of groups involved in technological re-signification. These documents were complemented by interviews and audiovisual materials that provided deeper insights into the practices of these groups. This combination of sources allowed for the construction of a comprehensive view of decolonial narratives and practices related to AI.

The criteria for selecting the analyzed initiatives were based on three main aspects. The first criterion was the adoption of an explicit critical approach to AI, involving a position of resistance to technological coloniality. The second criterion considered the diversity of the populations involved, ensuring that the initiatives included racial, ethnic, gender, and social class minorities. The third criterion was based on the presence of collaborative networks and interactions between activists, scholars, and local communities, promoting a collective and integrated focus on the development of technological alternatives.

The data analysis methodology was discursive and interpretive, focusing on identifying and critically analyzing the narratives constructed by the groups

participating in the mapped initiatives. The analysis sought to understand how these narratives reflect a stance of resistance and decolonization against modern technology. The narratives were explored through key concepts, recurring themes, and words that indicated the intention of insurgent AI re-appropriation. This interpretive approach allowed for an understanding of how these groups' discourses contrast with dominant views of AI, particularly regarding its role in perpetuating structural inequalities.

In the first phase of the analysis, the focus was on mapping the main resistance narratives that emerge from these groups' discourses. This process included mapping terms that indicate the desire to re-signify technology and the construction of decolonial alternatives in AI use. The identified narratives served as the basis for understanding how decolonial initiatives build their own technological epistemologies, challenging the Eurocentric hegemony that dominates the technological field. The analyses also sought to highlight how these narratives differ from traditional technocentric approaches.

In the second phase of the research, the specific practices developed by the groups were analyzed, with special attention to initiatives that promote the inclusion of racial, gender, and social class minorities in technological processes. Projects that implement algorithmic systems with a focus on racial, social, and gender justice were observed, as well as technologies developed for indigenous communities. This phase of the analysis focused on identifying the methodologies adopted by the groups to integrate decolonial principles into the development and use of AI. The goal was to understand how these practices challenge the power structures that perpetuate coloniality in the technology field.

The third phase of the analysis focused on the social impact of the practices of the mapped initiatives. Data were collected on the influence of the initiatives in public debates about AI, technology, and social justice. Collaborations between the analyzed groups and other actors, such as universities, non-governmental organizations, and policymakers, were observed. The analysis also sought to understand how these collaborations help create networks of support and solidarity, which strengthen insurgent practices of technological resistance. This phase captured the breadth of the impact of these initiatives on discussions about developing more inclusive and ethical technologies.

A key point in the analysis was the investigation of the challenges faced by initiatives in developing technologies that break with the colonial logic. The research identified that these initiatives, although creative and innovative, face significant barriers to accessing technological resources and funding. Institutional resistance was also an obstacle faced by many of the groups, who struggle against a technological system that still operates under Eurocentric and capitalist values. However, these initiatives showed significant potential to reverse the dynamics of power and exclusion that characterize technological development.

Finally, the methodology involved analyzing the collaboration strategies between the initiatives and other organizations. These collaborations were important in amplifying the reach of these practices and providing mutual support among the actors involved. The analysis of these collaborative networks demonstrated that the groups manage to build a joint resistance, which strengthens the fight for the decolonization of AI. The study sought to identify the mechanisms by which these networks operate in spreading decolonial practices and developing new technologies that are inclusive and just.

Results and Discussion

Modern technology, expansive and exclusivist by essence, tends to be catastrophic. It not only causes an environmental crisis but also profoundly affects human and social relations. According to Hui (2017), we live under the domination of monotecnologism, which imposes a singular technological vision on the world. To liberate us from this tyranny, it is necessary to adopt other worldviews that allow us to re-signify modern technology. This opening movement does not aim merely to adapt existing technology but to reinvent it through new cosmotechnics suited to our time.

The decolonization of technology emerges as an urgent necessity. Modern technology, as a tool of domination, must be rethought. It is crucial to purge technology of its masculine, white, Western, and pro-capitalist biases. Cosmotechnics allows us to avoid the dilemma of rejecting or glorifying technology by proposing new ways of conceiving it. These new forms arise from diverse cosmologies that are not subjugated to modern Western thought. The proposal of cosmotechnics offers a way to surpass modernity without ignoring its contributions, valuing the epistemologies and cosmologies of the Global South.

Hui (2020) suggests overcoming the monolithic view of technology through a cosmopolitical perspective. This involves the politicization of technology, understood as the integration between cosmic and moral order in technical activities. Cosmopolitics accepts plurality and recognizes that the world comprises different cosmos, each with its own conceptions of technology. Reflecting on these conceptions is crucial for a new cosmopolitics to emerge, capable of surpassing modernity without falling into conflicts or authoritarianism. This approach proposes a reappropriation of modern technology, using diverse and renewed epistemologies.

In this context, the diversity of technological conceptions, or technodiversity, becomes essential to create alternatives to modern digital culture. Through cosmotechnics, multiple localities can invent their own technological futures, breaking with the homogeneity imposed by modernity. Embracing these new perspectives gives rise to a technological ethic that challenges the global synchronization brought by modern technology, creating space for more diverse and equitable futures.

This decolonial approach also applies to artificial intelligence (AI). Shakir Mohamed et al. (2020) argue that by integrating decolonial theories, AI communities can develop more ethical technologies, focused on vulnerable groups. Modern and colonial technologies often reinforce power structures that oppress these groups. Predictive algorithms, for example, show how technology can perpetuate surveillance and policing of marginalized populations. The authors propose three strategies for decolonial AI: supporting a critical practice that acknowledges power asymmetries, establishing reciprocal commitments with colonized communities, and renewing political and affective communities, which should be the protagonists in redefining technologies in our societies.

The empirical analysis of this study is based on mapping groups that propose new meanings for AI, its artifacts, and systems. These groups, composed of Black, Indigenous, people in poverty, favela residents, LGBTQIA+, and women, have historically been marginalized by modernity and technology. The decolonial sociotechnical arrangements aim to respond to the exclusion and oppression imposed by the colonial, racist, capitalist, and patriarchal project of the West. These groups, long excluded from centers of power

and decision-making, now propose new ways to use AI that meet their realities and contexts, challenging the oppressive logics of modernity.

Artificial intelligence and race

One of the initiatives focused on the relationship between AI and race is Black in AI. Defined as a space to share ideas, foster collaborations, and discuss ways to increase the presence of Black people in Artificial Intelligence, Black in AI was founded in 2017 as a conference. Today, the organization promotes the development of technologies and seeks to create more equitable research environments. Another similar initiative is Data for Black Lives, which presents itself as a movement of activists, organizers, and scientists committed to using data to create concrete and measurable changes in Black communities' lives. This group denounces the use of data as a tool of oppression, arguing that data reinforce inequalities and perpetuate racial and class injustices.

The Tiny Images project, a dataset created in 2006 and taken offline by its creators in 2020, is a concrete example of how data can harbor biases. After discovering racist and demeaning images and terminology, the project was discontinued, but it illustrated the racist nature embedded in the data (Birhane & Prabhu, 2021). Additionally, search engines like Google are often criticized for privileging whiteness in their algorithms, perpetuating a culture that is not only racist but also sexist (Noble, 2018).

Artificial intelligence and social justice

Social justice is also at the core of some AI initiatives. The Algorithmic Justice League, for example, aims to raise awareness about AI's impact by providing resources to support campaigns and amplify the voices of the most affected communities. The organization seeks to mobilize researchers, policymakers, and professionals to prevent the harm caused by biased AI. The founder, Joy Buolamwini, demonstrated that many facial recognition systems fail to identify Black faces, exposing the racial biases embedded in these algorithms.

One of the most relevant projects of this initiative is the Community Reporting of Algorithmic System Harms (CRASH), which combines the technical knowledge of AI experts with the local and practical knowledge of communities. The goal is to hold companies accountable for the harm caused by algorithmic systems while creating less biased technologies. This project aligns with the idea of community-based design, which values local knowledge in AI development, ensuring that affected communities can actively participate in creating technological solutions (Murphy & Largacha-Martínez, 2022).

Artificial intelligence and feminisms

Discussions about feminist AI are also gaining traction, engaging with other feminist branches such as cyberfeminism, networked feminism, and technofeminism (Hawthorne & Klein, 1999; Hertogh, Lane & Ouellette, 2019; Rentschler & Thrift, 2015). Although each branch reflects its historical and technological context, they all share a critique of the masculinist nature of technologies.

Feminist AI initiatives begin with a critical reading of data and algorithms. For example, the A+ Alliance, through the Feminist AI project, advocates for developing algorithmic systems that promote equality and inclusion. They aim to correct inequalities by creating new opportunities for women and minorities. Another relevant initiative is Not My AI, which aims to develop feminist tools to challenge public sector decision-making systems. Feminist AI™ adopts an

intersectional approach to create tools that address diverse feminist experiences.

Artificial intelligence and queer identities

Non-heteronormative identities also play a transformative role in the AI field. For many activists and researchers, the change begins with funding, supporting, and empowering minority groups in AI development (Ashwin et al., 2021). Queer perspectives can destabilize the dominant ontological codifications of AI, which are shaped by deterministic worldviews (Turtle, 2022).

Queer in AI is one initiative that seeks to promote a more diverse AI by raising awareness of queer issues in machine learning. They also aim to create a community of queer researchers and celebrate the work of these scientists. Another example is Queer AI, which develops AI models trained with erotic literature, feminist and queer theory, creating an ethic of embodiment. The Ultimate Fantasy platform gathers stories, poetry, and art generated by this AI.

Artificial intelligence and indigenous knowledge

Indigenous peoples are also represented in AI initiatives that seek to incorporate Indigenous epistemologies and ontologies. Indigenous in AI is an example of an international AI community formed by Indigenous researchers. Another relevant initiative is Indigenous AI, which develops AI systems based on Indigenous knowledge, proposing new conceptual and practical approaches.

A practical example is Papa Reo, a multilingual platform using AI to preserve and promote the Maori language. The project includes an automatic transcription tool and an open-source app that collects voice recordings and trains computers to understand Indigenous languages through machine learning. This initiative challenges the logic of conventional speech recognition systems, which often fail to handle accents and languages outside socially accepted standards, reproducing racist characteristics (Koenecke et al., 2020).

Artificial intelligence and peripheral/ favela ethics

Peripheries and favelas are heavily impacted by the negative effects of digital technologies. Black, mixed-race, and poor populations living in these territories face discrimination exacerbated by algorithmic systems. These technologies are used for policing, surveillance, and decision-making in areas like loan approval and job opportunities, perpetuating social exclusion (Silva & Aguiar, 2017).

However, these communities do not reject technology. On the contrary, they are appropriating it. Data_Labe, for example, is a laboratory that promotes knowledge democratization through data analysis focusing on race, gender, and territory, located in Complexo da Maré, Rio de Janeiro. Among the group's projects is the manual "Dados sem caô," which teaches data processing, analysis, and visualization. Initiatives like PerifaCode and PerifaTec aim to include people from the periphery in technology development, breaking with the exclusionary logic that permeates the tech field.

Through technodiverse sociotechnical imaginaries and arrangements

The initiatives mapped in this study reveal themselves as insurgent responses to the hegemony of the modern/colonial project, which has historically shaped digital and networked technologies based on a logic

of exclusion. As emphasized throughout the research, this project is racist, classist, xenophobic, sexist, and heteronormative, perpetuating a systemic structure that reflects and reinforces these power dynamics. Technologies predominantly conceived and designed by economically privileged white, heterosexual men incorporate these structural values, reflecting whiteness, heteronormativity, and classism not only in their interfaces but also in the very design of their architectures and algorithms.

Understanding technology as part of a domination structure is essential to recognizing the multiple layers through which power operates. The monopoly of technological narratives by the West, under a modernizing and universalist lens, naturalizes these technologies as neutral or inevitable, when in fact, they perpetuate forms of control and exploitation. As discussed in the analytical phases, decolonial initiatives not only recognize these dynamics but confront them directly, proposing alternative ways of thinking and creating technology. This is where the idea of "technodiversity" gains relevance: it is not just about the inclusion of marginalized bodies into existing systems but about the creation of new technological epistemologies that challenge the very premises and foundations of modern technology.

From an epistemological perspective, digital and networked technologies operate circularly, both in the production and dissemination of knowledge, reinforcing the Western worldview that underpins their operational logic. As evidenced in the analysis of machine learning practices, these technologies are not neutral; they incorporate, replicate, and amplify the historical oppressions faced by marginalized groups. When analyzing algorithmic systems, it became clear that they extend the hierarchies and exclusions characteristic of modern social relations into the digital realm. Therefore, the process of decolonizing artificial intelligence and technologies in general cannot be reduced to mere technical adjustments. It requires a restructuring of the ontological and epistemological bases upon which these technologies were built.

Since technologies emerge from specific worldviews, it becomes crucial to decolonize not only their uses but also the conceptions that define what is considered "human" in modern Western society. This redefinition involves a deep analysis of the power relations that have historically shaped the concepts of humanity and technology. As digital technologies become extensions of these definitions, they expand the dynamics of colonial domination into new territories: the digital space, the minds, and the bodies of those historically relegated to the margins. As discussed in the final phase of methodological analysis, the resistance practices observed in decolonial sociotechnical arrangements are not limited to adapting existing technologies; they aim to reimagine technological futures based on alternative epistemologies disconnected from the extractive and oppressive logic.

These insurgent practices demonstrate that technological decolonization is not merely a technical process but an ethical and cosmopolitical one. From the perspective of cosmotechnics, as proposed by Hui (2017), it is possible to conceive technologies that respect the plurality of cosmologies and ways of being. Contrary to the technological monoculture imposed by Western modernity, technodiversity emerges as a real alternative that promotes the recognition of difference and multiplicity. This involves creating technologies that are adapted to local contexts and the realities of historically marginalized groups, allowing them to invent their own technological futures and break away from the global synchronization imposed by modernity.

The decolonization efforts of technology, as evidenced, go beyond mere criticism. They propose a new paradigm for thinking about the role of technologies in contemporary societies. By questioning the philosophical and political foundations upon which modern technology was built, the analyzed initiatives break with the dualism between human and technology, showing that digital tools can be reappropriated and redefined in arrangements that escape the Western logic of control and exploitation. This reappropriation is essentially a rejection of the Eurocentric worldview that has traditionally shaped technological development.

Finally, the diverse sociotechnical arrangements that emerge from these insurgent practices directly challenge the historical linearity of modernity and its technological consequences. Instead of following the path of technological acceleration, often linked to Western progress, these initiatives propose the creation of plural technologies that value cultural, epistemological, and cosmological differences. As highlighted in the study, this appreciation of difference does not merely involve the inclusion of new subjects in modern technology but the reconstruction of the very notion of technology from a decolonial perspective. Thus, it is a radical process of resignification, aiming to create more just, inclusive, and suitable technological futures for the multiple realities of the contemporary world.

Conclusion

The presented research highlights the central role of modern technology as an extension of colonial dynamics, emphasizing the perpetuation of exclusion and exploitation through technologies like artificial intelligence. The study underscores the importance of decolonial approaches that seek to break away from the Eurocentric logic of power and control, proposing alternatives grounded in non-Western epistemologies and cosmologies. The mapped technodiversity initiatives demonstrate how historically marginalized communities, by appropriating these technologies, redefine their function, challenging hegemonic power structures and proposing more inclusive futures. The proposal of cosmotechnics offers a promising path for creating technologies that respect cultural plurality, promoting true technological decoloniality. These insurgent arrangements not only reconfigure digital tools but also bring new possibilities for resistance and emancipation, building more just and diverse technological futures.

Declaration of Ownership

This article is our original work.

Conflict of Interest

There is no conflict of interest to declare in this article.

Ethical Clearance

This study was approved by the institution.

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