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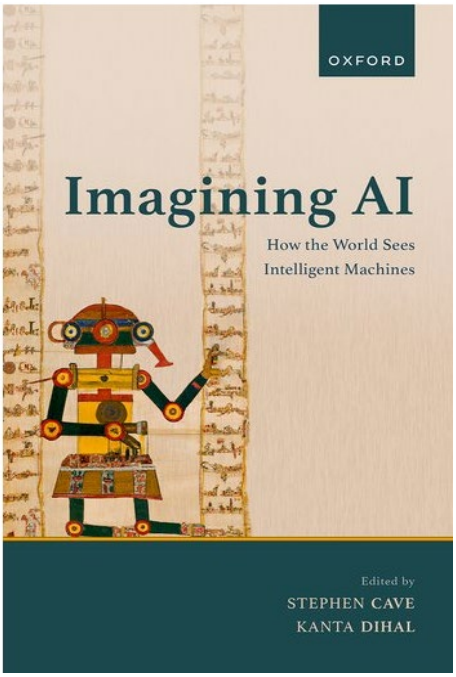
Imagining AI: How the World Sees Intelligent Machines

Amine Oudghiri

Global Interdisciplinary AI Narratives: A Review of Imagining AI: How the World Sees Intelligent Machines edited by Stephen Cave and Kanta Dihal

Amine Oudghiri
Marshall University



Book Review**: *Imagining AI: How the World Sees Intelligent Machines* edited by Stephen Cave and Kanta Dihal (Oxford: Oxford UP, 2023)**

Amine Oudghiri is a Visiting Assistant Professor of English at Marshall University in Huntington, West Virginia. His research interests include English as a second language (ESL), systemic functional linguistics (SFL), science and technical writing, advocacy and policy, international student recruitment and retention, global leadership, and leadership and language.

In *Imagining AI: How the World Sees Intelligent Machines*, a product of the Global AI Narratives (GAIN) at the University of Cambridge, editors Stephen Cave and Kanta Dihal "explore how AI is portrayed across cultural, geographical, regional, linguistic, and other boundaries and borders." The editors further examine "how these portrayals affect public perceptions of AI around the world."[1] *Imagining AI* is divided into four parts; each part comprises a geographically focused collection of essays. Collectively, the cluster of essays supports the editors' view that global attitudes and approaches to AI are essentially "shaped by the particular histories, philosophies, ideologies, religions, narrative traditions, and economic structures of different countries, cultures, and peoples."[2] This volume of essays, produced by an interdisciplinary group of contributors from academia and the arts, is an invaluable resource not only for novice and veteran AI scholars but also for students and experts in the humanities, social sciences, and psychology.

In the introduction to the volume, Cave and Dihal entertain a broad-strokes account of myths and realities permeating artificial intelligence (including, but not limited to, legend, literature, film, and policy documents) by postulating that AI started as a cultural, not technological, phenomenon. Long before the term 'artificial intelligence' was coined in the United States in 1956, certain cultures held century- and millennium-old visions of intelligent machines.[3] The advent of digital technology transformed ancient visions of AI into industrialized forms. Despite AI now being a global phenomenon, Cave and Dihal contend that an informed understanding of how AI will develop is bound to "an understanding of the many sites in which its story is unfolding."[4] Hence, the local property of AI is a significant component of a central, global perception of this ever-evolving form of technology. Considering the debate surrounding the responsible development of AI being dominated by anglophone actors, Cave and Dihal argue that there are shared themes across continents, including realms outside the anglophone sphere like 'anti-colonial' or 'decolonial' AI narratives (e.g., Latin America, South Asia, etc.). Of equal importance to the reader, nonetheless, are limitations surrounding individual cultural perspectives. These limitations, the editors argue, culminate into both privileges and prejudices in their immediate contexts. *Imagining AI*, in essence, tackles the question of AI diversity vis-à-vis its risks and value-laden benefits on two intrinsic levels: current AI narratives and the requisite intellectual engagement. Cave and Dihal admit, however, that while they have "aimed to be broadly geographically representative," they confronted the age-old dilemma that "some regions are much more intensely studied than others."[5] Sub-Saharan Africa and India are two such examples of understudied regions.

A comparative prelude to the subsequent volume parts follows the introduction. In this transition chapter, Cave and Dihal

[1] Stephen Cave and Kanta Dihal, "Acknowledgments," in *Imagining AI: How the World Sees Intelligent Machines*, ed. Stephen Cave and Kanta Dihal (Oxford: Oxford University Press, 2023), ix.
[2] Cave and Dihal, "Introduction," 4.
[3] Zhang Baichun and Tian Miao, "Attitudes of Pre-Qin Thinkers toward Machinery and their Influence on Technological Development in China," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 353-360.
[4] Cave and Dihal, "Introduction," 5.
[5] Cave and Dihal, "Introduction," 7.

examine terms depicting intelligent machines in five language sets: Germanic, Slavonic, Romance, Chinese, and Japanese. The editors succinctly and eloquently discuss these linguistic terms' influence on perceptions of modern AI technologies in countries where these languages are spoken as well as those from around the world.

Part I of the volume, "Europe," features essays by Madelaine Chalmers, Eleonora Lima, Hans Esselhorn, Bogna Konior, Anton Pervushin, and co-authors Anzhelika Solovyeva and Nik Hynek. Of interest to scholars vested in the perceptions and development of AI in select European countries, including Russia, is Chalmers' essay "AI Narratives and the French Touch." In her precursor piece to the subsequent essays and respective volume parts, Chalmer explores the birth of technology from the perspective of late-nineteenth-century French culture. Not only is the essay a compelling overview of how distinctly AI can develop across cultures, but Chalmer also eloquently charts the development of the French AI narrative by qualifying it as being distinct from "the fragmentation of Anglo-American modernism or the fascist sex-and-speed machines of Italian futurism," as Cave and Dihal put it.[6] Despite being a departure from Chalmer's essay, Lima further investigates individual AI cultures' distinctive underlying artistic intricacies by emphasizing Italy's 1980s counterculture promoting the high fluidity that the android and cyborg images of the time afforded. In line with Cave and Dihal's approach to AI from a literary perspective is Esselhorn's investigation of two distinct phases of AI representation in Germany, phases marked by "an ambivalence towards progress arising from the shock of modernity, and an emphatic relation to nature that can be traced back to Goethe and the Romantic writers."[7] Konior's essay continues Part I's interest in the perceptions and development of AI in the eastern part of Europe by exploring Polish writer Stanislaw Lem's *Summa Technologiae*, a futurology masterpiece that "reframes theological questions as technological problems."[8] Konior's consummate synthesis of Lem's oeuvre is a confirmation of the editors' interest in approaching AI from various lenses, including theology, biology, and politics. Of particular note for scholars of AI in science fiction is Pervushin's essay, a departure from Italy's pop culture references and France's 'meta-reflexive narrative play.' Pervushin emphasizes the Soviet period's special portrayal of intelligent machines as "an instrument […] used by bourgeois society to suppress and further exploit the proletariat."[9] Pervushin's Soviet perception of AI is challenged by Solovyeva and Hynek's conceptual AI framework from a Bolshevik and Russian avant-garde perspective. Solovyeva and Hynek emphasize "the deep-rooted historical experiences and cultural tendencies [that] continue to inform and shape the direction of Russia's scientific approach to—and social imaginary of—AI."[10]

Essays by Stephen Cave and Kanta Dihal, Edward King, Raúl Cruz, Macarena Areco, Jason Edward Lewis, and Noelani Arista

[6] Cave and Dihal, "Introduction," 8.
[7] Hans Esselhorn, "German Science Fiction Literature Exploring AI: Expectations, Hopes, and Fears," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 73.
[8] Bogna Konior, "The Gnostic Machine: Artificial Intelligence in Stanislaw Lem's *Summa Technologiae*," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 90.
[9] Cave and Dihal, "Introduction," 9.
[10] Anzhelika Solovyeva and Nik Hynek, "The Russian Imaginary of Robots, Cyborgs, and Intelligent Machines," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 127.

constitute Part II, "The Americas and Pacific," of *Imagining AI*. The first essay under this second part was composed by the volume's own editors, Cave and Dihal. It will be apparent to the reader that this essay is the only essay in the volume that conceptualizes AI from an Anglophone, Western perspective, marked predominantly by Hollywood's global reach. Cave and Dihal argue mainstream narratives of AI not only are distinctively American but also "reflect the techno-utopianism of the European settlers." These narratives, the editors add, are "marked by a history of violence and strictly enforced hierarchies of domination."[11] In the next essay, King adopts an analogous approach to AI in a purely Brazilian context, albeit from an "afro-futurist aesthetics" perspective aimed at challenging "the normalized disparity between Black culture and science and technology."[12] The revolutionary stance in King's essay, marked by "fusing media activism with the struggle against racism,"[13] is further amplified by Cruz in the next essay, a piece marked by a parallel fusion of AI science fiction with 'Mesoamerican' cultures. In his piece, one of the shortest essays of the volume, Cruz celebrates the 'ancestral aesthetics' of Mesoamerican cultures, combined with contemporary inspirations of technology. The essay is populated by art figures devised by Cruz himself; the drawings emphasize "characteristics of social groups that are not normally included in science narratives, technology, fantasy, or science fiction (SF)."[14] Moving on to the South American nation of Chile – and in a move that is anything but a departure from Cruz's position, Areco references three seminal works by Chilean author Jorge Baradit to showcase how technologies are "deployed in the service of economic systems pursuing projects whose true masterminds are unknown agents motivated by inscrutable objectives, leading to nothing but slavery and suffering."[15] The last two essays of Part II were written from the indigenous perspectives of North America and the Pacific/Moananui*ā*kea. In his essay – another short piece, Lewis further stresses the element of resistance; the essay was inspired by a series of conversations and workshops Edward Lewis held with indigenous communities of the region. The goal of these meetings was to "look to ontologies and epistemologies that grow from different roots than those concepts of being and knowledge frameworks out of which the current mainstream vision of AI develops."[16] In the last essay of Part II, Arista explores Maoli Intelligence, a gateway to Hawaiian people's ancestral knowledge. Arista's essay coheres around the richness of Indigenous cultures and heritage; it reinforces Edward Lewis's Indigenous argument and proposes that "technology can assist Indigenous people in organizing data in ways that allow us to synthesize

[11] Stephen Cave and Kanta Dihal, "Fiery the Angels Fell: How America Imagines AI," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 164.
[12] Cave and Dihal, "Introduction," 10.
[13] Edward King, "Afrofuturismo and the Aesthetics of Resistance to Algorithmic Racism in Brazil," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 181.
[14] Ra*ú*l Cruz, "Artificial Intelligence in the Art of Latin America," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 185.
[15] Macarena Areco, "Imaginaries of technology and subjectivity: Representations of AI in Contemporary Chilean Science Fiction," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 205.
[16] Jason Edward Lewis, "Imagining Indigenous AI," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 210.

ancestral knowledge and rebuild systems of knowledge keeping and transmission."[17]

Part III, "Africa, Middle East, and South Asia," extends the conversation about AI being a cultural phenomenon and is composed of essays by Upamanyu Pablo Mukherjee, Abeba Birhane, Rachel Adams, and co-authors Kanta Dihal, Tomasz Hollanek, Nagla Rizk, Nadine Weheba, and Stephen Cave. In the first essay of Part III, Mukherjee explores AI in the fiction work of Satyajit Ray, an Indian writer, filmmaker, musician, and designer. Mukherjee challenges the notion that only the 'advanced' science and literature of Europe and North America are to be taken seriously and calls for the inclusion of those of "the 'backward' of the post-colonial world."[18] In the next essay, Birhane confirms that this systematic exclusion, echoed previously by Mukherjee, is indeed a by-product of orthodox colonialism. Birhane adds that the monopolies of Western technology aim to not only dominate but also influence the local discourses. Successful implementation of technology in the service of development, Birhane argues, "means prioritizing the welfare of the most vulnerable in society and the benefit of local communities" over "distant Western start-ups or tech monopolies."[19] Rachel Adams' essay follows; Adams supports Mukherjee's and Birhane's call to decolonize AI and qualifies contemporary AI as 'complex' and 'multifaceted' forms of imperialism. As part of her work in South Africa, Adams strived to fortify local responses to AI, especially in equipping policy makers with the apparatus necessary to make informed decisions in responding to the most pressing challenges instigated by AI technologies. Of equal substance to the conversation revolving around decolonizing AI discourses is the last essay of Part III, a collaboration between the Access to Knowledge for Development Center at the American University in Cairo and the Leverhulme Centre for the Future of Intelligence at Cambridge. Covering the Middle East and North Africa (MENA) region, this essay by Dihal, Hollanek, Rizk, Weheba, and Cave essentially "analyze the various factors that make the MENA region a unique environment for imagining futures with intelligent machines" and "map local visions of technological progress onto the region's complex past, as well as on contemporary economic and political struggles."[20]

The volume concludes with "East and South East Asia," a cluster of essays by Hirofumi Katsuno and Daniel White, So Young Kim, Bing Song, Zhang Baichun and Tian Miao, Yan Wu, Feng Zhang, and Cheryl Julia Lee and Graham Matthews. The evident shift from a celebration of human intelligence and cultural heritage to a discussion of the various roles and opportunities afforded by imaginary machines, a creation of human capacity, in the social and scientific realms distinguishes the first essay of Part IV. Katsuno and White inaugurate Part IV, the largest part of the volume,

[17] Noelani Arista, "Maoli Intelligence: Intelligence Data Sovereignty and Futurity," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 229.

[18] Upamanyu Pablo Mukherjee, "From Tafa to Robu: AI in the Fiction of Satyajit Ray," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 244.

[19] Abeba Birhane, "Algorithmic Colonization of Africa," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 257.

[20] Kanta Dihal, Tomasz Hollanek, Nagla Rizk, Nadine Weheba, and Stephen Cave, "AI Oasis? Imagining Intelligent Machines in the Middle East and North Africa," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 275.

by portraying Japanese imaginary machines as being deployed in the service of humans (i.e., sharing a 'human-robot concern'), as opposed to Westen robotic imaginary intelligent machines that represent a risk to the human race. The notion that "emotion and heart (*kokoro*) [distinguish] Japan's AI and robot imaginaries from those in the West"[21] is not only a departure from humans' conventional, orthodox view of machines (i.e., predominantly marked by technicality and prudence) but also a revolutionary assertion that human-robot connection is real, one that dissolves traditional views (made in some of the volume's earlier parts) that robots are distant agents and mainly devoid of human emotions. Kim, in the next essay, hails South Korean policy making in establishing, among other initiatives, the National AI Strategy of 2019. Subsequent to Kim's celebration of "the development of AI policy-making in South Korea [being] permeated by developmentalism characteristic of the developmental decades of government promotion of technology-led growth," the author concludes the essay with the query, "Can AI indeed meet such expectations in the post-catch-up era? At this point, the jury is still out."[22] The last four chapters of Part IV are exclusive to China and address various aspects of Chinese AI narratives. While Song explores the role three predominant philosophical schools of thought (i.e., Confucianism, Daoism, and Buddhism) has played in "[shaping] Chinese thinking towards the development of frontier technologies and the approach to human-machine relationships,"[23] Baichun and Miao, in Part IV's shortest essay, examine pre-Qin Dynasty China's attitudes towards new imaginary technologies, especially in the battlefield – attitudes characterized by both perceived benefits and alleged concerns. In the next two essays, Wu and Zhang entertain science fiction stories produced in China. Wu focuses on stories written in the period between 1949 and 1983. Although, for the most part, AI characters in these stories are shown to serve and assist humans in data collection and manual labor, Wu observes that "the Chinese population treated the possibility of human-machine conflict as a subject for humour."[24] Zhang, building on Wu's examination of the numerous contributions of AI short story-telling to thriving AI narratives in China, examines machine-learning algorithms in recent science fiction stories and postulates that "Stories about how AI constantly shocks and overwhelms the feelings, values, ethics, and moralities of humankind are more relevant to the present." Not only will these stories "become an indispensable part of our social and cultural psychology," Zhang adds, but they will also "consequently influence the future relationship between AI and human beings."[25] In Part IV's last essay, "the most comprehensive of the surveys of AI narratives corpora discussed in this

[21] Hirofumi Katsuno and Daniel White, "Engineering Robots with Heart in Japan: The Politics of Cultural Difference in Artificial Emotional Intelligence," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 312.

[22] So Young Kim, "Development and Developmentalism of Artificial Intelligence: Decoding South Korean Policy Discourse on Artificial Intelligence," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 355.

[23] Cave and Dihal, "Introduction," 12.

[24] Yan Wu, "Artificial Intelligence in Chinese Science Fiction: From the Spring and Autumn and Warring States Periods to the Era of Deng Xiaoping," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 369.

[25] Feng Zhang, "Algorithm of the Soul: Narratives of AI in recent Chinese Science Fiction," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 380.

collection,"[26] Lee and Matthews echo Katsuno and White's positive perception of intelligent machines. The authors present a focused evaluation of the history of Singaporean AI narratives and approach the latter positively – an optimistic and partially prudent vision that depicts "scenarios in which AI evolves alongside humankind, even as they probe the potential risks of such a vision."[27]

Many libraries' collections could benefit from a seminal work like *Imagining AI: How the World Sees Intelligent Machines*, an essential contribution to a thriving interdisciplinary conversation about AI and intelligent machines. Although many undergraduate students could struggle with the density of jargon contained in each essay, the volume should be intuitive to advanced undergraduate and graduate students in the field. AI experts and scholars will appreciate the wealth of perspectives and lenses that come with global AI narratives; it should come as no surprise that cultural and historical narratives of AI are oftentimes sidelined at the expense of technical ones

[26] Cave and Dihal, "Introduction," 13.
[27] Cheryl Julia Lee and Graham Matthews, "Intelligent Infrastructure, Humans as Resources, and Coevolutionary Futures: AI Narratives in Singapore," in Cave and Kanta, *Imagining AI: How the World Sees Intelligent Machines*, 396.