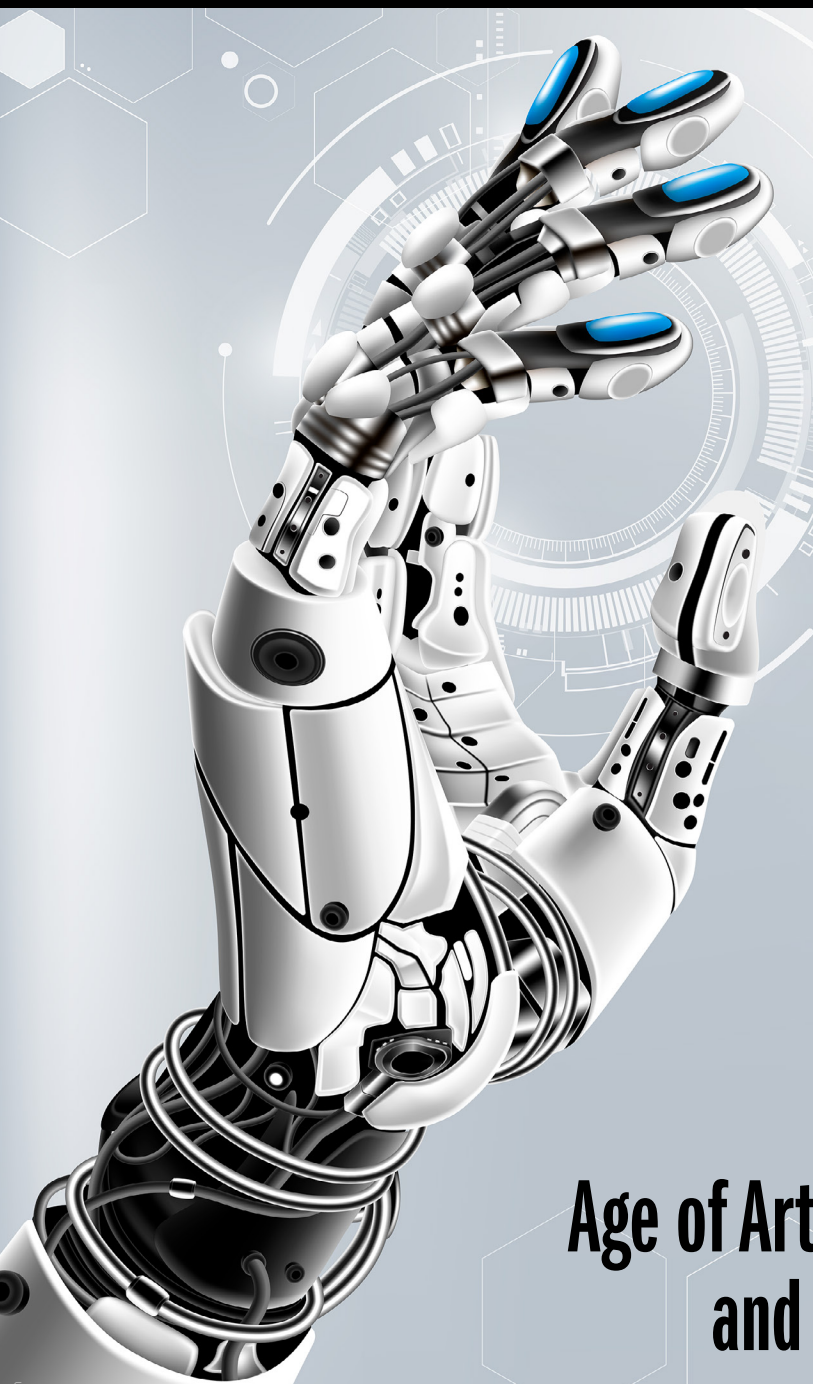


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SPECIAL ISSUE ON

Envisioning an African Future in the Age of Artificial Intelligence (AI) and Emerging Technologies

EDITED by Prof Tapiwa Chagonda

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The University of Johannesburg acquired *The Thinker* in April 2019 from Dr Essop Pahad. Over the last decade, *The Thinker* has gained a reputation as a journal that explores Pan-African issues across fields and times. Ronit Frenkel, as the incoming editor, plans on maintaining the pan-African scope of the journal while increasing its coverage into fields such as books, art, literature and popular cultures. *The Thinker* is a 'hybrid' journal, publishing both journalistic pieces with more academic articles and contributors can now opt to have their submissions peer reviewed. We welcome Africa-centred articles from diverse perspectives, in order to enrich both knowledge of the continent and of issues impacting the continent.



Prof Ronit Frenkel

Nedine Moonsamy is an associate professor in the English department at the University of Johannesburg. She is currently writing a monograph on contemporary South African Fiction and otherwise conducts research on science fiction in Africa. Her debut novel, *The Unfamous Five* (Modjaji Books, 2019) was shortlisted for the HSS Fiction Award (2021), and her poetry was shortlisted for the inaugural New Contrast National Poetry Award (2021).



Nedine Moonsamy

Tamia Phiri is a PhD candidate in the field of English literature at the University of Johannesburg. Her doctoral research explores trauma, memory, and Coloured identity in post-apartheid South African texts. She is also a poet and creative writer, with poetry featured in the *Journal of African Youth Literature* and *Brittle Paper*.



Tamia Phiri

All contributing analysts write in their personal capacity

Tapiwa Chagonda is an Associate Professor of Sociology and the Head of the Centre for Data Ethics at the University of Johannesburg. His research interests are around AI ethics and Zimbabwe's socio-political and socio-economic struggles. Email: tchagonda@uj.ac.za

Daniel Godwin is a lecturer at the Department of Political Science, Faculty of the Social Sciences, University of Ibadan. His research interests focus on political parties and democratisation, elections and election reforms, technology and election administration, conflict resolution, and management. Email: danielharry700@gmail.com.

Ireen Mmatlou Manyuha is a Master of Arts student in Strategic Communication, with a keen focus on digital communications, artificial intelligence, and digital health. Her research explores the intersection of these fields, aiming to enhance communication strategies in the digital age. Email: iryntagwai@gmail.com

Elizabeth Lubinga lectures at the University of Johannesburg's Department of Strategic Communication in South Africa as an Associate Professor. Her research focus areas are Strategic Health Communication, Health Message Strategies, Health Campaigns, Health Awareness relating to the marginalized in society as well as Digital Health Disparities among others. Email: elizabethl@uj.ac.za

Irene Marindi holds a Doctoral degree in sociology from the University of Johannesburg (UJ). Her research interests focus on gender, work and Fourth Industrial Revolution (4IR). Email: irenem@uj.ac.za

Mogau Mashishi holds a Master's Degree from the University of the Witwatersrand. Their research interests are around M-Commerce. Email: mogau.m.mashishi@gmail.com

Mpho Primus is an NRF-rated researcher specializing in computational linguistics and serves as the co-director at the Institute for Intelligent Systems, University of Johannesburg. She is the founder of Primus Technology Hub, a boutique consulting and advisory firm specialising in data strategy. Email: mraborife@uj.ac.za

Botlhale Phurulla Modisaotsile is an Economics Ph.D. candidate at Rhodes University and currently works as a Political, Economic Analysis and Research (PEAR) Graduate Trainee at the Export Credit Insurance Corporation of South Africa. His primary research interests are macroeconomics, development economics, and environmental economics. Email: botlhalechess@gmail.com

Seriane Morapeli is a lecturer in the Department of Strategic Communication at the University of Johannesburg, and her research interests are in the areas of health communication; digital communication; AI; stakeholder activism and African migration. Email: smorapeli@uj.ac.za

Tshegofatso Ratale is a Postgraduate student at the University of Johannesburg and her research interests are in Digital communication, mental health and millennials. Email: tshegofatsoratale@icloud.com

Willard Munyoka is a Senior lecturer with the Department of Business Information Systems, Faculty of Management, Commerce, and Law at the University of Venda. His pioneering research in Digital Government, ICTs for sustainable development, 4IR, cybersecurity, and the adoption of ICTs has significantly advanced the field. Email: willard.munyoka@univen.ac.za

Nkhangweni Lawrence Mashau is a lecturer in the Department of Business Information Systems, Faculty of Management, Commerce, and Law at the University of Venda. His research on the Smart City Concept, Big Data, AI, the Fourth Industrial Revolution, Mobile Technology in Education, and he explores how Industrial Informatisation is not just theoretical, but also has practical applications. Email: lawrence.mashau@univen.ac.za

Modimowabarwa Kanyane is the Faculty of Management, Commerce, and Law Executive Dean of the University of Venda and former Human Sciences Research Council Research Director. His most recent groundbreaking research, *Ethics and Governance in South Africa*, published by Routledge in 2024, is a collection of research work by scholars in public administration and other related disciplines. Email: barwa.kanyane@univen.ac.za



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Helen Titilola Olojede is a Lecturer and the Acting Head of the Department of Philosophy at the National Open University of Nigeria. Titilola works at the intersection of ethics, social epistemology and African/gender philosophy. Her research focus is on the ethics of artificial intelligence and Bioethics. Email: holojede@noun.edu.ng

Edmund Terem Ugar is a Philosopher of Medicine, Public Health, and the Ethics of Artificial Intelligence (AI), Robotics, and Big Data. He is a Ph.D. candidate in the Department of Philosophy at the University of Johannesburg. Edmund is heading a project on African Medical AI at the UJ-Durham Centre for Philosophy of Epidemiology, Medicine, and Public Health. Email: edmundu@uj.ac.za

Taurayi Munemo holds a Bachelor of Arts degree in Languages and Literature (in Creative Writing) from the University of South Africa. He also holds a Bachelor of Arts Honours in Theory of Literature and an MA degree in Theory of Literature, both from the University of South Africa. His MA dissertation, “Writing Against Coloniality: Dismembering and Re-membering in Dangarembga’s novels” (2021), focused on the concepts of coloniality and decoloniality in relation to the presentation of women in Dangarembga’s works. He is currently a PhD candidate at the University of Johannesburg. His research interests include contemporary Global South literature, postcolonial and subaltern literature, gender, class and race theories and the decolonial philosophy.

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University of Johannesburg (UJ)
Auckland Park Kingsway Campus, Auckland
Park
Johannesburg
Tel: +27 11 559 2553

Editors

Prof Ronit Frenkel & Prof Nedine Moonsamy
thethinker@uj.ac.za

Assistant Editor

Tamia Phiri
thethinker@uj.ac.za

Design Direction

UJ Graphic Design Studio
+27 11 559 2805

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FOREWORD



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by Prof. Tapiwa Chagonda,
Director: Centre for Data Ethics, University of Johannesburg

As the African continent stands at the cusp of profound technological advancement, it finds itself compelled to confront both the pros and the cons of the digital revolution. Artificial intelligence (AI), robotics, mobile commerce, and advanced machine learning (ML) are no longer emerging phenomena in distant economies; they are deeply embedded in Africa's sociopolitical, economic, and cultural fabric. This special issue of *Technology and Society within the African Context*, illuminates the multidimensional implications of these advancements, recognising the urgency of both proactive engagement and ethical stewardship. Through ten insightful contributions, this issue seeks to provide a deep understanding of how Africa might harness these technologies to foster resilience, inclusivity, and sustainability across sectors.

Generative AI, as discussed in my paper, represents both an unprecedented opportunity and a complex risk for African societies. With technological giants like Google and Meta accelerating development in this area, Africa must urgently draft an ethics-driven framework—grounded in Ubuntu, Africa's philosophy of shared humanity—to protect its citizens, particularly those who are marginalised. This ethical approach is essential for safeguarding against algorithmic biases that may not reflect the continent's unique cultural and socioeconomic landscape. By involving bodies like the African Union and UNESCO, the article suggests that Africa can and should participate in creating AI guidelines that both empower and protect its people, moving the continent from consumer to co-creator of these technologies.

The integration of technology in election administration has been touted as a means to increase transparency and trust. However, as Daniel Godwin's paper on Nigeria's 2023 presidential election in this issue reveals, technology alone cannot guarantee electoral integrity. The controversies surrounding technical glitches in vote transmission underscore the necessity of both technical reliability and human accountability in electoral processes. It is evident that Africa's democratic aspirations depend on a holistic approach that includes not only technological tools but also trust in the institutions that manage them.

AI wearables, explored in Ireen Manyuha and Elizabeth Lubinga's paper, highlight another transformative application of technology on the continent. With a focus on AI-powered smartwatches and their use for eHealth, this study reveals a promising avenue for personal health engagement. Yet, it raises critical questions about data literacy, showing that many users may lack the expertise to interpret health data meaningfully. The study's findings urge health professionals and AI developers to consider these knowledge gaps, ensuring that innovations are accessible and beneficial to the average user, rather than a privileged few.

The Fourth Industrial Revolution (4IR), which has dramatically altered workplaces globally, has left an indelible mark on Africa, especially in the light of the COVID-19 pandemic. Irene Marindi's paper

reveals that digital and remote work, while offering flexibility, also blurs the boundaries between personal and professional life, impacting mental well-being. This shift necessitates a re-evaluation of work practices in Africa to prevent burnout and maintain productivity, as virtual work environments continue to grow in prominence.

For many Africans, m-commerce explored in Mogau Mashishi and Mpho Primus's paper—represents a critical avenue for economic inclusion. With mobile commerce adoption accelerating in South Africa's townships, findings from Soweto and Tembisa indicate that social media and trust are pivotal to successful adoption. M-commerce is a powerful tool for reaching underserved populations, but trust-building and ensuring secure digital environments are paramount. The study calls for more focused efforts to address the unique barriers faced by residents in townships, including security concerns and reliable infrastructure.

The issue of economic growth and resilience informs Botlhale Modisaotsile's paper, which examines South Africa's struggle with premature deindustrialisation. This paper provides an in-depth analysis of industrial policy, urging South Africa to draw lessons from countries like Brazil and South Korea. As the continent grapples with high unemployment rates and economic inequality, such policy insights are crucial for guiding Africa toward sustainable growth and positioning it as a formidable player in the global economy.

Seriane Morapeli and Tshagofatso Ratale's paper focuses on the mental health effects of social media platforms, particularly Black Twitter (now X). This study, focusing on Black South African millennials, reveals a double-edged experience: social media offers community and activism but also exposes users to harmful content. The paper calls for a balanced view that recognises social media's mental health implications, advocating for more awareness around safe and supportive online communities.

Climate change poses a pressing threat to Africa's agrarian economies, and Willard Munyoka, Nkhangweni Mashau & Modimowabarwa Kanyane's paper presents an urgent case for adopting 4IR technologies to bolster food security. By developing a framework for small-scale farmers to adopt AI and other digital tools, the paper argues for a smart farming approach that can aid in achieving the

UN's Sustainable Development Goal of zero hunger. It emphasises the need for government support and an African-specific model that addresses the unique challenges faced by rural farmers.

The pervasive issues of bias and lack of diversity in AI are explored in H. Titilola Olojede's paper. This piece emphasises the critical need for inclusivity, particularly gender inclusivity, in Africa's AI landscape. With stark disparities in digital participation, the paper calls for a communal approach to AI development that actively includes underrepresented groups. It proposes that African societies incorporate gender-sensitive frameworks to ensure equitable access and prevent AI systems from perpetuating historical inequalities.

Finally, Edmund Terem Ugar's paper delves into the potential for AI, ML, and robotics in African healthcare. While AI in diagnostics holds immense promise, the study reveals that a direct import of such technologies from the Global North may

overlook the contextual specificities of African healthcare systems. This paper urges Africa to build its infrastructure for data collection and analysis, tailoring AI solutions to its healthcare realities. Such efforts can ensure that advanced technologies serve African populations equitably and ethically.

In conclusion, this special issue of *Technology and Society within the African Context*, underscores the transformative potential of digital technologies across sectors. However, the articles collectively remind us that this potential is not inevitable; it requires deliberate actions to navigate ethical, economic, and cultural complexities. As we look forward, Africa must position itself not merely as a consumer but as an active shaper of these technological tides. By grounding digital advancements in the values and unique contexts of African societies, we can ensure that these tools serve to empower, rather than exploit, the continent's diverse populations.