

Decolonising the Cognition in the Age of Epistemic Hegemony of AI

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This study examines cognitive colonialism as a form of epistemic domination in which digital and algorithmic infrastructures increasingly shape how people encounter, process, and validate information. It argues that digital platforms do more than mediate access to information; through processes of data collection, content curation, prediction, and engagement optimisation, they can influence attention, memory, decision-making, emotional responses, and the visibility of competing narratives. Using Critical Discourse Analysis (CDA), the study examines seven interconnected domains of algorithmic influence: cognitive outsourcing, engagement commodification, historiographical curation, predictive governance, affective manipulation, ideological modulation, and knowledge stratification. The analysis draws on publicly accessible platform and corporate discourse, including policy and privacy documents, terms of service, interface and marketing materials, and documented evidence concerning algorithmic practices. The findings indicate that these materials collectively reveal recurring forms of cognitive dependence and epistemic asymmetry through which computational infrastructures can shape the conditions of knowledge and judgement. The study further argues that media literacy and individual critical engagement, although necessary, cannot by themselves address these structural conditions. Cognitive decolonisation therefore requires both immediate safeguards for algorithmic transparency, data protection, and user contestability and longer-term development of pluriversal, non-extractive, and more decentralised digital knowledge infrastructures.

Keywords: Cognitive Colonialism, Artificial Intelligence (AI), Data Regimes, Algorithmic Hegemony, Epistemic Injustice

Introduction

Perhaps at no other time in history has humanity been as profoundly enmeshed in cognitive colonialism as it is today. This phenomenon, emerging from the global entrenchment of digital technologies, is not merely a byproduct of technological advancement but a structural transformation in human cognition. The ubiquity of algorithmic media, content curation, and data commodification does not simply shape how we interact with information; it actively reconstructs cognitive processes, embedding epistemic dependencies that redefine the parameters of autonomy and intellectual agency (Coudry & Mejias, 2020). This dynamic represents a paradigmatic shift wherein digital infrastructures and algorithmic logic establish new epistemic hegemonies that extend beyond traditional mechanisms of ideological control.

The digital age is not solely a technological epoch but a reconfiguration of cognitive architectures. Digital platforms engage in extensive cognitive extraction,

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commodifying attention, memory, and decision-making into marketable assets (Zuboff, 2019). The ideological imperatives embedded within these platforms impose algorithmic rationality that not only dictates content visibility and narrative framing but also modulates affective and epistemic behaviours (Beer, 2022). The systemic normalization of cognitive outsourcing through digital platforms constructs an epistemic landscape wherein users increasingly rely on algorithmic systems for intellectual engagement, judgment formation, and knowledge validation (Micklitz et al., 2021). This transformation compels an urgent interrogation of the ontological, epistemic, and ethical ramifications of algorithmic cognition.

Unlike historical colonialism, which subjugated geopolitical entities through physical dominance, cognitive colonialism transcends geographical boundaries, permeating digital infrastructures and global epistemic ecosystems (Couldry & Mejias, 2020). The rapid advancements in Artificial General Intelligence (AGI) intensify this process, as AGI systems—equipped with predictive cognition, neuro-symbolic reasoning, and emotional intelligence—increasingly dictate decision-making processes and cultural discourses (Baronchelli, 2024). This transformation generates a recursive epistemic structure (Rayhan & Rayhan, 2023), wherein human cognitive faculties are shaped and constrained by algorithmic imperatives. The emergence of algorithmic cognitive regimes signifies an epistemic rupture in which human thought is not merely influenced by digital infrastructures but is recursively engineered through them.

The ramifications of cognitive colonialism extend beyond individual epistemic manipulation; they signify a species-level transformation of human cognition. The *Homo Cognatexus* paradigm (Mohseni Ahooei, 2024) delineates a shift from biologically contingent cognition to algorithmically mediated thought, wherein individuals exist within a technological-cognitive interdependence that dictates the production, validation, and internalization of knowledge. This algorithmic mediation does not merely present information; it reconstitutes cognitive boundaries, reinforcing epistemic enclosures that govern intellectual orientations (Noble, 2018). Within this framework, cognitive colonialism is not an episodic phenomenon but a systemic and self-replicating process that restructures ontological and epistemic foundations in the digital era.

Given the profound scope of cognitive colonialism, this research critically interrogates its structural mechanisms by posing two foundational questions: How does cognitive colonialism manifest in algorithmic media, and what are its implications for epistemic sovereignty? Additionally, how do global data regimes orchestrate cognitive extraction and exploit collective intelligence to establish cognitive hegemony? These inquiries necessitate an interdisciplinary analytical framework that synthesizes insights from critical algorithm studies, cognitive capitalism, and postcolonial digital epistemology to elucidate the structural dynamics of cognitive commodification and epistemic asymmetry (Fuchs, 2021). By deconstructing the ontological, cognitive, and ethical dimensions of algorithmic epistemic control, this study aims to reveal the foundational mechanisms through which digital platforms engineer knowledge economies, dictate cognitive affordances, and entrench algorithmic hegemony.

The urgency of this inquiry is underscored by the recognition that cognitive colonialism is neither theoretical nor abstract—it is an operative force that dictates

everyday cognitive interactions. Algorithmic mediation of information, memory, and social cognition extends far beyond content personalisation; it dictates the epistemic infrastructures through which reality is perceived and understood (Just, 2024). This leads to an unsettling epistemological challenge: Is it possible to decolonize cognition? Given the totalizing and recursive nature of cognitive colonialism, the feasibility of epistemic decolonisation appears tenuous. Superficial interventions—such as algorithmic transparency initiatives, digital media literacy programs, and open-data frameworks—fail to address the structural asymmetries that underpin cognitive colonisation (Marinova et al., 2022).

This study advances the central argument that cognitive colonialism is not merely the extraction or manipulation of cognitive resources; it is a structural process through which global algorithmic infrastructures condition the possibilities of cognitive agency, epistemic validation, and knowledge production. True epistemic decolonisation requires going beyond superficial algorithmic accountability to achieve a fundamental reorientation of digital architectures and governance paradigms. Resisting cognitive colonialism demands an epistemic rupture that reclaims cognitive autonomy through decentralised knowledge production, non-extractive AI systems, and algorithmic epistemic pluralism (Hulstijn et al., 2024). This broader understanding of decolonisation is consistent with Hira's distinction between political decolonisation and the decolonisation of the mind, in which colonial power is also reproduced through systems of knowledge production and the internalisation of dominant epistemic frameworks (Hira, 2023). By mapping these structural dynamics, this research contributes to critical algorithm studies, digital epistemology, and the political economy of cognitive justice.

Theoretical Framework

The concept of cognitive colonialism arises from the intersection of critical theory, post-colonial studies, and media ecology, expanding into the interdisciplinary domains of computational neuroscience, quantum cognition, and cognitive capitalism. It critically examines how digital infrastructures, algorithmic governance, and global data regimes mediate and restructure cognitive ecologies, not merely as facilitators of information exchange but as mechanisms of epistemic enclosure and control (Adomaitis & Grinbaum, 2024). This section integrates emerging paradigms from neurotechnological determinism, neuroeconomics, and AI epistemology to elucidate how cognitive processes are being commodified, outsourced, and restructured under the logic of algorithmic capitalism (Primrose, 2022).

Cognitive colonialism is used in this study as the central analytical concept for describing a form of epistemic domination in which digital and algorithmic infrastructures participate in the extraction, organisation, prioritisation, and modulation of cognitive activity. The concept does not imply that algorithms directly determine human thought or that proprietary algorithmic code is itself observable. Rather, it refers to the structural conditions through which computational systems can shape what users encounter, attend to, retrieve, evaluate, and recognise as legitimate knowledge. From a decolonial perspective, this problem also concerns who is

authorised to produce knowledge and which forms of knowledge are recognised as valid (Hira, 2023).

This distinction is important because several adjacent concepts describe different dimensions of the same broader transformation. Data colonialism primarily identifies the appropriation of human life and social activity as data resources for capitalist purposes (Couldry & Mejias, 2020). Cognitive capitalism explains the economic valorisation of knowledge, attention, mental labour, and cognitive capacities (Moulier-Boutang, 2011). Digital hegemony refers more broadly to the reproduction of asymmetrical power through digital infrastructures and communicative systems (Just, 2024; Stefaniya & Pierson, 2023). Cognitive colonialism brings these dimensions together at the level of epistemic agency: it concerns the condition in which data extraction, economic commodification, and infrastructural power become consequential for the organisation of attention, memory, judgement, interpretation, and knowledge validation. The concept therefore functions in this study as an integrative analytical framework rather than as a synonym for data colonialism, cognitive capitalism, or digital hegemony.

Within this conceptual architecture, Homo Cognatexus (Mohseni Ahooei, 2024) is treated as a heuristic description rather than as a separate analytical category. It denotes a condition in which human cognition becomes increasingly dependent upon algorithmically mediated forms of epistemic scaffolding, thereby providing a conceptual bridge between cognitive outsourcing and the broader restructuring of epistemic agency examined in this study. This epoch is marked by the dissolution of traditional cognitive autonomy, as digital cognition becomes an extension of computational rationality and data-driven epistemologies (Schoenherr, 2022). Cognitive colonialism is thus not merely an issue of digital manipulation; it constitutes a redefinition of epistemic sovereignty, demanding an interdisciplinary synthesis that incorporates cognitive neuroscience, AI ethics, and critical algorithm studies to counteract the algorithmic subjugation of human thought (Krauss, 2024).

The relationship between these concepts can therefore be understood as analytical rather than synonymous. Cognitive capitalism identifies the economic logic through which cognitive capacities and knowledge become sources of value; data colonialism identifies the extractive process through which human activities are converted into data resources; and digital hegemony identifies the infrastructural and communicative conditions through which asymmetrical power is reproduced. The present study focuses on the point at which these processes converge in the organisation of cognition and epistemic agency. Its argument is not that every instance of data collection or algorithmic mediation constitutes cognitive colonialism. Rather, cognitive colonialism becomes analytically relevant when computational infrastructures systematically organise cognitive exposure, behavioural prediction, affective responsiveness, or epistemic visibility in ways that strengthen dependence upon dominant technological systems. This formulation establishes a narrower analytical boundary for the concept and provides the basis for examining its manifestations across the seven domains analysed below.

Operating within the broader scope of digital hegemony, data colonialism exemplifies how power in the digital era is increasingly exercised through algorithmic sovereignty (Just, 2024). Unlike traditional ideological hegemony, which functioned

through mass media and discourse, digital hegemony operates at the level of computational infrastructure, embedding control mechanisms into the very fabric of digital interactions (Adomaitis & Grinbaum, 2024). The ability of dominant platforms to dictate algorithmic visibility and shape knowledge hierarchies has led to the emergence of algorithmic epistemic enclosures, in which individuals are not only subject to content curation but are also increasingly conditioned by predictive analytics and reinforcement learning loops (Peuhu, 2021).

Taken together, these perspectives establish the analytical premise of the study: algorithmic systems should be examined not only according to what information they transmit, but also according to how they organise the conditions under which information becomes visible, relevant, persuasive, and actionable. This premise connects the economic extraction of data and attention with the infrastructural organisation of epistemic agency. The seven analytical domains that follow are therefore treated as interconnected manifestations of this broader process, ranging from the outsourcing of individual cognitive functions to the organisation of collective memory, behavioural prediction, affective engagement, political discourse, and epistemic recognition.

Understanding the mechanisms of cognitive colonialism necessitates an interdisciplinary engagement with neurocomputational studies, AI epistemology, and digital critical theory, which collectively reveal how cognition is being reengineered through algorithmic infrastructures (Krauss, 2024). This emergent paradigm underscores the urgency of investigating alternative cognitive architectures that can resist the epistemic asymmetries imposed by global data regimes, as cognitive sovereignty is increasingly contested within a computationally governed epistemic order (Jie, 2022). This emphasis on alternative cognitive architectures resonates with threefold conception of decolonisation include critiquing knowledge production, developing alternative foundations of knowledge, and translating those alternatives into institutional and political practice (Hira, 2023).

Method

This study employs Critical Discourse Analysis (CDA) to examine how digital and algorithmic infrastructures construct, normalise, and legitimise forms of cognitive and epistemic dependence. CDA is appropriate for this purpose because the study is concerned not with measuring the internal operation of proprietary algorithms directly, but with examining the publicly available discourses, institutional representations, and observable practices through which algorithmic systems are described, justified, and experienced (Fairclough, 2023; Wodak, 2024). The study therefore treats algorithmic power as a phenomenon that can be investigated through its discursive manifestations and documented effects rather than through access to proprietary source code.

The evidentiary basis consists of publicly accessible materials associated primarily with major digital platform ecosystems represented in the analysis, including Google, Meta/Facebook, YouTube, Microsoft, Apple, and X. The corpus comprises four related types of material: (1) corporate privacy policies, terms of service, and other governance documents describing data collection, personalisation, recommendation,

or user profiling; (2) publicly available platform interface language, feature descriptions, and marketing materials that frame automation, personalisation, engagement, and user assistance; (3) publicly observable examples of platform outputs or user-facing functions, including search, recommendation, personalisation, notification, and content-ranking features; and (4) peer-reviewed studies, institutional reports, and other documented empirical evidence describing the operation or consequences of these algorithmic practices. The materials were collected between July and August 2024, with the analysis restricted to materials publicly available during this period. These materials provide complementary evidence: corporate documents disclose how platforms formally represent their practices, interface and marketing materials reveal how those practices are discursively normalised, observable outputs provide evidence of how users encounter algorithmic mediation, and independent research permits comparison between corporate representations and documented effects.

The selection followed purposive, criterion-based sampling rather than statistical sampling. A material was included when it met at least one of three criteria: it explicitly described a mechanism relevant to one of the study's seven analytical domains; it provided observable or documented evidence of algorithmic mediation, prediction, personalisation, engagement optimisation, or epistemic filtering; or it articulated a discourse through which such mechanisms were represented as beneficial, necessary, neutral, or inevitable. Materials were excluded when they concerned general technological commentary without a clear connection to algorithmic mediation, cognitive or epistemic processes, or one of the seven analytical domains. The purpose of this sampling strategy was not to construct a statistically representative corpus of all digital communication, but to assemble a transparent set of theoretically relevant exemplars through which recurring relationships between discourse, algorithmic practices, and epistemic agency could be examined.

The analysis was conducted through Fairclough's (2023) three-dimensional CDA framework. At the textual level, the study examines lexical choices, metaphors, modality, presuppositions, rhetorical framing, and recurring terms such as "efficiency," "personalisation," "user experience," and "seamlessness." At the level of discursive practice, it examines how these linguistic constructions are connected to practices of data collection, profiling, recommendation, automation, engagement optimisation, and content curation as documented in platform materials and independent research. At the socio-cultural level, the analysis situates these practices within broader relations of economic power, data extraction, platform dependence, and epistemic inequality. Cross-source comparison is used to distinguish claims made by platforms themselves from independently documented evidence, thereby avoiding the assumption that corporate descriptions of algorithmic systems provide complete accounts of their actual operation.

The seven analytical domains—cognitive outsourcing, psychometric engagement commodification, algorithmic historiographical hegemony, neuroinformational predictive governance, affective psychometric exploitation, cybernetic ideological modulation, and algorithmic knowledge stratification—were selected because together they trace a cumulative movement from individual cognitive dependence to broader forms of epistemic and political organisation. The analysis therefore does not claim direct access to hidden algorithmic mechanisms. Instead, it identifies

recurring relationships between the publicly articulated logic of platforms, their observable user-facing practices, and independently documented algorithmic effects, and interprets these relationships through the conceptual framework of cognitive colonialism.

Analysis

This section employs the CDA to deconstruct the linguistic and semiotic strategies underpinning cognitive colonialism, revealing how dominant technological narratives encode ideological imperatives into algorithmic infrastructures. Digital discourse systematically obscures epistemic subjugation, framing technological hegemony as progress while embedding asymmetrical cognitive dependencies. Through the lexical encoding of inevitability and empowerment, mainstream rhetoric normalises algorithmic sovereignty, perpetuating cognitive extractivism, neural commodification, and data-driven epistemic enclosures.

The analysis dissects how computational linguistics, predictive semantics, and symbolic AI frameworks structure cognitive submission, reinforcing cybernetic determinism and neuro-informational asymmetries. By exposing these discursive mechanisms, this study elucidates the strategic obfuscation of cognitive expropriation, thereby advancing critical resistance against the algorithmic governance of human thought and the systemic erosion of cognitive autonomy.

a. Neurocomputational Thought Enclosure

Cognitive outsourcing is a defining phenomenon within cognitive colonisation, systematically transferring mental processes such as memory, decision-making, and social cognition to digital infrastructures. As individuals relinquish cognitive autonomy to algorithmic systems, digital platforms reshape thought patterns and agency, embedding cognitive dependencies that alter epistemic sovereignty (Mohseni Ahooei, 2024). Cognitive response mechanisms, which were historically studied in traditional media contexts, now intersect with digital infrastructures that influence neural adaptation and epistemic conditioning, as seen in the evolving landscape of social media engagement (Rizkiansyah et al., 2024). This dynamic underscores the emergence of a pervasive, algorithmically mediated cognitive framework wherein digital ecosystems condition human reasoning and behavioural adaptation.

Cognitive outsourcing manifests in both rudimentary and complex forms, spanning from automated note-taking to AI-driven decision-making. AI assistants, productivity applications, and social media platforms manage cognitive burdens by modelling, predicting, and optimising user interactions. Tools such as Google Assistant and Apple's Siri exemplify this process, learning from user inputs to provide adaptive cognitive scaffolding, subtly modulating attention and memory retention (Shin & Prabhu, 2018).

Empirical studies indicate that reliance on digital memory externalisation diminishes neural plasticity and recall efficiency. Sparrow, Liu, and Wegner (2011) demonstrated that retrieval dependency on search engines weakens information

retention. Similarly, the habitual use of navigation technologies, such as Google Maps, impairs spatial cognition and environmental awareness, diminishing intrinsic problem-solving capacities (Ishikawa, 2021). As individuals outsource essential cognitive functions, their ability to engage in abstract reasoning and cognitive synthesis deteriorates, reinforcing algorithmic epistemic hegemony.

This reliance raises profound implications for cognitive sovereignty and epistemic agency. As digital infrastructures mediate intellectual exploration and decision-making, individuals risk a paradigmatic shift where cognition is externally structured rather than internally generated (Carr, 2020). Algorithmic reinforcement further conditions thought patterns, restricting creative problem-solving and epistemic flexibility.

Discourse analysis reveals that corporate rhetoric normalises cognitive outsourcing through linguistic framings of efficiency and necessity. AI developers strategically obscure the risks of cognitive externalisation, embedding ideological imperatives of digital indispensability into public discourse. This constructed narrative legitimises cognitive automation as a structural inevitability, masking its role in reinforcing epistemic dependencies and cognitive colonisation.

The language embedded in marketing campaigns and user interfaces frequently promotes efficiency, empowerment, and seamless integration, framing digital assistants as indispensable cognitive enhancers. Statements such as Google Assistant's claim—"I can help you find your way, set reminders, and even tell you jokes"—position AI as an enabler rather than a substitute for human cognition (Baronchelli, 2024). Similarly, productivity applications like Trello and Asana market task delegation as a hallmark of professionalism and cognitive optimisation, reinforcing the desirability of reliance on algorithmic systems (Thurlow, 2018).

This rhetoric, however, obscures the epistemic consequences of cognitive outsourcing. Terms such as "efficiency" and "convenience" construct a narrative of necessity, framing technological dependence as an adaptive response to an increasingly complex world (Marinova et al., 2022). Tech companies like Microsoft amplify this discourse by highlighting the cognitive burden of multitasking, suggesting that adopting AI-driven collaboration tools such as Microsoft Teams is imperative for efficiency, subtly equating non-adoption with obsolescence (Microsoft, 2021).

The linguistic normalisation of cognitive outsourcing extends beyond advertising to the functionality of digital tools. Productivity applications incorporate directives such as "automate" and "delegate," reinforcing the desirability of offloading cognitive tasks to machines (Hamilton & Yao, 2018). These frameworks condition users to externalise cognitive processes, fostering an implicit devaluation of human memory and problem-solving faculties. Studies demonstrate that reliance on search engines diminishes memory retention, a phenomenon known as digital amnesia (Sparrow, Liu, & Wegner, 2011), while navigation technologies impair spatial cognition by reducing the brain's reliance on environmental mapping (Ishikawa, 2021).

The discourse surrounding digital dependency systematically omits the cognitive trade-offs. Platforms like Evernote and Notion emphasise their role in augmenting organisation and recall, yet rarely disclose how reliance on external memory structures weakens intrinsic recall abilities (Yang et al., 2020). Furthermore, personalisation rhetoric—seen in terms such as "your assistant" and "your experience"—implies user

control while masking algorithmic curation mechanisms that shape cognitive exposure, reinforcing filter bubbles and ideological reinforcement (Pariser, 2011).

Taken together, these examples indicate that cognitive outsourcing is not simply a functional transfer of tasks from individuals to digital tools. The more consequential pattern lies in the discursive normalisation of that transfer. Across corporate descriptions, interface language, and documented patterns of digital dependence, automation is repeatedly presented as efficiency, assistance, and convenience, while the corresponding transfer of memory, attention, and decision-making capacity remains comparatively invisible. The analytical significance of these materials therefore lies in the convergence between functional dependence and its positive discursive framing: the more naturalised cognitive outsourcing becomes, the less visible the transfer of epistemic agency becomes. In this sense, cognitive outsourcing constitutes an initial mechanism through which the broader conditions of cognitive colonialism can emerge.

Once cognitive functions are increasingly externalised to digital infrastructures, the next question concerns what happens to the cognitive resources generated through that dependence. The following section therefore moves from the outsourcing of cognitive functions to the commodification of attention and engagement, examining how platforms transform sustained cognitive involvement into an economic resource.

b. Psychometric Engagement Commodification

The digital landscape has transformed cognitive resources—attention, memory, and decision-making—into commodities, central to the attention economy. Digital platforms systematically capture, fragment, and monetise cognition, embedding algorithmic infrastructures that maximise engagement at the expense of autonomy (Floridi, 2023).

Engineered cognitive entrapment ensures prolonged user interaction, reinforcing a paradigm where attention is both a resource and a product. The digital opposition movement, as exemplified by the Prosperous Justice Party (PKS) in Indonesia, demonstrates how minority political entities leverage social media as a counterbalance against dominant state-backed coalitions, using algorithmic engagement to amplify dissent (Subekti et al., 2024).

Algorithmic manipulation exploits cognitive vulnerabilities through persistent notifications, targeted advertising, and personalised content curation. Social media notifications function as behavioural nudges, designed to sustain engagement and disrupt attentional flow (Lepp, Barkley, & Karpinski, 2015). This commodification of attention fragments cognitive continuity, fostering habitual re-engagement patterns that prioritise algorithmic incentives over user well-being.

Targeted advertising epitomises cognitive exploitation, leveraging behavioural data mining and predictive analytics to construct detailed cognitive profiles. Platforms such as Facebook and Google employ psychographic targeting, converting subconscious cognitive processes into monetisable assets (Zuboff, 2019). Advertisements are crafted to exploit affective states, reinforcing decision-making biases and enhancing persuasive efficacy. A Pew Research Center study found that 72% of Americans

feel persistently surveilled, highlighting the pervasiveness of data-driven cognitive appropriation (Pew, 2018).

Gamification mechanisms further entrench cognitive extractivism, deploying reward-based reinforcement systems to sustain prolonged engagement. This dynamic reconfigures intrinsic motivation, subordinating cognitive agency to algorithmic design principles.

Subscription-based platforms leverage neuro-computational tracking to refine predictive engagement models. Streaming services deploy machine learning algorithms to anticipate viewing preferences, perpetuating algorithmically determined content exposure. This datafication of cognitive interaction reinforces algorithmic epistemic control, where exposure to knowledge is curated rather than autonomously explored. The analysis reveals how digital engagement is framed as empowerment, obscuring underlying manipulative infrastructures.

Taken together, these examples show that the commodification of engagement operates through more than the commercial sale of attention. Platform interfaces, notifications, personalised recommendations, advertising systems, and reward structures converge around a common logic in which sustained cognitive involvement becomes economically valuable. What is analytically significant is therefore not any single engagement mechanism, but the alignment of multiple mechanisms that transform attention from a personal capacity into an object of continuous measurement, prediction, and optimisation. This convergence extends the argument from cognitive outsourcing to a broader economic organisation of cognition.

Having established how platforms commodify individual attention and psychometric engagement, the question now turns to how these extractive mechanisms scale upward from individual cognitive habits to structure collective memory and historical consciousness.

c. Algorithmic Historiographical Hegemony

Digital platforms have become the primary architects of cultural narratives and historical memory, profoundly shaping collective identity. This algorithmic colonisation selectively amplifies dominant perspectives while marginalising alternative epistemologies to organise public memory by marginalising alternative historical narratives and knowledge traditions (Hira, 2023) reinforcing a cognitive asymmetry that privileges those in power (Couldry & Mejias, 2020). By filtering history through algorithmic logics, digital infrastructures dictate visibility, authority, and interpretative legitimacy.

At the core of this epistemic structuring lies content curation algorithms, which determine the prioritisation, dissemination, and reception of historical narratives. Algorithms do not merely organise information but actively construct cultural discourse by privileging hegemonic historiographies and suppressing counter-narratives (Bucher, 2018). The interplay between soft power and digital media platforms, as seen in the Sino-US co-production of *Meg 2: The Trench*, underscores how cultural hegemonies are negotiated through algorithmic content curation, subtly embedding state narratives within entertainment frameworks (Su & Hashim, 2024). Empirical analyses reveal that recommendation engines systematically

reinforce prevalent ideological schemas, homogenising cultural memory and excluding marginalised perspectives (Buolamwini, 2023).

Linguistic encoding in digital search mechanisms further entrenches epistemic control. Autocomplete suggestions systematically reflect societal biases, with marginalised communities being underrepresented in algorithmic retrieval systems (D'Ignazio & Klein, 2020). These disparities shape cognitive perception, subtly curating public consciousness by reinforcing dominant semiotic hierarchies.

Similarly, knowledge panels function as algorithmic epistemic gatekeepers, condensing complex histories into sanitised fragments. These panels frequently filter historical complexities, aligning digital historiography with colonial frameworks while silencing Indigenous and subaltern voices (Darvin, 2016). By privileging algorithmically curated memory, platforms discourage critical interrogation of historical injustices.

This algorithmic cultural hegemony has profound consequences, eroding cultural plurality and historical reflexivity. The digital enclosure of memory transforms knowledge into commodifiable assets, where profit-driven algorithms prioritise monetisable content over epistemic authenticity (Fuchs, 2021). The extraction of cognitive and cultural capital from historical narratives raises ethical dilemmas concerning digital ownership, representation, and the erasure of subaltern epistemologies.

Taken together, the examples of search, recommendation, knowledge panels, and cultural curation indicate that algorithmic historiographical power does not require the explicit rewriting of historical narratives. It can operate through the prior organisation of visibility: determining which accounts are easier to retrieve, which interpretations are repeatedly encountered, and which perspectives receive greater algorithmic prominence. The significance of this pattern is therefore not that algorithms independently produce historical knowledge, but that they participate in structuring the conditions under which particular forms of historical knowledge become more accessible, authoritative, and culturally persistent than others.

If algorithmic curation can shape collective memory by determining which narratives become visible, retrievable, and authoritative, the same infrastructural logic can also operate at the level of individual behaviour. The analysis therefore moves from the algorithmic organisation of historical knowledge to predictive governance, where accumulated behavioural data are used to anticipate and potentially influence future actions and cognitive trajectories.

d. Neuroinformational Predictive Governance

Cognitive surveillance epitomises a paradigmatic transformation in digital epistemology, wherein algorithmic architectures systematically appropriate and restructure cognitive processes. This phenomenon is embedded within the broader framework of surveillance capitalism, a term conceptualised by Zuboff (2019), to delineate the monetisation of behavioural data through predictive analytics. The algorithmic extraction of cognitive patterns transcends mere behavioural tracking, functioning as an instrument of cognitive colonialism, wherein the epistemic sovereignty of individuals is eroded in favour of corporate hegemony. The amplification of misinformation and the construction of algorithmically curated echo chambers have been identified as critical concerns in contemporary digital

epistemology, reinforcing cognitive silos that constrain pluralistic engagement (Latif et al., 2024).

At the intersection of computational neuroscience and psychometric analytics, cognitive surveillance employs hyper-sophisticated methodologies. Documented evidence indicates that algorithmic systems in platforms such as Google and Facebook synthesise user interactions, micro-expressions, and digital footprints into psychographic models capable of forecasting behaviour with uncanny precision. These predictive matrices not only commodify cognition but recalibrate the neural substrates of decision-making, effectively transforming introspection into an externalised economic asset.

The linguistic semiotics embedded in privacy policies and digital governance frameworks operate as discursive instruments of obfuscation. Terms such as “personalisation” and “user experience” function as euphemistic constructs, systematically concealing the asymmetric power dynamics underpinning data commodification (Cohen, 2018). The lexicon of data aggregation—phrases like “anonymised information” and “enhanced user experience”—serves to decontextualise the pervasive surveillance mechanisms employed by digital conglomerates (Himeur et al., 2022). This calculated rhetorical manoeuvre induces a cognitive heuristic in users, engendering a deceptive perception of agency while perpetuating data extraction at an industrial scale.

Beyond the erosion of privacy, the epistemic ramifications of cognitive surveillance extend into the realms of socio-political engineering and behavioural modification. The neural plasticity of human cognition renders individuals susceptible to algorithmic conditioning, wherein iterative exposure to curated content modifies heuristic biases and decision-making trajectories (Liu, 2012). By structuring the digital infosphere to optimise engagement, these platforms subtly reconfigure cognitive autonomy, subordinating individual volition to corporate imperatives.

The entrenchment of cognitive surveillance bears profound implications for democratic pluralism. Algorithmic curation fosters epistemic insularity, reinforcing confirmation biases and engendering ideologically insular echo chambers (Sunstein, 2018). The resultant fragmentation of the public sphere compromises discursive heterogeneity, undermining the dialectical foundations of democratic deliberation.

The convergence of platform documentation, privacy discourse, and independently documented profiling practices therefore suggests that surveillance operates not only through the collection of information but through the conversion of behavioural traces into predictions about future conduct. The analytical significance of this process lies in the shift from observing users to constructing probabilistic expectations about them. Once these expectations become inputs into recommendation, ranking, advertising, or personalisation systems, data extraction becomes connected to the active organisation of future possibilities. This provides the analytical bridge to the affective dimension of algorithmic influence examined next.

Predictive governance provides the infrastructural capacity to anticipate behaviour, but prediction alone does not explain how engagement is intensified. The following section therefore examines the affective dimension of algorithmic

mediation, focusing on how emotional responses can become inputs into systems designed to maximise attention, interaction, and behavioural responsiveness.

e. Affective Psychometric Exploitation

The algorithmic modulation of emotional states constitutes a pivotal convergence of computational psychometrics, neuro-affective engineering, and socio-digital dynamics. Digital platforms leverage algorithmic architectures to exploit affective triggers—outrage, fear, and exhilaration—maximising engagement while commodifying emotional responses as integral assets of surveillance capitalism (Zuboff, 2019). This exploitation reframes cognition as an economised substrate, subject to algorithmic optimisation.

Emotionally charged stimuli elicit disproportionate user interaction, a phenomenon rooted in affective arousal theory, which posits that high-valence stimuli enhance attention and mnemonic consolidation (Bradley & Lang, 2007). Analysis of online content and platform-mediated engagement indicates that emotionally arousing material can receive disproportionate attention and interaction, while platform recommendation and ranking systems can amplify content according to engagement-related signals. In this context, the relevant issue is not that platforms necessarily optimise emotion as an independent objective, but that engagement-oriented infrastructures can create conditions in which emotionally arousing content acquires greater visibility and circulation.

Critical Discourse Analysis (CDA) elucidates the linguistic mechanisms underpinning algorithmic emotional manipulation. Clickbait architectures employ hyperbolic and elliptical constructions—e.g., “You won’t believe what happened next!”—designed to trigger compulsive engagement while obfuscating informational integrity. Such discursive strategies instrumentalise cognitive biases, reinforcing polarisation through affectively polarised lexicons (Bujić, 2023). By manufacturing an “us vs. them” rhetorical schema, these linguistic modalities intensify ideological insularity, engendering algorithmically curated echo chambers (Sunstein, 2018).

The epistemic implications of algorithmic emotional engineering extend into the domain of cognitive colonialism. The prioritisation of emotive stimuli over dialectical complexity fosters a cognitive infrastructure wherein deliberative reasoning is systematically eroded. This phenomenon precipitates an erosion of individual cognitive sovereignty, with algorithmically dictated affective responses dictating socio-political engagement patterns. The resultant diminution of critical faculties constrains the capacity for autonomous cognition, rendering users increasingly susceptible to digital hegemony.

The long-term ramifications of sustained exposure to emotionally manipulative content manifest in neuropsychological desensitisation and heightened affective volatility. Prolonged algorithmic exposure correlates with exacerbated anxiety levels and the erosion of rational cognition (Liu, 2012). As digital dependency intensifies, cognitive autonomy is supplanted by algorithmic affective conditioning, entrenching an emergent paradigm where emotional validation supersedes epistemic rigour. This transformation signifies a fundamental shift in the

architecture of human cognition, wherein algorithmic imperatives restructure both individual and collective rationalities.

The exploitation of affective responses provides a bridge between individual engagement and collective political behaviour. When emotional arousal becomes closely connected to systems of visibility, recommendation, and interaction, the consequences can extend beyond individual attention to political communication and public opinion. The following section therefore examines how algorithmically mediated discourse can participate in the modulation of political narratives and ideological alignment.

f. Cybernetic Ideological Modulation

Political engineering through algorithmic media constitutes a paradigmatic shift in the epistemology of governance, wherein digital architectures recursively shape political cognition, electoral dynamics, and policy formation. Contemporary digital infrastructures function as complex cybernetic systems, orchestrating information flows through algorithmic feedback loops that optimise engagement at the expense of epistemic integrity. This machinic rationality, embedded within platforms such as Facebook, Twitter, and Google, recalibrates the public sphere, engendering an emergent order of political discourse dictated by algorithmic logics rather than deliberative reason.

The entanglement of algorithmic amplification and human cognitive biases engenders a hyper-reactive political environment, wherein the dynamics of virality supplant the traditional vectors of rational discourse. The convergence between platform discourse and documented algorithmic practices suggests that emotionally charged, polarising content propagates with greater velocity and virality than nuanced, fact-based. Such algorithmic affordances catalyse the formation of epistemic silos, wherein ideologically insular communities coalesce around algorithmically curated information diets, reinforcing confirmation biases and exacerbating ideological bifurcation.

The 2016 U.S. presidential election provides a documented illustration of how psychographic profiling and micro-targeted political communication can connect behavioural data with individually differentiated political messaging (Tierney, 2024). For the present analysis, the significance of this case does not lie in attributing electoral outcomes to algorithmic systems. Rather, it illustrates how political discourse can be increasingly organised through data-driven segmentation, in which different audiences are addressed through messages tailored to inferred behavioural and psychological characteristics.

Concurrently, the strategic deployment of disinformation campaigns by state and non-state actors accentuates the algorithmic vulnerabilities of digital ecosystems. The documented activities associated with the Internet Research Agency further illustrate the vulnerability of digitally mediated political discourse to coordinated amplification and synthetic participation (Mueller, 2019). These activities should not, however, be treated as evidence that algorithmic systems independently determine political outcomes. Their analytical relevance lies in demonstrating how

computational infrastructures can provide channels through which organised actors exploit existing mechanisms of visibility, targeting, and information circulation.

The CDA offers a potent methodological apparatus for deconstructing the semiotic architectures underpinning algorithmically amplified political discourse. Sensationalised framing strategies, which operationalise affective heuristics to trigger cognitive shortcuts, constitute a primary mechanism of discursive manipulation (Oon, 2023). This distortionary dynamic erodes the epistemological scaffolding of democratic deliberation, privileging affective immediacy over analytical depth.

Algorithmic suppression of dissent constitutes a corollary phenomenon, wherein the infrastructural biases of digital platforms engender asymmetries in information visibility. The algorithmic filtration mechanisms that prioritise engagement-driven content inadvertently marginalise heterodox perspectives, generating filter bubbles that entrench ideological homogeneity (Pariser, 2011). This algorithmically induced fragmentation exacerbates socio-political polarisation, constraining the potentiality for dialectical synthesis and eroding the foundational tenets of pluralistic discourse.

Taken together, the evidence indicates that algorithmic political influence is best understood as an interaction between platform affordances, data-driven targeting, discursive framing, and organised political action rather than as autonomous algorithmic control. What emerges from the analysis is a transformation in the conditions of political visibility: actors increasingly compete not only over what is said, but over how messages are targeted, amplified, emotionally framed, and made visible to particular audiences. This interaction between computational infrastructure and political discourse constitutes a further dimension of cognitive colonialism because it affects the informational conditions within which political judgement is formed.

The political modulation of discourse demonstrates how algorithmic systems can influence which viewpoints gain visibility and traction. Yet the consequences of such filtering extend beyond political persuasion to the broader distribution of epistemic recognition. The final analytical domain therefore examines how digital infrastructures stratify access to knowledge, participation, and epistemic visibility, particularly across socially and economically marginalised groups.

g. Algorithmic Knowledge Stratification

Epistemic injustice provides a complementary concept for analysing the unequal distribution of credibility, interpretative resources, and opportunities to participate in knowledge production (Fricker, 2007). In this study, it is treated as a possible consequence of unequal digital and algorithmic arrangements rather than as a synonym for cognitive colonialism. Fricker's distinction between testimonial and hermeneutical injustice is particularly relevant: algorithmic systems may contribute to testimonial injustice when the credibility or visibility of particular speakers is systematically disadvantaged, and to hermeneutical injustice when dominant systems of classification and representation make some experiences or forms of knowledge less legible within the prevailing digital epistemic environment. The digital divide further intensifies these inequalities by shaping who can access, participate in, and benefit from digital knowledge infrastructures.

Empirical analyses demonstrate that content generation within major digital platforms disproportionately reflects the epistemic perspectives of an elite minority, amplifying entrenched biases and reinforcing systemic exclusions (Couldry and Mejias, 2020). This cybernetic structuring of discourse privileges narratives optimised for algorithmic engagement, sidelining non-conforming epistemologies and perpetuating structural epistemic disenfranchisement. The phenomenon of cultural imperialism, as exemplified by Saloma's career in Malaya, reflects broader historical patterns where hegemonic forces dictate epistemic legitimacy through media and cultural production, a trend that continues in algorithmically mediated environments (Abdullah et al., 2024).

The digital divide operates as both a technological and epistemological chasm, delineating access to participation in digital knowledge production. The stratification of digital access results in the systematic marginalisation of socio-economically disadvantaged communities, effectively excluding them from the discursive architectures of the digital public sphere (Pew, 2021). Algorithmic gatekeeping mechanisms further entrench these inequalities, amplifying dominant voices while algorithmically deprioritising subaltern epistemologies. The hierarchical filtering mechanisms of digital platforms, engineered to optimize engagement-driven content dissemination, subvert democratic knowledge production by disproportionately amplifying sensationalised narratives at the expense of epistemic diversity (Chadwick, 2017).

Algorithmic architectures impose additional epistemic constraints by selectively valorising linguistic and semiotic modalities aligned with hegemonic power structures. The algorithmic privileging of mainstream narratives, often framed through dominant ideological lenses, operationalises digital epistemic injustice by suppressing the legitimacy of marginalised voices (Noble, 2018). Research demonstrates that the linguistic codification of social justice discourse frequently embeds latent biases, structuring the digital dissemination of knowledge in ways that reinforce epistemic hierarchies (Rousseau, 1999).

Taken together, the evidence suggests that algorithmic knowledge stratification operates through both access and recognition. Inequality is therefore not exhausted by whether individuals possess digital technologies; it also concerns whether their voices, experiences, languages, and forms of knowledge are rendered visible and intelligible within dominant computational systems. The analytical contribution of this final domain is consequently to extend the argument from individual cognitive dependence and political modulation to the distribution of epistemic participation itself. Cognitive colonialism, in this sense, becomes visible not only in what users are encouraged to think or attend to, but also in whose knowledge is more readily recognised within digital infrastructures.

Discussion

The findings of this study indicate that cognitive colonialism should not be understood merely as an unintended byproduct of digital innovation. Rather, the convergence of data extraction, engagement optimisation, prediction, curation, and

algorithmic visibility creates structural conditions through which cognitive and epistemic dependence can be reproduced within contemporary algorithmic capitalism. By integrating Critical Discourse Analysis with theories of digital epistemology and cognitive extractivism, this research answers its primary inquiries regarding how cognitive colonialism manifests in algorithmic media and how global data regimes orchestrate epistemic hegemony.

Unlike forms of ideological control that operate primarily through explicit political discourse, algorithmic governance can also operate through less visible infrastructural processes of data collection, ranking, recommendation, profiling, and content distribution. The analysis reveals a recursive escalation from individual cognitive outsourcing (Subsection a) and attention commodification (Subsection b) to collective historiographical erasure (Subsection c), predictive behavioural governance (Subsection d), affective exploitation (Subsection e), ideological modulation (Subsection f), and epistemic stratification (Subsection g). This multi-layered architecture confirms that digital platforms do not merely mediate information; they condition the very parameters of human cognitive agency and epistemic validation.

These findings extend existing scholarship by bridging critical algorithm studies (Couldry & Mejias, 2020; Zuboff, 2019) with cognitive sociology. While prior literature has extensively documented data extractivism and surveillance capitalism, this study demonstrates how discursive framing (“efficiency”, “personalisation”, “seamlessness”) serves as an ideological lubricant that normalises cognitive subordination. By linguistically framing externalisation as empowerment, digital conglomerates successfully mask the transfer of epistemic sovereignty from human actors to opaque computational systems.

However, several tensions emerge from these findings. A critical tension exists between the user's subjective sense of agency and objective algorithmic determinism. While users experience digital tools as neutral enhancers of productivity and communication, CDA exposes how presuppositions and lexical choices embedded in platform interfaces actively constrain cognitive pluralism. Furthermore, distinguishing between mitigation (individual coping strategies) and structural transformation is vital; without addressing the underlying political economy of data ownership and algorithmic infrastructure, palliative measures remain complicit in sustaining epistemic asymmetry.

Conclusion

This study has argued that cognitive colonialism is best understood as a structural condition emerging where data extraction, algorithmic mediation, engagement optimisation, prediction, and epistemic filtering increasingly shape the conditions of cognitive and knowledge agency. The analysis does not imply that algorithms mechanically determine human thought. Rather, it demonstrates how the convergence of technological infrastructures and discursive practices can make particular forms of attention, interpretation, behaviour, and knowledge more available, more visible, or more economically valuable than others. This distinction is important because it locates cognitive colonialism not in technological mediation itself, but in the

asymmetrical organisation of the conditions under which cognition and epistemic participation take place.

Genuine cognitive decolonisation therefore requires interventions at multiple institutional levels. First, regulators and platforms should strengthen algorithmic transparency and enable independent auditing of recommendation, profiling, and ranking systems. Second, statutory limits should be established on the collection and secondary use of behavioural and cognitive data, particularly where such data are used for profiling or behavioural prediction. Third, users should have meaningful rights to contest automated profiling, recommendation, and categorisation decisions that affect their access to information. Fourth, public institutions and research communities should support pluriversal and decentralised knowledge infrastructures that reduce dependence on dominant platforms. Finally, critical AI and media literacy should be incorporated into education so that individuals can understand not only misinformation and manipulation but also the ways in which algorithmic systems structure attention, visibility, and epistemic choice. These measures should be understood as transitional safeguards rather than as a complete solution. Longer-term cognitive decolonisation requires the development of more pluralistic, non-extractive, and publicly accountable digital infrastructures in which computational systems remain subject to meaningful human and democratic control.

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