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Forgotten African AI Narratives and the future of AI in Africa

Abstract:

Ancient and contemporary imaginative thoughts, stories, literary works, and beliefs about intelligent machines or otherwise known as AI narratives influence the development, implementation and governance of AI. Responsible AI therefore requires the understanding of these narratives. However, in the global AI narratives discourse, narratives of AI from Africa are missing or are often forgotten. Potentially, this has implications for how AI is or will be designed, deployed and regulated in Africa. This paper presents insights into our understanding of the reasons why Africa's AI narratives are often missing, the implications this has for the future of AI in Africa, how the situation can be improved and the path to take to achieve responsible AI in Africa. These insights emerged following a workshop organized at Mozilla Festival 2021 and demonstrates the growing need to explore uncovered AI narratives in Africa to ensure better AI outcomes.

Keywords: Artificial Intelligence, AI ethics, Africa, Ubuntu, AI Narratives

Agenda:

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Introduction

How artificial intelligence (AI) is developed, adopted, regulated and accepted is hugely influenced by existing socio-cultural, ethical, political, media and historical narratives that portray how intelligent machines are imagined and conceptualized. These narratives shape the understanding of the nature, scope, promise, risks and place in the society of AI technologies. In the last few years, the Leverhulme Centre for the Future of Intelligence, University of Cambridge, UK and the UK Royal Society have examined how fictional and non-fictional narratives (ranging from the ancient Greek myths, modern day science fiction, to contemporary media coverage of Technology) have impacted public perceptions of AI capabilities, risks and benefits. This idea of 'narratives' adopted by the 'AI Narratives' project was inspired by Mieke Bal's theory of narratives or *Narratology*. Bal defined 'narratives' as texts, images, spectacles, events; cultural artefacts that 'tell a story' … for a variety of purposes and serving many different functions"[1]. The term 'AI Narratives', therefore refers to how intelligent machines in a broad sense are portrayed and talked about within societies. Motivated to understand the connections between how different societies perceive AI and how it should be understood, the AI narratives project explored prevalent narratives that influence current expectations and usage of AI.

These narratives – currently largely from the Global North – are increasingly influencing research and innovation, particularly in AI, although the actual impacts are hard to quantify. However, a study examining the impact of science-fiction in Human-Computer interaction (HCI) research,[2] found that an increasing number of researchers and innovators use science-fiction in a variety of different ways; for example, for theoretical design of research, to refer to and explore new forms of human-computer interaction, human-body modification or extension, human-robot interaction and AI and finally future visions of computing. The remarkable similarities between today's smartphones and the communicators in *Star Trek* are curious at best, while many associate the risks of robots to characters from *2001: A Space Odyssey* and *Blade Runner.* Influences of science fiction have also been acknowledged in AI policy documents and reports (French National AI Strategy[3] and UK House of Lords Report 'AI in the UK'[4]).

The underlying take-away from the AI Narratives report[5] (produced by the AI Narratives Project -a collaborative work by the Leverhulme Centre for the Future of Intelligence and the Royal Society UK) – is that the historical, socio-cultural, political and literary narratives from the global North are currently dominating critical discourse on AI including the understanding of risks, expectations, ethics and governance. Africa's diverse philosophical, religious, political, historical and linguistic traditions that can capture alternative narratives of what AI can and should be are almost forgotten. AI as used in this paper refers to current and future descriptions of AI applications including weak AI (or artificial narrow intelligence - ANI) that can only perform specific tasks, artificial general intelligence (AGI) that describes applications that can "reason, plan and solve problems autonomously for tasks they were never even designed for"[6] and artificial super intelligence (ASI) refers to applications "which are truly self-aware and conscious systems" (Ibid). The last two applications (AGI and ASI) are currently not available and remain only possibilities. However, it is important that narratives from Africa should be factored into the conceptualisation of all these AI applications and in the design, development, deployment and use of currently available weak AI.

[1] Bal, Mieke: Narratology: Introduction to the Theory of Narratives

[2] Jordan, Philipp et al.: Exploring the Referral and Usage of Science Fiction in HCI Literature

[3] https://knowledge4policy.ec.europa.eu/ai-watch/france-ai-strategy-report_en

[4] https://publications.parliament.uk/pa/ld201719/ldselect/ldai/100/100.pdf

[5] Cave et al.: Portrayal and perceptions of AI and why they matter

[6] Kaplan, A., Haenlein, M.: Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence

As development and deployment of AI in Africa continues to gain traction, Africa cannot rely on narratives from the Global North to define AI expectations, risks and benefits for Africa. Additionally, the scope and impact of AI technologies are global and therefore should be designed, developed, deployed and used in culturally sensitive and inclusive ways. It is therefore important to understand key narratives, myths, histories, cultural traditions and political dynamics that can and should shape AI in Africa. To achieve this understanding and more, this commentary paper explores answers to these important questions: why are African narratives forgotten in the global AI narrative discourse? What are the implications of these forgotten African narratives for AI development in Africa? How can we understand these narratives and how can AI be made more meaningful and responsible for Africa? Answers to these questions can contribute to the broader discussion on responsible AI in Africa.

Methodology

To explore answers to the above questions, an interactive session was held during Mozilla Festival (MozFest) 2021 which occurred between March 8 – 19, 2021 as a virtual event. This 60-minute session titled *Forgotten Narratives in AI: Africa's Journey to AI Future* was conducted under the discussion space *Shifting Power in Tech* which was described as a space for reflection and inclusive discussion on the power in technology and how it can be shifted from the privileged few.[7] The session was designed to be engaging and inclusive and all participants were encouraged to contribute to the discussion. To ensure that all participants were given an equal opportunity to participate, 2 breakout rooms were created and an equal number of participants were randomly assigned to the rooms. The session was made collaborative and interactive using the online Miro software (https://miro.com/) which provides such tools as whiteboards and sticky notes as well as the ability to create mind maps, concept maps, flowcharts etc. 16 participants attended this session and the summary of the discussions around the four questions above are provided below.

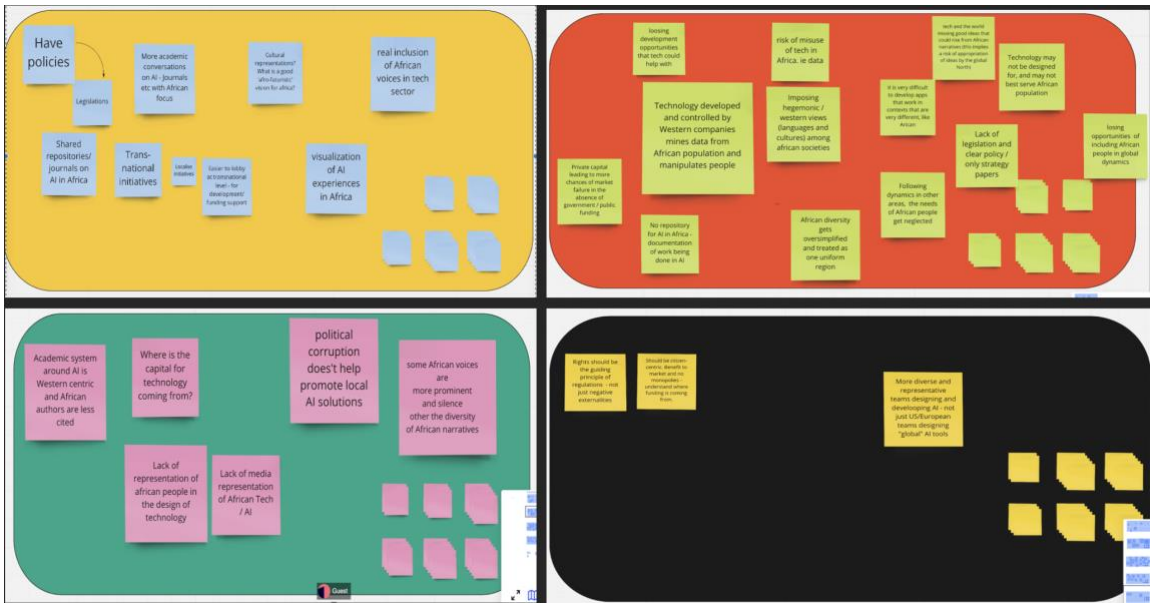

Figure 1 Miro board canvas showing a sample of participants responses

[7] Rubinstein, More: Introducing Shifting Power in Tech Space at Mozfest 2021

Why African Narratives are missing in the global AI narrative discourse

From the discussion, a number of factors emerged as the reasons why African narratives that can shape the design and implementation of AI are missing in the global AI discourse. There was an indication that AI lacks sufficient media coverage in Africa. It has been shown that media coverage of AI is a powerful tool that drives public discourse about its potential benefits and risks; development and governance[8]. In developed countries, the meaning, nature and public expectations and understandings of AI are greatly influenced by the media. It is the media that detail the tangible developments and implementations of AI unlike decades ago when narratives of AI belonged mainly to the realm of fictions. These fictional characterizations are "either exaggeratedly optimistic about what the technology might achieve, or melodramatically pessimistic"[9]. The critical question the participants asked was: does Africa have such fiction stories that portray early African conceptualisation of what technologies (machines) can be or do? This is a question that remains unanswered. Africa's historical and religious thought experiments and imaginations should not be derided or discarded but appreciated as powerful influences on how technology can be developed, conceptualized and regulated. It is imperative to identify and understand these narratives in the context of AI, not only for Africa's sake, but globally.

There was also a consensus that Africa is not adequately represented in the landscape of AI design and implementation. Africa lacks sufficient prominent voices in the global AI discourse that can reflect core African values and beliefs. This lack of representation is however informed by the lack of robust focus on science and mathematics education, particularly, a specific focus on emerging technology skills. Concerns have been raised by scholars on the current state of science, technology, engineering and mathematics (STEM) education in Africa. STEM education is critically important to acquiring AI and machine learning skills. However, there was also an appreciation that the wider socio-cultural and political factors such as corruption and gender inequality contribute to the poor promotion of STEM education in Africa. Another factor posited as a reason why African narratives are missing in the global AI discourse is the lack of some kind of repository for AI in research in Africa that documents work being done in the AI ecosystem. The challenges African scholars face to publish their work are well documented.[10] All these factors contribute to the missing African historical, literary, socio-cultural and ethical narratives in the global AI discourse. Particularly worrying is Africa's ethical narratives missing in the growing discussions on AI ethics and governance considering identifiable risks AI poses to Africa and Africans[11] .

Implications of Africa's missing AI narratives

Forgetting African AI narratives in the larger scheme of things will fundamentally prevent a reasoned understanding of how African cultures conceptualise AI, perceive its risks and benefits and the influences that shape those perceptions. Without African AI narratives, it will be difficult to understand Africans' hopes, fears or expectations of AI. There is therefore a risk of developing AI systems that do not meet the needs and values of the people. AI technology just like other emerging technologies should be designed for and with society. Particularly, the lack of African ethical narratives in the development and governance of AI raises the risk of AI misuse in Africa. This is because the developed AI systems will not be sensitive to the relevant socio-cultural values of Africans. This implies a risk of extrapolation of AI ethics from the global north. Responsible AI

[8] Ouchchy, Leila et al.: All in the Headlines: The portrayal of the ethical issues of artificial intelligence in the Media

[9] Cave et al.: Portrayal and perceptions of AI and why they matter

[10] Mekonnen, Addisu et al.: Can I afford to publish? A Dilemma for African Scholars

[11] Formanek, Claude: AI risk in Africa

regulations and governance mechanisms emerge from cultural contexts. The development of AI governance and policies in Africa needs to reflect specific cultural and political narratives.

Cultural expressions are abundant in Africa, with large amounts of cultural diversity that gets oversimplified sometimes by the treatment of the continent as monolithic. AI design and implementation needs to understand the different narratives existing in different cultures in Africa so as to address the diverse questions of AI ethics and governance. AI will raise unique ethical, legal and socio-cultural questions in Africa that need to be addressed with and from an African philosophical/ethical lens such as the principle of *ubuntu*. The global AI ethics will be missing out on normative principles that can help the AI ethics discourse if African AI narratives continue to be forgotten.

What should be on Africa's AI To-Do list?

There was a general belief among the participants that there is a genuine need for regional and national policy makers, industry and researchers to develop African specific AI to do lists that includes how to improve the understanding of African AI narratives. It is important to understand the factors that can and should influence a good 'afro-futuristic' AI vision in Africa. This can be in the form of localised or transnational research or policy initiatives to visualize and map AI experiences and imaginations in diverse African cultures. This can also include the development of a shared repository or database of AI research and innovation activities that can promote local content. Scholarly articles on African historical perspectives of AI, technical design and implementations, challenges, prospects and social perceptions of AI need to be visible to a global audience. In addition to this, a robust media coverage of AI in Africa is an imperative; coverage of who is behind the systems and what informs the AI for Africa. Whereas current AI systems have not acquired human level intelligence yet, we have to be mindful of the stories that inform how AI interacts with Africa and most importantly who is writing these stories. Research into the language and data that inform the AI system in Africa should reflect African narratives. If not, narratives from the global north that inform AI may become African reality. Approaches and initiatives that can create an environment where African voices and visions are included in the global AI narrative should be paramount on the agenda of the African Union (AU) and other regional and national bodies.

The Path to a more meaningful and responsible AI for Africa

The need for the development of responsible AI along the paths of positive African narratives that consider prevailing philosophical traditions, values and societal norms cannot be overemphasized. However, it must be pointed out that in this context, the concept of responsible AI is linked to the idea of AI for human and societal flourishing[12] where AI enables positive consequences for individuals and societies to flourish. In this context, responsible AI is about "human responsibility for the development of intelligent systems along fundamental human principles and values, to ensure human flourishing and wellbeing in a sustainable world"[13]. This means that positive principles and values that are central to African narratives are allowed to play an important role in determining the path toward meaningful and responsible AI systems that are deployed and used in Africa. The following recommendations indicate some important considerations in this respect.

Identify and promote people-centric AI Narratives: It is critically important for African people-centric AI narratives especially in media discourses (by research communities, governments, independent journalists and business actors) to be developed and considered in AI design: the people's history, myths, folklores, beliefs, values and public dialogue that provide perceptions of their fears, hopes and expectations of AI. Designing AI in Africa that is inclusive is dependent on consideration of African cultures, history and traditions. Industry

[12] Stahl, Carsten Bernd: Artificial Intelligence for a better future: An Ecosystem perspective on the ethics of AI and emerging digital technologies

[13] Dignum, Virginia: Responsible Artificial Intelligence: How to develop and use AI in a responsible way

focused narratives leave out important contextual values and principles that can make AI fair, equitable, inclusive and sensitive to people's needs and expectations. Indeed, there is a growing understanding in the AI community that effective alignment of AI with cultural values and beliefs will help to mitigate bias in algorithmic identification.[14]

Anchor AI ethics on African ethical principles: Responsible AI in Africa should be anchored on African moral principles which are epitomised in ideologies like the communitarian principles of *Ubuntu* - 'I am because we are' or *Ujamma* - brotherhood'. These are African communitarian ethical principles that shape Africa's understanding of personhood and the interconnectedness between the person and the society. In such contextual moral traditions can one find the African conceptualization of solidarity, trust, human rights, fairness and responsibility. As Hargety and Rubinov[15] observed, AI ethics concepts mean different things to different people in different cultures. It is time for AI to interact with African ethical traditions and values in a way that can allow effective integration of African cultural values into the design and development of AI.

Focus on Science Education: The promotion of science education and STEM in general should be made a priority in Africa. Although African leaders have earmarked STEM as one of the focus areas in their Agenda 2063 goals[16], inclusive growth and sustainable development powered by AI requires visible practical initiatives that can drive a revolution in science education, research and innovation in Africa. The importance of science education (SE) is highlighted by the European Commission's policy on Responsible Research and Innovation (RRI) where SE is one of the five actionable elements (others include public engagement, open access, ethics and gender) of science for and with the society objective. African Policy makers at the regional and national levels have therefore big roles to play in instituting and promoting science education that can enable acquisition of skills needed for AI design, implementation and governance.

Improve the diversity of voices in global AI discourse: There is a growing consensus that responsible and less-biased AI requires a more diverse team. The inclusiveness of AI designs is reflected in the diversity of perspectives involved in the design. There is low representation of black Africans across the tech industry[17] and it comes as no surprise that they are (together with women) disproportionately discriminated against in AI designs (Dancy and Saucier). Indeed, more diverse teams build better AI; however, it is also true that fair representation of ideas and visions in AI ethics (or DEI Initiatives) produce better results. (Chi et al.) have found that while corporate AI ethics initiatives are making diversity and inclusion more tractable to technical personnel, they are becoming more divorced from broder Diversity, Equality and Inclusion (DEI) issues that require contextual perceptions to define how to operationalize values due to lack of representation in the discourse. Defining whose values, the how and when these values ought to be embedded in AI systems can be improved by engaging diverse voices. African voices and visions need to be prominent in the design and implementation of AI meant for African communities.

Discussion

The above has highlighted four important areas that actors in the AI stakeholders (industry, academia, policy and citizens) must consider in order to advance the development of responsible AI in Africa, i.e. to identify and promote people-centric AI Narratives; to anchor AI ethics on African ethical principles; to focus on Science Education; and to improve the diversity of voices in the global AI discourse. While we agree that these are all great suggestions, one area that we feel requires urgency is the promotion of STEM education in Africa. This is because these skills are important for developing a lifelong career in AI and related technologies and it is important to begin to develop an understanding of AI and its application at the earliest possible ages. A strong

[14] https://thriveglobal.com/stories/designing-ai-to-be-culturally-inclusive-will-take-time-and-patience-from-the-industry-2/

[15] Hargety, Alexa and Rubinov, Igor: Global AI Ethics: A review of the social impact and ethical implications of artificial Intelligence

[16] https://au.int/agenda2063/sdgs

[17] https://techcrunch.com/2019/06/17/the-future-of-diversity-and-inclusion-in-tech/

foundation in STEM literacy will enable the ability to think critically, identify problems, and develop solutions via technologies. Such education must also incorporate issues around inclusion and diversity at every opportunity and be anchored on African ethical principles in ways that promote African-centred AI narratives.

Despite the fact that African AI narratives are missing in the global AI discourse; it must be pointed out that there is a growing landscape of well-documented initiatives focused on the design and development of AI in Africa that also includes AI ethics and covers the creation of African AI networks. One example of such initiatives is the 'Responsible AI Network – Africa', otherwise called RAIN Africa which aims to build a network of scholars that work towards not only on responsible usage of AI, but also its responsible development; another is 'Deep Learning Indaba' described as an organisation with a mission to strengthen machine learning and AI in Africa. Its goal is to enable Africans to actively shape the development of AI technologies. Other examples of initiatives for AI networking driven by Africans include the Nigerian Tech ecosystem called 'Yabacon Valley', the Kenyan IT Hub referred to as 'Silicon Savannah', and the 'Sheba Valley' which describes the Ethiopian emerging tech space where AI is crucial to many of the technologies developed there.

The lack of inclusion of African AI narratives in the global AI discourse explored in this paper constitutes some sort of epistemic injustice. Epistemic injustice is the idea of unfairly discriminating against ones capacity as a knower based on prejudices such as gender, social background, ethnicity, race, sexuality, tone of voice, accent, and other factors.[18] The prejudices behind not valuing the expertise of Africans within the tech community, or African socio-cultural, ethical and political contexts and narratives in global Responsible AI debate is a discussion for another paper. However, this paper makes the case for the inclusion of African AI narratives into AI and AI ethics and governance contexts as a counter to this epistemic injustice.

Conclusion

This paper has provided reasoned insights into some of the reasons why African AI narratives are missing from the global AI discourse and the implications of this for AI design and implementation in Africa. It has also touched on how to identify and highlight these uncovered narratives for better AI outcomes. The paper then makes suggestions on how to create a more responsible and culturally sensitive AI for Africa. These insights make critical contributions to the discourse on AI narratives by showing that the understanding of African AI narratives is important for the proper consideration of the broader AI concerns in Africa. It also contributes to the emerging discussion of the necessity to consider African ethical principles in the integration of values into AI systems for Africa. The AI ethics discourses are in a phase where national policies are being shaped by developed ethics concepts and principles. AI policies and governance mechanisms for Africa ought to be shaped by culturally familiar and sensitive values. Cultivating African AI ethics discussions earlier before AI policies are developed will produce more responsive and inclusive AI results. However, beyond including Africa's narratives in AI, AI ethics, and AI governance contexts, culturally sensitive and inclusive AI applications benefit the world in general and promote human flourishing.

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