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From Rationality to Relationality:

Ubuntu as an Ethical & Human Rights Framework for Artificial Intelligence Governance

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ABSTRACT: What is the measure of personhood and what does it mean for machines to exhibit human-like qualities and abilities? Furthermore, what are the human rights, economic, social, and political implications of using machines that are designed to reproduce human behavior and decision making? The question of personhood is one of the most fundamental questions in philosophy and it is at the core of the questions, and the quest, for an artificial or mechanical personhood.

The development of artificial intelligence has depended on the traditional Western view of personhood as rationality. However, the traditional view of rationality as the essence of personhood, designating how humans, and now machines, should model and approach the world, has always been marked by contradictions, exclusions, and inequality. It has shaped Western economic structures (capitalism's free markets built on colonialism's forced markets), political structures (modernity's individualism imposed through coloniality), and discriminatory social hierarchies (racism and sexism as institutions embedded in enlightenment-era rationalized social and gender exclusions from full person status and economic, political, and social participation), which in turn shape the data, creation, and function of artificial intelligence. It is therefore unsurprising that the artificial intelligence industry reproduces these dehumanizations. Furthermore, the perceived rationality of machines obscures machine learning's uncritical imitation of discriminatory patterns within its input data, and minimizes the role systematic inequalities play in harmful artificial intelligence outcomes.

The relational Sub-Saharan African philosophy of ubuntu reconciles the ethical limitations of rationality as personhood by linking one's personhood to the personhood of others. This chapter uses ubuntu to show that the harms caused by artificial intelligence, with a particular focus on automated decision making systems (ADMS), are in essence violations of ubuntu's relational personhood and relational model of the universe. This critique is furthered by using postcolonial African philosophy to argue that the economic, political, and social inequalities that dominate the processes that shape the creation of artificial intelligence are neocolonial and are assaults on human dignity. The chapter concludes with technical and policy recommendations for addressing the negative effects of artificial intelligence systems.

Introduction

The discriminatory effects of automated decision-making systems (ADMS) are tied to the philosophical origins of artificial intelligence, and to the economic, political, and social structures that shape it. Artificial intelligence and the structures that shape it derive from the Western world's early conception of what it means to be human. This foundational view of personhood has influenced the assumptions about artificial intelligence and has shaped the economic, political and social structures that also affect the creation and use of artificial intelligence.

The traditional Western view of personhood is based on rationality. Aristotle, who set the foundations of logic as a discipline, believed that "man is a rational animal" and that truth could be rationally deduced through formal rules of logic.¹ Centuries later, Descartes, the so-called "father of modern philosophy," reinforced the central role of reason in

personhood in his declaration, "I think therefore I am."² Kant, in similar fashion, gave ethical importance to rationality in his Categorical Imperative by basing moral autonomy entirely on one's rationality.³ Kant argued one could use rationality, the essence of personhood, to discover moral laws that, when applied universally, would not contradict.

Universal laws that could be reasoned by rational beings inspired the Enlightenment-era belief in the possibility of an alphabet and mathematics that could represent every concept, every concept's relationships, and their truthfulness.⁴ Prominent Western mathematicians, logicians, and early computer scientists, from Lull with his logic machine to Turing and his idea of a thinking machine, would be motivated by this traditional view of personhood to believe a type of algebra could be created such that machines could be automated to determine the truth of any statement in a way matching or surpassing human thinking.

¹ Power, M. *Inerrancy of Reason*. Sands &, 1908. 43-53.

² Kreeft, P. Socrates meets Descartes: *The father of philosophy analyzes the father of modern philosophy's Discourse on method*. San Francisco: Ignatius Press, 2007; Dicker, Georges. *Descartes: An Analytical and Historical Introduction*. 2nd ed. New York: Oxford University Press, 2013.

³ Becker, Lawrence C., and Becker, Charlotte B. *A History of Western Ethics*. Garland Reference Library of the Humanities; v. 1540. New York: Garland Pub., 1992.

⁴ Smith, Justin E. H. "The Self-Devouring Octopus; Or, Logic." In *Irrationality: A History of the Dark Side of Reason*. Princeton: Princeton University Press, 2019, p. 27.

Ramon Lull was a logician inspired in part by Sub-Saharan Africa's binary divination system that had made its way to Europe through African Muslim Moors during the period of 700 years in which Africans controlled parts of Spain and Portugal.⁵ Lull believed that a logic machine could be created to derive biblical truths rationally, especially for the conversion of Muslim "infidels" to Christianity.⁶ In his *Ars Magna*, Lull asserted that "thinking [was] a computational process."⁷ The German logician Gottfried Wilhelm Leibniz, inspired by Aristotle's view of rationality and foundational work on logic and by Lull's *Ars Magna*, devoted much of his life to creating a universal language of which the most basic irreducible elements could be combined to express all concepts that can be represented by natural language. In Leibniz's envisioning, this language would be the foundation of a *formal system* that was finite in that the number of all possible expressions could be counted, and complete and consistent in that every possible expression of the system was provable by its language and rules.⁸

Leibniz believed the algebra of the formal system could be applied by a logic machine, the "Calculus Ratiocinator, or an easy and infallible instrument of reasoning" to determine truth rationally.⁹ In a letter to Rodeken in 1708, Leibniz writes about the calculus ratiocinator as "A certain characteristic of reason, by whose aid it is possible to arrive at truths of reason, as if by a calculation, in all other matters insofar as they are subject to reasoning, just as in arithmetic and algebra". Leibniz believed all reasoning is calculation, and seemingly inspired by the philosopher Hobbes,¹⁰ believed that "Thomas Hobbes ... rightly stated that everything done by our mind is a computation, by which is to be understood either the addition of a sum or the subtraction of a difference."¹¹

Leibniz inspired both George Boole, who developed a simplistic algebra (Boolean logic) for representing the truthfulness of statements, and Gottlob Frege, who improved Aristotle's symbolic language by developing new symbols for deriving the truth of more complicated statements based on rules of substitution.¹² However, in 1931, Kurt Gödel's incompleteness theorems, which proved that a formal system cannot be both *complete* and *consistent*, laid to rest Leibniz' idea of a universal language that could rationally describe every concept. Gödel showed that a consistent formal system, such as the mathematics of computing, cannot by itself prove the truthfulness or falsity of all theorems that can result from the system's rules and axioms. This would be a breakdown in rationality, since there will always be some effects of a system that cannot be deduced using the rules and structures of that system. On the surface, it would appear that Gödel's revelations would threaten the possibility of artificial intelligence, suggesting that "there is some elusive and ineffable quality to human intelligence" unattainable to machines which, unlike humans, operate in consistent formal systems.¹³ However, Gödel believed humans were also prone to the same limits accused of machines:

"The human mind is incapable of formulating (or mechanizing) all its mathematical intuitions. That is, if it has succeeded in formulating some of them, this very fact yields new intuitive knowledge, for example the consistency of this formalism. This fact may be called the "incompleteness" of mathematics. On the other hand, on the basis of what has been proved so far, it remains possible that there may exist (and even be empirically discoverable) a theorem-proving machine which in fact is equivalent to mathematical intuition, but cannot be proved to be so, nor even be proved to yield only correct theorems of finitary number theory."¹⁴

⁵ Eglash, Ron. *African Fractals: Modern Computing and Indigenous Design*. New Brunswick, N.J.: Rutgers University Press, 1999.

⁶ Ford, Kenneth, and Patrick Hayes. "Ramon Lull and the Infidels." *AI Magazine*, vol. 19, no. 2, 1998, p. 136.

⁷ Ibid.

⁸ This led to Leibniz's famous dissertation on combinations (*Dissertatio de arte combinatoria*) an important development in the mathematical field of combinatorics.

⁹ From Couturat, Louis. *The Logic of Leibniz*. Translated by Donald Rutherford and R. Timothy Monroe, 2012, Chapter 4. Available at: <http://philosophyfaculty.ucsd.edu/faculty/rutherford/Leibniz/Couturatchapters/Chap4.pdf>.

¹⁰ Leibniz may have misinterpreted Hobbes' views on reasoning and computation; see: Martinich, Aloysius, and Kinch Hoekstra. *The Oxford Handbook of Hobbes*. Oxford Handbooks Online. New York, NY: Oxford University Press, 2013.

¹¹ Leibniz, Gottfried Wilhelm, and G. H. R. Parkinson. *Logical Papers*. Oxford: Clarendon P., 1966.

¹² Peckhaus, Volker, and Yannick Chin-Drian. "The Reception of Leibniz's Logic in 19th Century German Philosophy." In *New Essays on Leibniz Reception: In Science and Philosophy of Science 1800-2000*. 2012 ed. Publications Des Archives Henri Poincaré Publications of the Henri Poincaré Archives. Basel: Springer Basel, 2012, pp. 13-24.; Korte, Tapio. "Frege's Begriffsschrift as a Lingua Characteristica." *Synthese*, vol. 174, no. 2, 2010, pp. 283-94.

¹³ Hofstadter, Douglas R. *Gödel, Escher, Bach: An Eternal Golden Braid*. 20th Anniversary Ed. with a New Pref. by the Author. ed. New York: Basic Books, 1999.

¹⁴ Wang, Hao. *A Logical Journey: From Gödel to Philosophy*. Cambridge, Mass.: MIT Press, 1996.

The significance of Gödel's quote is that a human mind is not necessarily superior to a machine, since human mathematical intuition, formal logic, which corresponds to a consistent formal system, is just as incomplete as a computer that cannot always give reason as to why it reaches a certain result. The quest for mechanical intelligence would continue, however, as Gödel affirmed that machines can also be intelligent, since intelligence, or reaching intelligent conclusions, is not necessarily limited to the completeness of a consistent formal system. Similarly, Alan Turing, a founding father of artificial intelligence, in his seminal *Mind* paper (1950) began conceiving machines that can *think*, "which is to say, actively solving problems, working out strategies, and discerning implications."¹⁵ In his definition of thinking, Turing asserted that "the whole mind is mechanical" and that "the problem [of thinking] is mainly one of programming", supporting the belief that thinking is essentially a computational process.¹⁶ Turing hypothesized that a computer, through "clever engineering", could be built to simulate a child's brain and through "an appropriate course of education one would obtain the adult brain."¹⁷ This idea was the precursor to modern artificial intelligence, in particular machine learning.

While Gödel's incompleteness theorems have not seriously undermined the quest for artificial intelligence, they do present strong contradictions to the notion of rationality as the essence of personhood. If a consistent formal system is incomplete, and logic is a consistent formal system, and logic is the basis of human reasoning, then humans cannot be self-complete, as rationalists would argue, while their system of reasoning is itself incomplete. If the essence of personhood is rationality, and no individual can achieve complete rationality through self-means, then no one is a person, or at best no one is a full person. Rationality and dehumanization are thus linked: personhood based on rationality is a reduction of personhood.

It would also stand to reason that if no consistent formal system, such as the ones Gödel describes, are complete on their own, then consistent formal systems must be all interconnected and dependent on each other for completeness. In Gödel's theorems, another consistent formal system is needed to rationalize the irrational theorems

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of a given consistent formal system. This would mean that rationality is not an individual product or endeavor of a consistent formal system but is a result of interconnected consistent formal systems. Rationality is thus a product of relationality. The aphorism can be formed that "a consistent formal system is complete through other consistent formal systems." If a substitution is made where a consistent formal system is an isomorph of personhood, it follows that a person is a person through other persons. Personhood is fundamentally relational. Rationality's dependence on relationality should be obvious. Douglas Hofstadter, extrapolating from Gödel's incompleteness theorems, makes the claim that no human or group of humans are necessarily complete on their own:

"Of course, there are cases where only a rare individual will have the vision to perceive a system which governs many peoples' lives, a system which had never before even been recognized as a system; then such people often devote their lives to convincing other people that the system really is there, and that it ought to be exited from!"¹⁸

Mathematical and scientific knowledge are not the exclusive gold standard for defining ethics or how to live a dignified life. Humans are complex and society is characterized by complex interactions with varied ways of knowing and feeling that cannot be modeled by computers or sufficiently understood without incorporating the empirical knowledge others provide. This cautionary advice has not prevailed within artificial intelligence circles.

¹⁵ Turing, Alan, and B. Jack Copeland. *The Essential Turing : Seminal Writings in Computing, Logic, Philosophy, Artificial Intelligence, and Artificial Life*, plus the Secrets of Enigma. Oxford : Oxford University Press, 2004; Quotation in Karelis, Charles. "Reflections on the Turing Test." *Journal for the Theory of Social Behaviour*, vol. 16, no. 2, 1986, pp. 161-72.

¹⁶ Turing, A.M. "Computing Machinery and Intelligence." *Mind*, vol. LIX, no. 236, October 1950, pp. 433-460, <https://doi.org/10.1093/mind/LIX.236.433>.

¹⁷ Ibid.

¹⁸ Hofstadter, 1999.

The perceived infallibility and supremacy of rationality, especially as administered through machines, exacerbates the marginalization of those in society whose exclusion has been rationalized or found “productive.”

The most popular introductory undergraduate computer science book on artificial intelligence defines a “rational agent [as] one that does the right thing.”¹⁹ However, the reproduction of power asymmetries through automated decision-making systems shows that the rationality of computers, or of humans programming the machines, does not always result in the right thing and is limited without proper context (relationality). ADMS are being used to perpetuate racism and gender stereotypes in part because computers cannot understand or take into account social contexts, in particular the racial attitudes and gender norms that exist. This is not a problem of not having enough data, it is simply that data does not interpret itself. It does not tell us how to respond or act in a moral dilemma or how to avoid moral dilemmas.

The perceived infallibility and supremacy of rationality, especially as administered through machines, exacerbates the marginalization of those in society whose exclusion has been rationalized or found “productive.”²⁰ History reveals modernity’s dehumanization in that irrational measures are often taken in the pursuit of rationality.²¹ The Nguni philosopher Ramose asks, “why is it that the African’s right to life continues to be denied, derecognized, and remains practically unprotected by the beneficiaries of the violence, irrationality, and the inhumanity of colonization?”²² He continues, “[b]iological accidents like blue eyes, skin colour, short hair, or an oval cranium are all little pieces of poor evidence to prove the untenable claim that only a particular segment of humanity is rational”²³. South American decolonial scholars Quijano and Mignolo have remarked that Western modernity has been accompanied by a repressive “darker side” of subjugation called *coloniality*, a “relationship [that]

consists, in the first place, of a colonization of the imagination of the dominated.”²⁴ Horkheimer et al., make a similar critique: “[o]n their way toward modern science human beings have discarded meaning. The concept is replaced by the formula, the cause by rules and probability”²⁵. Meaning and meaning-making are not computational processes.

While the view of personhood based on rationality and autonomy was essential in European and Euro-North American Enlightenment era philosophy, freeing the Western world from serfdom and subjugation by religious institutions and monarchies, it created its own inequalities and subjugation. The definition of rationality was constrained in ways meant to advance European and Euro-North American colonial conquests.²⁶ Personhood was not equally applied to non-Europeans. The European view of personhood provided the ethical laws and moral license to subjugate non-Europeans. Africans were thought to lack rationality or comparable intelligence to that of Europeans, and, through colonization and enslavement, could be nurtured to become rational and fully human like Europeans.²⁷ Nineteenth century missionaries in Southern Africa, for example, believed the Zulu language demonstrated a long forgotten intelligence in the natives, that could be resurrected by the Zulu people’s adherence to European culture and thinking.²⁸

At the core of Europe’s colonial encounter with Africa and rest of the colonized world was a clash of values in which the Enlightenment ideals of “freedom”, “humanity”, and “equality” were revealed to be limited, even hypocritical, as these ideals often made special exceptions for the colonial and imperialistic subjugation of Africans and other non-Europeans. The South

¹⁹ Russell, Stuart. *Artificial Intelligence: A Modern Approach*. 3rd ed. 2013.

²⁰ Benjamin, Ruha. *Race after Technology: Abolitionist Tools for the New Jim Code*. Cambridge, UK ; Medford, MA: Polity, 2019.

²¹ Smith, Justin E. H. *Irrationality: A History of the Dark Side of Reason*. Princeton, NJ: Princeton University Press, 2019.

²² Ramose, Mogobe B. “The struggle for reason in Africa.” In *African Philosophy Through Ubuntu*. Harare: Mond Books, 1999.

²³ Ibid.

²⁴ Juhasz, Alexandra. “Toward the Dark Side.” In *A Companion to Contemporary Documentary Film*. Hoboken, NJ: John Wiley & Sons, 2018, pp. 536-556; Quote in Quijano, Anibal. “COLONIALITY AND MODERNITY/RATIONALITY.” *Cultural Studies*, vol. 21, no. 2-3, 2007, pp. 168-78.

²⁵ Horkheimer, Max, Theodor W. Adorno, and Gunzelin Schmid Noerr. *Dialectic of Enlightenment : Philosophical Fragments (Cultural Memory in the Present)*. Stanford, Calif.: Stanford University Press, 2002.

²⁶ Eze, Emmanuel Chukwudi. *Postcolonial African Philosophy: A Critical Reader*. Cambridge, Mass.: Blackwell, 1997.

²⁷ Ramose, 1999.

²⁸ Callaway, Henry. *Nursery Tales, Traditions and Histories of the Zulus in Their Own Words*. Vol. 1. ed. Selection of Titles from the Schomburg Center for Research in Black Culture. Series 2. Section 4, The Creative Spirit; Reel 1. Springvale, Natal: J.A. Blair, 1868.

African philosopher Ramose describes this period as the “struggle for reason”.²⁹ These special exceptions failed to preserve the human dignity of Africans and were deemed by European religious, political, and economic structures as necessary to bring about what Cornell West calls the “Age of Europe”.³⁰

The inefficacy of Enlightenment ideals was not the result of their poor application; rather, in West’s words, the subjugation of Africans provided the “constitutive elements in the historical formation of the economic, political, and cultural expressions of the Age of Europe, including the Enlightenment.”³¹ This is to say that Enlightenment ideals, while seeking to promote liberty, but faced with the contradictions and unsustainability of capitalism, created racially categorized loopholes to simultaneously promote the subjugation and enslavement of Africans.³² Locke, Hegel, Hume, Kant, Mill, and other Enlightenment era philosophers participated in or supported colonialism, racism and the subjugation of Africans.³³ The Enlightenment ideals, based on liberating the rational person, never intended to assert the fundamental human rights and dignity of all humans—doing so conflicted with Euro-American growth, expansion, and hegemony.

The critical point is that colonialism and capitalism, twin processes sharing the same historical birth and philosophical foundation, have been at all times attacks on personhood—the things that make us feel human and dignified. The digital colonialism and surveillance capitalism enabled by artificial intelligence will not preserve the human dignity of all. The increased rationalization of life through artificial intelligence will, just as Euro-American modernity has, perpetuate inequality, even challenging those rights that are based on rational personhood. Models that aggregate individual data points in order to apply a generalization to a future data subject deny the individuality and autonomy of that future data subject, and the notion that truths, and perhaps all truths, about an individual can be rationally computed destroys the core idea of privacy.

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Postcolonial African philosophy’s relevance to the ethics of artificial intelligence is that, as a response to the traumatic encounter between the African world and European modernity, it puts in clear view modernity’s dependency on marginalization and exposes the weaponization of rationality veiled as moral benevolence.³⁴ It “challenges the present globalization and its pretensions of universalism, which hides the reality of the Europeanization and Americanization of the modern world”³⁵, and is “a criticism of the dehumanizing tendencies of European culture which, over the past centuries, found expression in slavery, colonial expansionism, and the still very present racial discrimination.”³⁶ African philosophy may be a means to not only respond to AI’s disproportionate negative effect on people, but to achieve global equality and protections from the bottom-up. In the introductory chapter to the “Caribbean” section in their book, *I Am Because We Are*, Hord and Lee argue that:

[if] “the impositions of colonialism and racism” are fundamental to the Enlightenment ideal of reason, then the task of African philosophy is the “recovery and constructing of alternative models of intellectual life” in the context of which black people can achieve the freedom that comes with a genuine sense of belonging to a world.³⁷

²⁹ Ramose, 1999.

³⁰ West, Cornel. *The Ethical Dimensions of Marxist Thought*. New York: Monthly Review Press, 1991.

³¹ Ibid.

³² Hegel believed colonial expansion was necessary to offset the negative effects of capitalism in European nations. See Eze’s commentary on Hegel’s support of colonialism as necessary to offset the poverty that comes with capitalism on Eze, 1997, p. 8; Parris, LaRose. *Being Apart: Theoretical and Existential Resistance in Africana Literature*. Charlottesville, Virginia: University of Virginia Press, 2015.

³³ Ramose, 1999.

³⁴ Eze, 1997.

³⁵ Ndlovu-Gatsheni, Sabelo. “Discourses of Decolonization/Decoloniality.” *Paperson Language and Literature*, vol. 55, no. 3, 2019, pp. 201-300.

³⁶ Rettová, Alena. “African Philosophy as a Radical Critique.” *Journal of African Cultural Studies*, vol. 28, no. 2, 2016, pp. 127-31.

³⁷ Hord, Fred L., and Jonathan Scott Lee. *I Am Because We Are: Readings in Africana Philosophy*. Revised ed. Amherst: University of Massachusetts Press, 2016.

As soulless, spiritless, supposed human-like automated thinking machines increasingly describe and prescribe human action while systematically dehumanizing segments of society—often those historically subjugated to Western imperialism and its modernity—the more imperative our response must be. The inhumanity of the logical reduction of personhood must be challenged and rejected for more humane and relational alternatives. The pressing remedies must take into account the reality of the interconnectedness of society, and the increased intertwinement afforded by artificial intelligence, such as the models that aggregate individual behaviors and generalize them to unknown and future data subjects.

Various ethical frameworks, corporate “principles,” and major international human rights instruments, such as the International Bill of Rights, have been proposed to address the negative consequences of automated decision-making systems.³⁸ It is essential that these frameworks do not, through a predominantly Western view, ironically reproduce the core problem of algorithmic decision making systems and ignore the adequate inclusion of marginalized communities in their design and application. The solutions must not be flawed by the flaws they seek to solve. Ethics is not missing in technology. Our ethics and values are always present in the creation and use of technology. The technology society creates and chooses not to create is a window into the ethics and values of the powerful. What is missing are ethics of compassion, equity, relationality. Personhood must be extended to all human beings, informed by the awareness that one’s personhood is directly connected to the personhood of others.

The African conception of personhood, as captured in ubuntu, the Sub-Saharan African philosophy, is relational. It is of the rational self, as limited as that rationality may be, becoming a relational self through an ethical maturity demonstrated by fulfilling one’s social duties and responsibilities to others.³⁹ The individual self thereby becomes the communal self. Relational conceptions of personhood from the African continent are nearly nonexistent in the discussions of ethics and AI, and, if they appear, they lack an exhaustive approach. Amongst other aims, this chapter seeks to contribute what may be the first substantial conception of “African” ethics and artificial intelligence, through the constructs of Nguni philosophy, and in general to present relational personhood as a concept whose promise for stronger human rights and ethics are one of “[Africa’s] gift to the world.”⁴⁰



Facial recognition technology | Eduardo Romero

For ethicists, public interest technologists, and all others working in the arena of ethics, technology and human rights, the root causes (beliefs and incentives) of the negative effects of technology must be first identified if progress is to be made. This chapter proceeds by challenging individualism in its most general sense, that the individual as an “autonomous self” is self-complete and is the central point of value within society. Four interrelated flaws within individualism will be explored: 1) the rationalization, rewarding, and justification of unnecessary inequality, 2) the lack of upward mobility due a model that rewards the exploitation of power asymmetries, 3) the exacerbation of inequality due to the lack of upward mobility, and 4) cycles of instability due to increasing inequality.

³⁸ The International Bill of Rights mainly refers to the Universal Declaration of Human Rights (UDHR), the International Covenant on Economic, Social and Cultural Rights (ICESCR), and the International Covenant on Civil and Political Rights (ICCPR). See: Mann, T., and A. Blunden. “International Bill of Rights.” Australian Law Dictionary, 2010, Australian Law Dictionary.

³⁹ Menkiti, Ifeanyi. *Person and Community in African Thought, African philosophy: An introduction*. University Press of America, 1979.

⁴⁰ “Rep. Nancy Pelosi, D-Calif., House Minority Leader, Delivers Remarks Celebrating 95th Birthday and Legacy of Nelson Mandela, as Released by Rep. Pelosi’s Office.” Political Transcript Wire (Lanham), 2013.

This chapter will proceed by describing ubuntu in more detail, framing *data colonialism* and *surveillance capitalism* within an ubuntu framework, and describing five general critiques of ADMS systems as direct violations of ubuntu: 1) the exclusion of marginalized communities and their interests in the design, development, decision making, and funding of ADMS, 2) biases resulting in the selection of features in ADMS and biases entrenched in the data that generate these systems, 3) power asymmetries worsened by the use of ADMS, 4) dehumanization that occurs from the commodification of our digital selves, and 5) the centralization of the resources and power necessary in designing and using ADMS. The central point is that any harmful ADMS system suffers from one or more of these five defects, which the principles of ubuntu can overcome. The chapter concludes by laying out an ethical human-rights centered governance framework for ADMS based on ubuntu.

Individualism: the irrational personhood

The dominant culture of computing, inextricably linked to individualism, contributes to dehumanization. This has been a colossal failure in foresight on the part of techno-libertarians who envisioned the internet as a free space where human dignity and autonomy would organically coexist.⁴¹ The reasons are clear: since its inception, the commercial computing industry, in academia and in Silicon Valley, has been afflicted by “rugged individualism...a distinctively masculine identity in which individual artistic genius... [are] mobilized as sources of personal and professional authority,”⁴² American exceptionalist “technochauvinism [that] arises from the antiquated American conviction that most things worthwhile in science and engineering inevitably blossom [sic] first in the United States,”⁴³ and libertarian ideals expressed as techno-libertarianism/cyber-libertarianism,⁴⁴ extolling mantras such as “information wants to be free.”⁴⁵

These elements have constituted an individualistic cyber-libertarian environment based on the triumph of the individual—the glorification of unrestrained “enlightened self-interest”, the belief that “the internet, as the pinnacle of scientific and technological achievement, subverts hierarchy, revitalizes democracy, reduces racial and national conflict and leads to planetary interconnectivity and unity,”⁴⁶ and high tech capitalism where as early as the mid 1990s “advertising ha[d] become so prevalent as an online revenue source.”⁴⁷ Referring to this unholy trinity, Paulina Borsook in 1996 begins to identify the irrationality allowed by the nexus of libertarianism, capitalism, and high tech:

Technolibertarians rightfully worry about Big Bad Government, yet think commerce unfettered can create all things bright and beautiful — and so they disregard the real invader of privacy: Corporate America seeking ever-better ways to exploit the Net, to sell databases of consumer purchases and preferences, to track potential customers however it can.⁴⁸

Zubin Meer defines individualism in its broadest terms as a family of concepts, of which some connote “a dynamic capitalist economic rationality—utilitarian, competitive, and profit maximizing—inimical to the supposed torpor of feudal and tribal mentality alike.”⁴⁹ Although individualism has had both negative and positive connotations since the 19th century, it is undeniable that “individualism is inexorably tied to the specific but intertwined historical processes that have shaped the last five centuries or so of Euro-American modernity: capitalism and liberalism, secularism and humanism, historicism and science.”⁵⁰

What was significant about Europe’s central belief in reason as the substance of personhood was that reason was an individual quality and activity, therefore placing the individual as the centermost point of concern in society.

⁴¹ Barlow, John. “A Declaration of the Independence of Cyberspace.” *The Humanist*, vol. 56, no. 3, 1996, pp. 18.

⁴² Ensmenger, Nathan. “Beards, Sandals, and Other Signs of Rugged Individualism’: Masculine Culture within the Computing Professions.” *Osiris*, vol. 30, no. 1, 2015, pp. 38-65.

⁴³ “The Dangers of a Made-in-America Malady: “Technochauvinism.” *U.S. News and World Report*, vol. 101, no. 12, 1986, pp. 64.

⁴⁴ Barlow, 1996.

⁴⁵ Goldsborough, Reid. “Internet Philosophies.” *Independent Banker* (Sauk Centre), 2000.

⁴⁶ Barlow, 1996.

⁴⁷ Goldsborough, 2000.

⁴⁸ Borsook, Paulina. “Cyberselfish.” *Mother Jones*, vol. 21, no. 4, 1996, p. 56.

⁴⁹ Meer, Zubin. *Individualism: the Cultural Logic of Modernity*. Lanham, Md.: Lexington Books, 2011.

⁵⁰ Ibid.

Any system, whether political, economic, or social, that is organized and structured around individualistic principles eventually produces harms.

One's rationality was not constrained by the rationality of others. By relying on the rationality of one's mind, and through one's own means, one was complete, ruler and autonomous. Praising rationality as the great leveler, Francis Bacon—the "father of modern science"—writes:

Therefore, no doubt, the sovereignty of man lieth hid in knowledge; wherein many things are reserved, which kings with their treasure cannot buy, nor with their forcecommand; their spials and intelligencers can give no news of them, their seamen and discoverers cannot sail where they grow: now we govern nature in opinions, but we are thrall unto her in necessity: but if we would be led by her in invention, we should command her by action.⁵¹

The Enlightenment goal of self-realization through the "mastery of nature" is today's self-realization through the mastery of bits and cyberspace.⁵² The pursuit of mastery of nature, necessitating liberty as a foundation of individual rights, is a parallel to the mastery of cyberspace, the "new home of the Mind...where liberty itself always speaks" with great authority, as proclaimed by techno-libertarian movements.⁵³ These connected movements can be understood as *subjugation*. Goldberg, the South-African critical race scholar, writes "[s]ubjugation perhaps properly defines the order of the Enlightenment: subjugation of nature by human intellect, colonial control through physical

and cultural domination and economic superiority through mastery of the laws of the market."⁵⁴ The liberty for mastery of nature tolerates the inevitability of inequality.

The inequality resulting from liberty seems to have been recognized by American founding fathers and European thinkers. While on the floor of the 1787 Constitutional Convention in Philadelphia, Alexander Hamilton expressed the shared belief that "inequality will exist as long as liberty exists" saying that "it inevitably results from that very liberty itself."⁵⁵ Pittman, a constitution scholar and authority on George Mason, the originator of the Bill of Rights, summarizes the sentiment of the occasion, stating that:

*Equality beyond the range of legal rights cannot thrive in free soil. It thrives only in the sewers of Slavic slavery ... Equality beyond the range of legal rights is despotic restraint ... Equality homogenizes so that the cream no longer rises to the top. It puts the eagle in the henhouse that he may no longer soar.*⁵⁶

In a separate article, Pittman continues:

It is inequality that makes "the pursuit of happiness" something more than a dry run or a futile chase. It is inequality that makes the race. It is the father of every joy and the giver of every good gift.⁵⁷

While there will always be some type of inequality, here defined as natural and artificial differences between humans, Pittman's metaphors of "cream" and "soaring" are justifications of unnecessary inequality. The allowance for the "cream" to rise to the top creates antipathy to forms of solidarity more needed today in an increasingly interconnected world.⁵⁸

The individualistic libertarian ideals allow for inequality through excessive and greedy competition as individuals center their actions around their own self-interests.⁵⁹

⁵¹ Horkheimer et al., 2002.

⁵² Kennington R. "Descartes and Mastery of Nature." In: Spicker S.F. (eds) *Organism, Medicine, and Metaphysics. Philosophy and Medicine*, vol 7. Springer, Dordrecht, 1978.

⁵³ Smith, George H. *The System of Liberty: Themes in the History of Classical Liberalism*. New York: Cambridge University Press, 2013; Barlow, 1996.

⁵⁴ Parris, 2015.

⁵⁵ Pittman, R. Carter. "George Mason: The Architect of American Liberty." *Vital Speeches of the Day*, vol. 21, no. 5, 1954, p. 925.

⁵⁶ Pittman, 1954.

⁵⁷ Pittman, R. Carter. *Equality v. Liberty: The Eternal Conflict. Statements and Papers Expounding the Role of the States in Their Relation to the Central Government*. Richmond, Virginia: Commission on Constitutional Government, 1960, p. 6.

⁵⁸ Lynch, Kathleen, and Manolis Kalaitzake. "Affective and Calculative Solidarity: The Impact of Individualism and Neoliberal Capitalism." *European Journal of Social Theory*, (July 2018). doi:10.1177/1368431018786379.

⁵⁹ Murobe, M.F. 'Globalization and African Renaissance: An ethical reflection', in *Problematising the African Renaissance*, E. Maloka and E. Le Roux (eds). Pretoria: Africa Institute of South Africa, 2000, pp. 43–67.

The manner in which we organize our societies can lead to adverse outcomes if it is not done with equity in mind.

This highly competitive nature is prominent in Silicon Valley culture. Internet technology startups, with mottos such as “move fast and break things,” often aim to disrupt an industry and make as much profit as possible in the process.⁶⁰ However, this leaves little consideration for the greater social and environmental consequences. This is akin to indulging the liberty to move at the speed of electrons without seat belts or road signals. Unfortunately when things do “break,” the marginalized are the ones disproportionately affected.⁶¹ These are the flaws of individualism.

Individualism is flawed in at least four ways: it 1) Justifies inequality (e.g., the poor are poor because they deserve to be poor); 2) Limits upward social mobility (e.g., individuals of marginalized communities must work twice as hard to get half as far); 3) worsens inequality (e.g., as the rich get richer the poor get poorer); and 4) creates cycles of instability (e.g., within politics, cycles of coups that occur when authoritarians, individualists in their own right, prioritize private interests over the public interest). These flaws are not by chance or an effect of poor implementation of individualist ideals, but instead are inherent flaws of individualism that inevitably lead to extreme power asymmetries and inequality. Any system, whether political, economic, or social, that is organized and structured around individualistic principles eventually produces these harms.

The manner in which we organize our societies can lead to adverse outcomes if it is not done with equity in mind. Consider the following problem, referred to as the “10 Dollar Problem”.

Suppose a population of four people in which \$10, denominated as four bills, one \$5 bill, two \$2 bills, and a \$1 bill must be distributed amongst the population. How should the distribution of the bills be carried out in a manner that

leads to a just and equal society? Suppose individuals, acting fairly and using their own efforts and advantages, are treated as autonomous, self-dependent rational beings, each with the goal to maximize their own utility, a position that reflects individualism. What characteristics are likely to be associated with the individual likely to collect the most? Most likely the one with the best competitive advantage (“strongest,” “fastest,” “smarter”) will win. If this is a “fair” and acceptable outcome, then the distribution system is set to reward competitive advantages. This distribution justifies some people getting less because it is assumed such individuals are fairly rewarded less based on their competencies or productivity.

The first fundamental flaw of individualism is that it justifies inequality, as illustrated in the “10 Dollar Problem”.⁶² By incorrectly assuming a pre-existing state of equality, individualism creates inequality by rewarding differences that can be leveraged competitively. This leads to a “winner takes all” attitude, a race to the bottom. The Silicon Valley culture of disruption is a “winner takes all” culture. Speed is treated as an indispensable competitive advantage and precautions in terms of diversity of startups or the societal consequences are treated as secondary. Often private interests win and the public, especially the marginalized, loses. This leads to the belief that those who are poor are poor because they deserve to be poor. As autonomous beings, those with less must have failed in one aspect or another and thus are justly rewarded.

If money is a tool for exercising one’s autonomy, should an equal society allow for unequal degrees of autonomy even if they are “fairly” earned? Should the richest exercise the greatest autonomy and influence over society and the poorest receive the smallest amount of autonomy and influence? An affirmative answer to the preceding allows for advantaged individuals to have more autonomy than the collective and eventually allows for the “Iron Law of Oligarchy” to take effect.⁶³

⁶⁰ Taplin, Jonathan T. *Move Fast and Break Things : How Facebook, Google, and Amazon Cornered Culture and Undermined Democracy*. First ed. New York: Little, Brown and Company, 2017; Vardi, Moshe. “Move Fast and Break Things.” *Communications of the ACM* 61, no. 9, 2018, p. 7.

⁶¹ Noble, Safiya Umoja. *Algorithms of Oppression*. NYU Press, 2018.

⁶² On individualism, Ramose argues that inequalities of the slave trade, colonialism and racism were justified by Western philosophy. While inequalities in small form may always exist, ubuntu defines some inequalities such as starvation from hunger or homelessness, when society has ample resources to alleviate the needs, as unnecessary and unjust. Ramose, Mogobe. “Wiping Away the Tears of the Ocean: Ukusulaizinyembeizolwandle.” *Theoria* 64, no. 4, 2017, p. 22.

⁶³ Michels, Robert. *Political Parties : A Sociological Study of the Oligarchical Tendencies of Modern Democracy*. 2nd Free Press Pbk. ed. New York : London: Free Press ; Collier Macmillan, 1968. Michels suggests that all democratic institutions ultimately result in power being concentrated among a few.

Individualism's second flaw is that for the disadvantaged to acquire more, they must develop and exercise a competitive advantage over others. This notion limits upward mobility because the marginalized, already operating at a deficit, must incur an added cost in order to be competitive. Disenfranchised groups often exclaim the need to work "twice as hard to get half as much."⁶⁴ This symbolizes the unequal exchanges of power within an unequal society. In order to acquire more, the disenfranchised, while having limited access to resources, have to work much harder than their privileged counterparts who come from positions of power. This makes upward mobility needlessly difficult to achieve.

This state creates the conditions for the third flaw of individualism: it worsens inequality. This is a corollary of the second flaw. The difficulty in upward mobility exacerbates inequality by enabling those with advantages to leverage power asymmetries and generate wealth. Suppose the 10 Dollar Problem is applied repeatedly, and those with an existing competitive advantage are better suited to acquire more resources. The acquisition of more resources, in turn, adds to their competitive advantage, which allows them to be even more competitive the next time around, and so forth. Without any intervention, high inequality will result. The state of high income inequality from the United States to South Africa demonstrates this notion.⁶⁵ The state of inequality is exacerbated as the disadvantaged find it more difficult to compete and the already empowered are much more equipped to exercise their competitive advantages and capture more of society's resources.

In an unequal society, the exchanges of power are unequal and produce Marx's alienations. Those who have acquired resources, and greater autonomy, are able to dictate the conditions of power exchanges. When great power imbalances exist the conditions for consent diminish, as it becomes difficult to give consent when one has no meaningful alternatives. Even if multiple parties agree to an exchange it does not necessarily mean the exchange was fair. When marginalized communities accept undesirable propositions, especially those offered by tech companies, their acceptance cannot be treated as an indication of fairness or true consent. Consent without power leads to inequality.

Consent without power leads to inequality.

When internet tech companies provide services to society, such as connectivity or recommendations, in exchange for greater access to the private lives and attention of citizens, it cannot be characterized as a fair transaction when often large marginalized populations are not able to refuse without losing critical services. In the case of Sub-Saharan Africa, when tech companies provide free internet and digital social connectivity through online platforms, in exchange for great amounts of privacy invasion and commodification of users' behaviors, it cannot be treated as a social good. Often these populations have to trade their privacy or risk losing access to connectivity. Individualism allows for these inequalities in power exchanges.

The fourth flaw is that individualism creates cycles of instability, a view captured by Kwame Nkrumah in his discourse on neocolonialism and Hegel's comments on capitalism. In Hegel's comments the solution to the instability and a "penurious rabble" is the colonization of other nations.⁶⁶ Nkrumah, differing, writes:

Neo-colonialism, like colonialism, is an attempt to export the social conflicts of the capitalist countries. The temporary success of this policy can be seen in the ever widening gap between the richer and the poorer nations of the world. But the internal contradictions and conflicts of neo-colonialism make it certain that it cannot endure as a permanent world policy. How it should be brought to an end is a problem that should be studied, above all, by the developed nations of the world, because it is they who will feel the full impact of the ultimate failure. The longer it continues the more certain it is that its inevitable collapse will destroy the social system of which they have made it a foundation.⁶⁷

⁶⁴ McGee, Ebony, Derek Griffith, and Stacey, II Houston. "I Know I Have to Work Twice as Hard and Hope That Makes Me Good Enough": Exploring the Stress and Strain of Black Doctoral Students in Engineering and Computing." *Teachers College Record*, vol. 121, no. 6, 2019.

⁶⁵ Solimano, Andrés. *Global Capitalism in Disarray: Inequality, Debt, and Austerity*. New York, NY: Oxford University Press, 2017; Leibbrandt, Murray, Arden Finn, and Ingrid Woolard. "Describing and Decomposing Post-apartheid Income Inequality in South Africa." *Development Southern Africa* 29, no. 1, 2012, pp. 19-34.

⁶⁶ Fatton, Robert, Jr. "Hegel and the Riddle of Poverty: The Limits of Bourgeois Political Economy." *History of Political Economy*, vol. 18, no. 4, 1986, pp. 579-600.

⁶⁷ Nkrumah, Kwame. *Neo-colonialism; the Last Stage of Imperialism*. New York: International Publishers, 1966.

An oppressive system is unstable because it relies on oppression, and oppression of others cannot be forever guaranteed. The marginalized masses, desiring to change their state of affairs, will eventually accumulate the activation energy needed to realize their potential power, leading to a cataclysmic capture of power in some form of revolution. This is, in Nkrumah's words, a desperate "state of economic chaos and misery that revolt actually breaks out."⁶⁸ However, if the new power distribution is individualistic, the cycle begins again—artificial differences are rewarded, which leads to a lack of upward mobility, which worsens inequality, and results in a seizure of power disenfranchising the former rulers in the process. It cannot be known how the distribution of power will occur in such an aftermath and how justice will be carried out. The former oppressors can only hope that the system of justice adopted by the new power distribution has an orientation towards reconciliation and creating harmony between all members of society. Ubuntu incorporates these principles.

Ubuntu as Relational Personhood

Ubuntu relational personhood is diametrically opposed to rationality as personhood, the philosophy that has shaped Western individualism, the Western world's asymmetric relationship with much of the world, computing culture, and AI's quest for a mechanical personhood. Ubuntu is the basis of African philosophy, the "wellspring flowing with African ontology and epistemology."⁶⁹ Ubuntu has been popularized internationally through the experiences and philosophy of the Suthu and Nguni of southern Africa, which include three of the first four African Nobel Peace Prize laureates. Although it shares parallels with the African humanism found across Sub-Saharan Africa, "it must be recognized that Ubuntu is a profoundly southern African manifestation" and the political identity of South Africa⁷⁰. Ubuntu as used here will be a non-exclusive reference to Nguni philosophy, with the implied belief that it also represents Suthu knowledge systems.

Nguni philosophy is contained in its oral literature, not as an antithesis to written literature, but that it marks

"a development of a more complex literary genre which has utilized to the maximum the social and linguistic potential."⁷¹ This literary form "has evolved a special set of principles necessary for the socialization of thought."⁷² The elucidation of ubuntu conversely relies on the backdrop of Nguni languages, proverbs, poetry, idioms, and culture—the living library of Nguni thought. The entries in the thought system often utilize special naming conventions that enclose meaning through the affordances of the Nguni languages. The late Zulu poet and philosopher Mazisi Kunene writes, "If the naming of things follows a principle of describing their function, appearance, sounds and relationships, not merely to identify and label them, it is from such a study that one can amass and trace some of the fundamental philosophies of the culture."⁷³ Alfred T. Bryant, the author of the 1905 Zulu-English dictionary, although holding antiquated colonialist views that denied the civilization of amaZulu, is in agreement with Kunene when he writes:

Nor does the language show any structural inferiority; indeed, in this respect it absolutely outclasses many of our European languages, and, had it been planned by one of our most modern inventive geniuses, it could scarcely have been better modelled. In the hands, so to say, of one expert in its use, it is capable of expressing anything in the run of ordinary life, in a manner as perfect, and oftentimes in an easier and clearer way than in English. No reasonable person would expect it to have already made provision for all those abstract ideas, scientific facts, and paraphernalia of civilised life, which had never yet come within the sphere of its experience. And yet it carries within itself ample power and resources for answering all those requirements. Owing to its unrivalled onomatopoeic capabilities, it provides both a medium of lifelike expression that the cleverest European raconteur could never aspire to, and offers an ever-ready means for the coining of endless new words ... Indeed, in certain respects it is probable that no living European language, if left only to its own resources and unable to borrow from other languages, could even compare with it ... The Zulu language, then, is eminently well-stocked and vividly expressive, is resourceful and plastic to all demands.⁷⁴

⁶⁸ Ibid.

⁶⁹ Ramose, 1999.

⁷⁰ Biney, Ama. 2014. "The historical discourse on African humanism: Interrogating the Paradoxes." In Praeg, Leonhard., and Siphokazi. Magadla. *Ubuntu: Curating the Archive*. Thinking Africa. Scottsville, South Africa: University of KwaZulu-Natal Press, 2014.

⁷¹ Kunene, M. (1981). *Anthem of the decades: a Zulu epic* (African writers series ; 234). Cambridge, England : London: ProQuest LLC ; Heinemann.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Bryant, Alfred T. A Zulu-English Dictionary with Notes on Pronunciation, a Revised Orthography and Derivations and Cognate Words from Many Languages; including Also a Vocabulary of Hlonipa Words, Tribal-names, Etc., a Synopsis of Zulu Grammar and a Concise History of the Zulu People from the Most Ancient Times. South Africa: Mariannhill Mission Press, 1905.

This presents an immediate challenge, for to describe ubuntu in English, or apart from its organic Nguni environment, is to give up on greater clarity afforded by the aesthetics and structure of Nguni languages. Bryant asserts this regarding isiZulu:

It luxuriates in sweet, mellow vowel-sounds, and the quaint musical cadence of its flow rivals the most silvery-toned Italian. Its most prominent philological feature, however, is that alliterative concord, so ingenious as a grammatical scheme, which carries a flow of progressive harmony throughout the whole of each sentence; while the feature which gives the language its greatest power is its marvellously elaborated verb, which presents, as Prof. Keane observes, 'no less than 250 different forms, temporal, modal, positive, negative, active, passive, causal, augmentative, etc., so that the language is in this respect probably unsurpassed even by the intricate verbal systems of the Finno-Tartar group.'⁷⁵

Despite the cultural and literary inadequacies that have often distorted the transmission and comprehension of authentic African thought, a subset of ubuntu will be described in a manner that can allow for its corrective use and impact in the governance of artificial intelligence.⁷⁶

The term ubuntu serves three purposes: 1) it is an identifier for Nguni philosophy, 2) its meaning refers to the quality of being a person, personhood, sharing the same root as *umuntu/abantu* (the singular/plural forms of "person"), 3) its etymology reveals the orientation and nature of personhood: one of becoming. The focus of this section will largely be on the last two purposes which will provide the foundation for the implication and application of ubuntu.

The first step towards clarifying ubuntu is to transform its spelling to *ubu-Ntu*, which brings the reader closer to the authentic conveying of the intentions behind its etymology. *Ntu* is a root associated with humanity: person, people, culture, and personhood. In isiZulu, a person, being the personification, instance of *Ntu*, is *umu-Ntu*; people is *aba-Ntu*, the philosophy, the state and quality of *Ntu*, is *ubu-Ntu*; and its direct practice (culture) is *isi-Ntu*.

Ntu is connected to the idea of *uMvelinqangi* ("the Creator that appeared before all things") who "was the ultimate reality from which all things were to derive their being."⁷⁷ Ngubane describes the nature of reality in the following:

All [creation] were manifestations of [Mvelinqangi's] infinite form. Inside [Mvelinqangi's] being was an infinity of specialized forms making up apart of the whole. These were the spirits of living things, some of which had human forms. When they were clothed in flesh, they became the human beings who inhabited the earth...As a future spirit form or *idlozi*, the individual personality had a sacredness that was absolute and immutable. He was the individualized essence of Mvelinqangi. The concept of equality in the African community was based on this evaluation of the human personality. From such an evaluation sprang an important ethical code, which prescribed that the good life was the one in which individuality was treated with reverence and consideration ... Supreme virtue lay in being humane, in accepting the human being as a part of yourself, with a right to be denied nothing that you possessed ... This code constituted a philosophy of life, and the great Sutu-nguni family ... called it, significantly, *ubuntu* or *botho*.⁷⁸

Ngubane's passage emphasizes that *umu-Ntu*, as an individualized essence of *uMvelinqangi*, is a unique being that simultaneously incorporates the individuality of others. In this sense one is not complete in oneself, but relies on others for completion. The person, in addition to existing in relation to others, exists in relation to the "specialized forms making apart of the whole." These forms consist of the individual, community, environment, and the spiritual. Accepting the another human as part of oneself is to be in harmony with ultimate reality, for accepting others is in compliance and reverence for *uMvelinqangi*, the ultimate reality from which humans and all forces derive and are intricately and inextricably interconnected. This provides the foundation for relational personhood. In this definition, relationality is the acceptance of the individuality of others, for all are interconnected, and in general it is the acceptance of the interconnectedness of humans, nature, and the spiritual. Kunene calls this the "Fundamental Law of Humanity (*umthetho wobuntu*) ... a timeless set of values which by their ethical authority supersede the whims of temporal political power."⁷⁹ Therefore, within *ubu-Ntu*, personhood is fundamentally relational. Relationality is the nature of reality and the measure of ethical living.

Ethics in *ubu-Ntu* is the measure of one's relationality with others, the environment, and all other interdependent parts. When one develops meaningful relationships with others,

⁷⁵ Ibid.

⁷⁶ Kunene, 1981.

⁷⁷ Ngubane, Jordan K. *Conflict of Minds*. New York, NY: Books in Focus, 1979.

⁷⁸ Ibid.

⁷⁹ Kunene, 1981.

meeting the duties that the reverence of others may require, one is considered ethical, or “unoBuntu” (“they have ubuntu”). The opposite orientation, geared towards the self and the distancing of oneself from others, is considered unethical, “akala ubu-Ntu” (to not have ubuntu).⁸⁰ The prefix *ubu* indicates a state of being and becoming, and along with the stem *Ntu* evokes the idea of a continuous being or becoming a person oriented towards cosmic unity and creative purpose.⁸¹ Ramose suggests that ubuntu describes an enfolded being, an incessant orientation towards *ntu*.⁸²

Having *ubu-Ntu*, or “okuba ngumu-Ntu” (being a person), is embracing the normative role emphasized in the philosophical meaning of *umu-Ntu*. This is a continuous process where one becomes more or less of a person in relation to their treatment of others. In this endeavor one can fail or succeed in achieving the ultimate goal of being *umu-Ntu*. When a person fails at achieving ubuntu, it is common in Nguni languages to say “Wo, akumuntu lowo” (Oh, that is no person), referring not to biology, but the negation of one’s duty to act humane.⁸³ The negation of one’s duty of “okuba ngumu-Ntu” (being a person), despite ample opportunity, elicits “the harshest judgment that the humblest African in the Sutu-nguni community can make of his neighbor [which] is to say that he is not humane.”⁸⁴

The duty to recognize others, as an orientation towards *ubu-Ntu*, is represented by the most common Zulu greeting, “Sawubona”, which means “we see you”, or “I on behalf of the community recognize and affirm your humanity”. An individual, being the embodiment and reflection of the community, necessitates the plural “we” – “We, recognize your dignity, your individualized essence of *Ntu*”. By being accepted one experiences greater quality of personhood; the recognized can say “I am human because I belong.”⁸⁵

The individual recognizing another is best understood in the context of the community recognizing another or the community recognizing itself, its interconnectedness with itself, through the recognition of the individual. The individual is interconnected to all communities across time and space. Every greeting given and received is an affirmation of the inherent dignity, individuality, and interconnectedness in being human. One of the dimensions of interconnectedness is self-similarity between humans, and between the community and the individual. Kunene writes:

A concept that must be understood in dealing with African/Zulu thought systems is the idea that things cumulate from the smallest entity (*utho*) to the largest aggregate (*izinto*). Through growth, things are activated and they evolve in cycles of being, building up from the smallest to the largest entity. Thus, the largest entity contains within itself the smallest units which are themselves replicas of the aggregate of things. This simply means that our world is conceptually duplicated not only in all minute organisms but also in all cosmic-scale phenomena.⁸⁶

Kunene’s quote emphasizes that ubuntu’s relationality is not just between humans, but the same harmonious relationship is replicated in larger and larger scales throughout the cosmos, between the physical and spiritual words, and within the realm of the ancestors, connecting all. This relationship, extending through time and space, is captured in the fractal geometry of the traditional layout and architecture of *imizi* (homesteads) of the Nguni.⁸⁷ The arrangement captures a oneness in purpose and the idea that the individual is the image of the community and the community is the image of the individual. The individual and the community act in harmony and are connected throughout time and space. This self-similarity is reflected in ubuntu’s commonly cited aphorisms “I am because you are,” and “a person is a person through other persons.”⁸⁸

⁸⁰ This is captured in the proverbs: “Uhambela nxanye njengelanga lobusika” (He walks sideways like the winter sun), said of one who goes out of their way to avoid others, and “Wadlula ngendl’isakhiwa kayibeka qaza” (He passed by a hut being built and did not tie a knot).

⁸¹ Kunene, 1981.

⁸² Ramose, 2002.

⁸³ Nyembezi, C. L. Sibusiso. *Zulu Proverbs*. Rev. Ed.] ed. Johannesburg: Witwatersrand University Press, 1963.

⁸⁴ Nguane, 1979.

⁸⁵ Tutu, Desmond. *No Future without Forgiveness*. 1st Image Books ed. New York, N.Y.: Doubleday, 2000.

⁸⁶ Kunene, 1981.

⁸⁷ Jordan K Ngubane, in the “Zulu personal declaration” speaks of the individual being the face of humanity. A person being the image of the community, the part being the image of the whole. Mazisi Kunene uses fractal imagery in describing how reality recursively forms a larger reality and the larger reality to form even larger realities in an infinite process. Similarly Ron Eglash in “African Fractals: Computing and Indigenous Design” notes the prevalence of fractal architecture and archetypes in African society.

⁸⁸ Mbiti, J. *African Religions and Philosophy*. 1969; Tutu, 2000.

The interconnectedness between time and space is demonstrated through generational equivalence common in many parts of Sub-Saharan Africa. A grandchild, for example, may be referred to as the grandparent without contradiction.⁸⁹ In Nguni societies individuals, often adults, are addressed by the name of their clan name or a previous ancestor, symbolizing a oneness in essence across space and time.⁹⁰ When expressing gratitude to an individual it is often said “to your clan” where the clan name or its prominent members across time are mentioned. In the highest form of praise to an individual, known as “praise poetry”, one often recites the recipient’s clan’s heroic pursuits and activities throughout time that reflect the social ethic. Individuals assume the identity of the whole and are a manifestation of the whole. It is understood that a person is the physical embodiment of the past, present, and future communities.⁹¹ In the Zulu Personal Declaration of 1825, Ngubane writes:

I am the face of humanity.
The face of humanity is my face...I am Father-Mother-Child.
I am the past, the present and the future.
I have no beginning and no end;
I am the geodesic circle in which Father and Mother merged
to become Me.
I extend myself into the child.
I am the brick out of which society is built;
I am the Eternal Person.⁹²

The dehumanizing effects of removing the social communal self from the biological self can be demonstrated in the internationally condemned practice of solitary confinement.⁹³ If the self is fundamentally the rational self, the self should not deteriorate to the extent that it loses itself and a sense of rationality when it is removed from meaningful social relationships (relationality). When one greets another by “sawubona” one responds to that essential human need by affirming, “I recognize and affirm your humanity, your expression”.

Given the context of Nguni knowledge systems, ubu-Ntu philosophy focuses on humanity’s purpose, place, and experience in the maintenance of universal harmony.⁹⁴ In practical terms this means examining and improving the quality of the interconnected relationships that define

Human nature is by default free and at liberty to choose good or wrong. The individual must use their liberty to act in harmony with the rest of society.

humanity’s existence such that the distribution of power within and between these relationships enables social progress, social harmony, and human dignity. These three criteria are interdependent—social progress is impossible without social harmony, and social harmony is impossible without an emphasis on human dignity—and are the foundational requirements in applying ubu-Ntu as a framework for determining ethical decisions in any given context. Certain principles contribute to these foundational ideals: solidarity, reconciliation, positive reciprocity, equity, equality, and community (as opposed to coexistence).

Ubu-Ntu can be reconstructed from five Nguni proverbs: “Umu-Ntu ngu mu-Ntu”, “Akumu-Ntu lowo”, “Umu-Ntu akalahlwa”, “Inkosi yinkosi ngaba-Ntu”, and “Umu-Ntu ngumu-Ntu ngaba-Ntu”. These succinct proverbs may be used to provide principles that can be applied in human rights law and the ethical governance of artificial intelligence in ways that improve social progress, harmony, and human dignity. The following section will go through each in turn.

“Umu-Ntu ngu mu-Ntu” – A person is a person. This is often said when a person does something either significantly wrong or good. It emphasizes that human nature is by default free and at liberty to choose good or wrong. The individual must use their liberty to act in harmony with the rest of society. A person, as the individualized essence of ultimate reality, is in a position to know themselves better than others may. Therefore one’s conscience in isiZulu is often called “umzwangedwa,” which translates to “I hear it by myself”. One must train both “the precision mind (ubuchopho) and the cosmic mind (ingqondo)” to align with the harmony of the whole.⁹⁵

⁸⁹ Peek, Philip M. *African Divination Systems : Ways of Knowing. African Systems of Thought*. Bloomington: Indiana University Press, 1991.

⁹⁰ The progenitor of the Zulu Kingdom, Shaka, in his praises is often referred to as “Ndaba” his ancient ancestor.

⁹¹ Nyathi, Pathisa. *Traditional Ceremonies of Amandebele*. Gweru, Zimbabwe: Mambo Press, 2001.

⁹² Asante, Molefi Kete, and Abu Shardow Abarry. *African Intellectual Heritage : A Book of Sources*. Philadelphia: Temple University Press, 1996.

⁹³ Guenther, Lisa. *Solitary Confinement : Social Death and Its Afterlives*. Minneapolis: University of Minnesota Press, 2013.

⁹⁴ Kunene, M. *The ancestors & the sacred mountain : Poems* (African writers series ; 235). London; Exeter, N.H., USA: Heinemann Educational, 1982.

⁹⁵ Kunene, 1981.

“Akumu-Ntu lowo” – They are not a person. Given as a critique, it emphasizes that personhood is something that may be lost. While one may still be a person in the biological sense, one experiences a degraded state of personhood when acting in opposition to one’s duty to others and to the harmony of the organic whole. To be disconnected in such a manner is to have a reduced personhood, and when society or another individual disconnects an individual from being in community with others it is a violation of one’s basic human right to be accepted into community.⁹⁶

“Umu-Ntu ngumu-Ntu nga ba-Ntu” – A person is a person through other persons. This emphasizes the self-similarity, relationality, and interconnectedness of personhood. One’s personhood, and the measure of ethics, is a function of how one relates to others. When one uplifts the humanity of others, one uplifts oneself. When one degrades the personhood of another, one degrades oneself. Similarly an ethical society or institution is ethical in as much as it treats the individual as a person. If a society denies an individual restoration or the chance to be in community, it acts unethically. The failure and success of an individual is equally the failure and success of the community.

“Umu-Ntu akalahlwa” – No one is beyond redemption. Because the individual is born free, with a conscience and the power of choice, and by virtue of existing carries a unique divine mandate only irrevocable by uMvelinqangi, the individual earnestly willing to be in community and to sustain the community must be allowed the opportunity to do so. This emphasizes reconciliation and tolerance, and explains the logic behind South Africa’s national Truth and Reconciliation Commission. The violation of the humanity of another is considered a process that requires the violator to cast away their own humanity.⁹⁷ As the oppressed and the oppressor are both in need of having their humanity restored it is a violation of ubuntu to deny restoration to either the oppressor or the oppressed.⁹⁸

“Inkosi yinkosi ngaba-Ntu” – A leader derives power from the consent and will of the governed. This emphasizes that the purpose of leadership is to serve the needs of the constituents. Ubuntu rejects the concentration of power

amongst a few elite. Ubuntu is decentralized in nature and requires consensus to be reached through cooperation and participation of the parts that constitute the whole. Although individuals may differ in role, the oneness and equality of each is maintained and enforced. In traditional Nguni institutions that may appear centralized, the central body’s powers are greatly limited. The central figure within traditional societies is merely symbolic and represents the consensus, oneness, and the “social ethic” of the group.⁹⁹ The central figurehead serves as a custodian of the welfare of the society and the powers they employ are greatly checked and must always adhere to the will and demands of the group.¹⁰⁰ The celebration of a hero or an institution in ubuntu is the celebration of the ideals held by society, the social ethic, rather than a celebration of a particular individual or an institution.¹⁰¹ Ubu-Ntu, while revering individuality, rejects individualism, and dictatorship/autocracy is deeply individualistic.

Implications of Relational Personhood

The economic, political, and social implications that arise from the conscious application of ubu-Ntu are different in nature from their traditional equivalents in Western modernity. In place of capitalism (or communism), ubu-Ntu finds a middle ground where elements of capitalism and socialism are balanced. Whereas human rights and protections are based on the rational individual person, in ubu-Ntu human dignity is based on the interconnectedness of all people. Whereas racial and other social identities are used to distribute power in Western societies, usually favoring European descendants, ubu-Ntu acknowledges the oneness of all humanity, with equal reverence for each human despite any qualifiers.

The economic implications of ubu-Ntu may lead to greater income inequality and more egalitarian societies. Molema writes that in Nguni society, “there existed fairly uniform prosperity and rare social harmony. Paupers were unknown.”¹⁰² Molema quotes Maurice Evans, who wrote in *Black and White in South States*, “The extremes of poverty and wealth, hardship and soul-destroying luxury...and nervous prostration from suicidal competition and emulation are unknown to [the

⁹⁶ Molema, S. M. *The Bantu, past and Present [an Ethnographical & Historical Study of the Native Races of South Africa]*. Cape Town: C. Struik, 1963. Originally written in 1917.

⁹⁷ Tutu, 1999.

⁹⁸ Biko, Steve, and Aelred. Stubbs. *I Write What I Like*. New York: Harper & Row, 1979.

⁹⁹ Ethical maturity is a requirement for one to hold great amounts of power on behalf of others.

¹⁰⁰ Williams, J. Michael, and Jeffrey Herbst. *Chieftaincy, the State, and Democracy: Political Legitimacy in Post-Apartheid South Africa*. Bloomington: Indiana University Press, 2009.

¹⁰¹ Kunene, Mazisi. *Zulu Poems*. New York: Africana Pub., 1970.

¹⁰² Molema, 1917.

Nguni].”¹⁰³ In the egalitarian society founded on ubu-Ntu, one has the right to the solidarity of the community. Southern Africa, like much of Sub-Saharan Africa, still contains numerous institutions of economic solidarity through often interest-free indigenous money saving and lending methods which constitute the “economy of affection.”¹⁰⁴ In the 10 Dollar Problem described earlier, competitive advantages that are used on behalf of society would be rewarded in a society founded on ubu-Ntu. This ensures that resources are effectively distributed throughout society.

Within ubu-Ntu, liberty and equality find a unique balance absent from individualism in the West and communism in the East. Ubu-Ntu is a balance that seeks to avoid the worst of extreme systems. Louw writes, “An oppressive communalism constitutes a derailment, an abuse of Ubuntu. By contrast, true Ubuntu incorporates dialogue, i.e., it incorporates both relation and distance. It preserves the other in his otherness, in his uniqueness, without letting him slip into the distance.”¹⁰⁵ Ubu-Ntu is neither an African socialism or communism, but is congruent to the Non-Aligned movement.¹⁰⁶ Through the work of South African Nobel Peace Prize winners Albert Luthuli, Nelson Mandela, and Archbishop Desmond Tutu, ubuntu is commonly understood as a restorative human rights framework that focuses on solidarity.¹⁰⁷ Ubuntu has been used in different parts of Sub-Saharan Africa as the underlying ethics and human rights framework in national peace and reconciliation processes after tragedies.¹⁰⁸ Most notably, ubu-Ntu has been used for reconciliation of South Africa’s society after the end of the apartheid system.¹⁰⁹ In many instances, the national reconciliation process, framed by ubu-Ntu’s restorative justice tenet, allowed for a path of healing in which the oppressors could benefit from full amnesty as long as they were willing to participate in the restorative process. This is a stark difference from Kantian philosophy which would require retributive justice as necessary in correcting wrongdoing, and retribution necessary for asserting the dignity of human life.

"Cultural identity is one of the most important parts of a person's identity precisely because it flows from belonging to a community and not from personal choice or achievement."

The greatest contribution of ubu-Ntu may be in providing a philosophical justification for the “third generation” of human rights. Human rights in the context of ubu-Ntu are the moral guarantees that are necessary in securing one’s ability to become a communal person—a person acting with proper respect to their unchangeable status as a being intricately interconnected to the community, environment and spiritual.¹¹⁰ According to South Africa Justice Langa:

The notion that ‘we are not islands unto ourselves’ is central to the understanding of the individual in African thought. It is often expressed in the phrase *umuntu ngumuntu ngabantu* which emphasises ‘communality and the inter-dependence of the members of a community’ and that every individual is an extension of others. According to Gyekye, ‘an individual human person cannot develop and achieve the fullness of his/her potential without the concrete act of relating to other individual persons’. This thinking emphasises the importance of community to individual identity and hence to human dignity. Dignity and identity are inseparably linked as one’s sense of self-worth is defined by one’s identity. Cultural identity is one of the most important parts of a person’s identity precisely because it flows from belonging to a community and not from personal choice or achievement. And belonging involves more than simple association; it includes participation and expression of the community’s practices and traditions.¹¹¹

¹⁰³. Ibid.

¹⁰⁴. Hydén, Göran. *African Politics in Comparative Perspective*. Second ed. Cambridge University Press - M.U.A, 2012.

¹⁰⁵. Louw, Dirk. "Ubuntu and the Challenges of Multiculturalism in Post-apartheid South Africa." *Quest* XV, no. 1-2, 2001, pp. 15-36.

¹⁰⁶. Freedon, Michael, Marc Stears, Joy Hendrickson, and Hoda Zaki. "Modern African Ideologies." In *The Oxford Handbook of Political Ideologies*, Chapter 22. Oxford University Press, 2013.

¹⁰⁷. A copy of the South African Truth and Reconciliation Commission is available at: <http://www.justice.gov.za/trc/report/index.htm>.

¹⁰⁸. Kulnazarova, Aigul, and Popovski, Vesselin. *The Palgrave Handbook of Global Approaches to Peace*. Cham: Palgrave Macmillan US, 2018.

¹⁰⁹. Ibid.

¹¹⁰. “Spiritual” is not necessarily in a religious sense, it uses the language of Mazisi Kunene, the late South African poet laureate, to indicate the cohesion of a society across time and space.

¹¹¹. <http://www.saflii.org/za/cases/ZACC/2007/21.html>

The Organization for African Unity in 1981 adopted a new set of rights—third-generation rights—that can be understood through the context of *ubu-Ntu*. The rights to solidarity and rights to community were determined as necessary to truly realize the first and second generation of human rights.¹¹² In order for civic and political rights (first generation rights) and socio-economic rights (second generation rights) to be attained, rights to solidarity and cooperation must be enshrined. The African Charter on Human and People's Rights is the only internationally binding document that contains all three generations of human rights.¹¹³

With the meaning and implications of *ubu-Ntu* defined, the discriminatory effects that are inherent results of the philosophy of artificial intelligence and the systems that enable its creation and use can be defined as attacks on, and violations of, the requirements of *ubu-Ntu*'s relational personhood. The systems that enable the current use and profitability of artificial intelligence are data colonialism and surveillance capitalism, which will be defined in the next section. The philosophy shaping the pursuit of mechanical personhood will be subsequently described as five violations of *ubu-Ntu*, of which one or more are present in harmful AI systems.

Data Colonialism and Surveillance Capitalism as Attacks on Relational Personhood

Two prominent terms that have emerged in the past few years to describe the power asymmetries leveraged by large multinational internet companies against their users are data colonialism and surveillance capitalism. Data colonialism refers to the digital creation of “new social relations (data relations, which generate raw inputs to information processing ...)” that are structured for the combined

“predatory extractive practices of historical colonialism with the abstract quantification methods of computing.”¹¹⁴ Surveillance capitalism, according to Rikke Frank Jørgensen and David Kaye, originated in Google's response to “extreme pressure from its investors in the teeth of the 2001 financial crisis in Silicon Valley.”¹¹⁵ Shoshana Zuboff defines it as “a new logic of accumulation” in which the use of surveillance “aims to predict and modify human behavior as a means to produce revenue and market control.”¹¹⁶

These concepts are not that distinct from each other. Data colonialism and surveillance capitalism are interlinked forms of the aforementioned weaponization of rationality veiled as moral benevolence. In each instance they use artificial intelligence and computation to provide needed efficiencies and services for humanity¹¹⁷—mainly “personalization”—using slogans such as “reimagining cities to improve quality of life,”¹¹⁸ or to “bring the world closer together,”¹¹⁹ while co-opting the elements that are central to relational personhood: our social interactions, agency, and interconnectedness. This is the same type of thinking reflected in the Euro-American relationship to Africa where aid programs and financial lending programs often lead to great social and economic disparities.¹²⁰

While colonialism and capitalism were historic attempts to create a thriving environment and economy for the rational “man”, data colonialism and surveillance capitalism constitute the modern fulfillments of this belief. The motivating belief behind both surveillance capitalism and data colonialism is that complex human behavior is at the core mechanical and predictable (or can be shaped to be so), and therefore commodifiable. This is a pattern in which improvements in automation technology create surplus, and surplus creates the need for new markets, and markets that are sustained by subjugation and dehumanization. Couldry and Mejias allude to this relationship, observing, “ordinary social interaction [that] has come to contribute to surplus value as

¹¹² Winks, Benjamin Elias. “A Covenant of Compassion: African Humanism and the Rights of Solidarity in the African Charter on Human and Peoples' Rights.” *African Human Rights Law Journal*, vol. 11, no. 1, 2011, pp. 447-64.

¹¹³ Ibid; The “right to solidarity” is a feature of the “third generation” of human rights such as the African Charter on Human and People's Rights.

¹¹⁴ Couldry, Nick, Ulises A Mejias, Stefania Milan, and Emiliano Treré. “Data Colonialism: Rethinking Big Data's Relation to the Contemporary Subject.” *Television & New Media*, vol. 20, no. 4, 2019, pp. 336-49.

¹¹⁵ Jørgensen, Rikke Frank, and David Kaye. *Human Rights in the Age of Platforms*. Information Policy Series. Cambridge, Massachusetts: MIT Press, 2019.

¹¹⁶ Zuboff, Shoshana. “Big Other: Surveillance Capitalism and the Prospects of an Information Civilization.” *Journal of Information Technology*, vol. 30, no. 1, 2015, pp. 75-89.

¹¹⁷ This “humanity” in reality is always limited and exclusive, and by definition a reduction of personhood for the excluded masses.

¹¹⁸ Green, Ben. *The Smart Enough City: Putting Technology in Its Place to Reclaim Our Urban Future*. Strong Ideas Ser. 2019.

¹¹⁹ Kuchler, Hannah. “Facebook Looks to ‘bring World Closer Together’ on Future Campus.” *Financial Times*, July 7, 2017, <https://www.ft.com/content/81717e4e-6362-11e7-8814-0ac7eb84e5f1>.

¹²⁰ Abrokwa, Clemente K. “Africa 2000: What Development Strategy?” *Journal of Black Studies*, vol. 29, no. 5, 1999, pp. 646-68; Ismi, Assad. *Impoverishing a Continent: The World Bank and the IMF in Africa*. Canadian Centre for Policy Alternatives, 2004; Lynch, 2018; Rodney, Walter., and Abdul Rahman Mohamed Babu. *How Europe Underdeveloped Africa*. Washington: Howard University Press, 1974; Stoneman, Colin. “The World Bank Demands Its Pound of Zimbabwe's Flesh.” *Review of African Political Economy* vol. 53, 1992, p. 94.

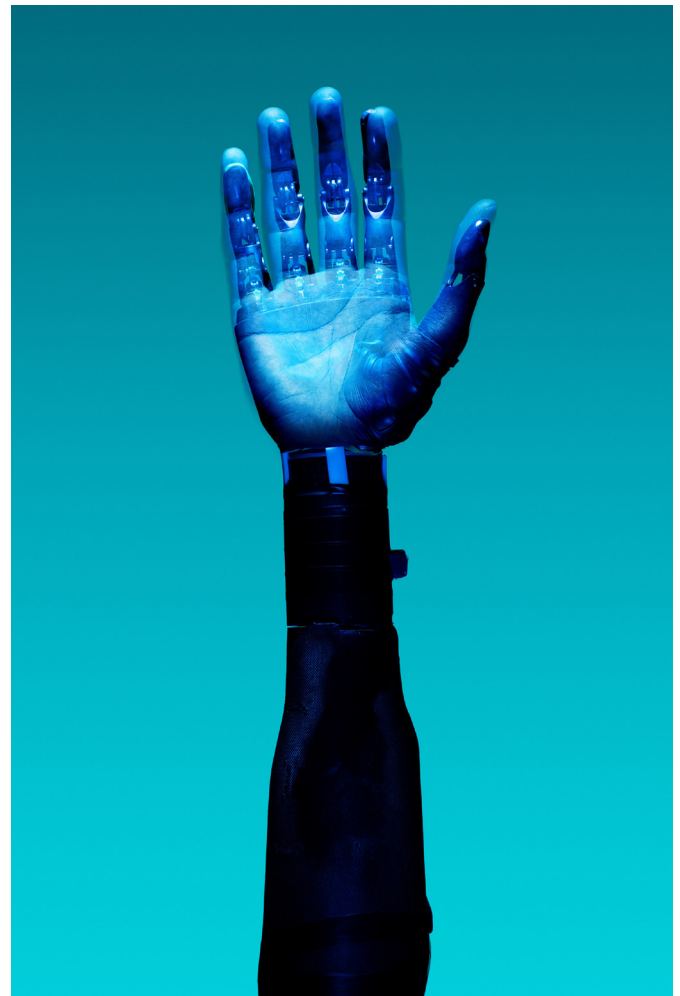
a factor of production ... can be appropriated, abstracted, and commodified all the same.”¹²¹

Manuel Castells argues that “that we are living through an age in which the generation of wealth, the exercise of power, and the creation of cultural codes came to depend on the technological capacity of societies and individuals, with information technologies as the core of this capacity.”¹²² The increased processing power of computers through advances in Graphics Processing Units (GPUs) and the improvement in artificial intelligence models (neural networks), paired with an influx of social networking platforms, forums, blogs and other internet applications has created a surplus of data, which through “Big Data delivers the cost-effective prospect to improve decision-making in critical development areas such as health care, employment, economic productivity, crime and security, and natural disaster and resource management.”¹²³

The resulting “*behavioral surplus* ... data reserves that are more than what is required for product and service improvements” are then commodified.¹²⁴ Large tech companies use our personal characteristics captured in behavioral data to shape our thinking and actions.¹²⁵ The economies of scale supplied by artificial intelligence technology have created unequal knowledge, where internet companies know more about us than we know about them.¹²⁶ The behavioral surplus is extracted from users in colonial-like scale. The commodification of our behavioral data through advertisement business models, enabling violations of the rights to privacy and opinion, makes advertising “the original sin of the web.”¹²⁷ The settler colonialism of southern Africa demonstrates this historical relationship between automation’s surplus, capitalism, and colonialism.

European colonial trade and commerce were enabled by technological advances that led to the surplus of goods and efficiencies in industry and transportation. Cornel West writes, “European breakthroughs in oceanic transportation, agricultural production, state consolidation, bureaucratization, industrialization, urbanization and *imperial dominion* shaped the makings of the modern world.”¹²⁸ The creation of surplus due to European production required new markets, or else would risk the collapse of capitalism, creating

Hegel’s “penurious rabble”. Two multinational companies, the Dutch East India Company and the British South Africa Company, fulfilled this need in southern Africa. During settler colonialism, the multinational companies created trade routes and infrastructure to better extract resources from the land and to govern the use of land by the natives. Due to the economic importance of the land and trade routes, the Dutch and British governments formally colonized southern Africa, officially overseeing the activities of the colonies and the extraction of resources there. The danger exists that data colonialism and surveillance capitalism may ultimately serve the needs of nation states at the expense of society in a similar fashion. In Africa, this danger exists from the use of Western and Eastern platforms and technology.



¹²¹. Couldry and Mejia, 2019.

¹²². Castells, M. *End of Millennium (The Information Age: Economy, Society, and Culture)*. Second Edition. Hoboken, NJ: Wiley-Blackwell, 2010.

¹²³. Hilbert, M. “Big Data for Development: From Information - to Knowledge Societies.” *SSRN Electronic Journal*, 2013.

¹²⁴. Jørgensen, 2019.

¹²⁵. Zuboff, 2019.

¹²⁶. Ibid.

¹²⁷. Zuckerman, Ethan. “The Internet’s Original Sin.” *The Atlantic*. August 14, 2014. <https://www.theatlantic.com/technology/archive/2014/08/advertising-is-the-internets-original-sin/376041/>.

¹²⁸. West, Cornel. *Keeping Faith : Philosophy and Race in America*. New York: Routledge, 1993.

The critiques against data colonialism and surveillance capitalism are the acknowledgement of the inevitable dehumanization of these processes. However, It is an error to ignore “the seeds of decay inherent in Capitalism”—in the words of anti-apartheid leader Robert Sobukwe—in hopes for a “more rational capitalism [that can] avert a future of misery and conflict”, as implied in Zuboff’s critique of surveillance capitalism.¹²⁹ The flaws within capitalism are due to individualism, the idea that the individual—who is self-complete by virtue of being rational—is the central most point of concern within society. This framing, as explained previously, leads to and perpetuates inequality.

Five Core Critiques of Artificial Intelligence

The ubu-Ntu framework for understanding the ethical implications and human rights risks of automated decision-making systems (ADMS) relies on examining the nature of the interconnected and layered relationships relating to the creation and use of these systems. These include the relationships between the ADMS producers and the ADMS, the ADMS to the people it will be applied to, and the relationships of those affected by the ADMS with themselves, society, the environment, and the spiritual (here meaning past, present, and future generations). The distribution of power within and between relationships must enable social progress, social harmony, and human dignity.

Automated decision-making systems can be flawed in one or more of five ways. These flaws are violations of the ethics of ubu-Ntu as they create imbalances of power that hinder social progress, social harmony, and the respect for human dignity.

EXCLUSION OF MARGINALIZED COMMUNITIES IN THE DESIGN OF ADMS

Exclusion is at the heart of inequality. The development cycle of ADMS—from the academic training, tech hiring and promotion practices, to the allocation of venture capital—excludes the experience and expertise of marginalized

communities. The hierarchies created have both a racial and gender component. Disenfranchised communities are often not reflected in computer science PhD graduates, the software engineering workforce, and in who receives capital to build technology.¹³⁰ The needs and problems that technology can address have a slant towards those of the privileged. The intersection of economic and social inequalities limits who may benefit from technology. Communities who are disenfranchised are likely to be disproportionately negatively affected by technology if they are not included in the process of designing it. It matters who designs the technology and chooses what problems can be addressed and on whom the technology is used.

The exclusion of the marginalized masses prevents tech companies from better understanding the potential harm technology may have on the disenfranchised. Exclusion also prevents tech companies from focusing their efforts on projects that might have public benefits. Exclusion hinders upward mobility by making it much harder for the disenfranchised to gain access to the capital and capacity to leverage the benefits of technology. The reconstitution of community requires including all stakeholders in the creation of technology.¹³¹

Tech companies and academia, exploring the issues of technology and ethics, often lament about pipeline problems and extol their desires to “do more,” while simultaneously withholding the necessary action and will to do more. The pipeline comment may be summarized as “we can’t find more people of diverse backgrounds who are like us.” This lack of diversity in finding people similar to each other is often called “culture fit” and is a tenet encouraged in early age startups.¹³² It is stated that similarity creates speed and that speed is necessary for a startup’s success. Stressing similarity creates filter bubbles and reinforcement biases, and may lead to discrimination based on race and gender, among other categories.

The differences of others not “like us” in experiential knowledge and background must also be valued for how they help provide clarity on how the technology built for the public actually affects the public. Marginalized communities must be recognized as experts of their own experiences.

¹²⁹. Sobukwe, Robert. Speech at the University of Fort Hare as President of the Students’ Representative Council, October 21, 1949. Available at: <https://www.sahistory.org.za/archive/robert-sobukwe-speech-university-fort-hare-president-students-representative-council-21>.

¹³⁰. Zweben, Stuart and Betsy Bizot. “2017 CRA Taulbee Survey: Another Year of Record Undergrad Enrollment; Doctoral Degree Production Steady While Master’s Production Rises Again.” Computing Research Association, 2017. <https://cra.org/wp-content/uploads/2018/05/2017-Taulbee-Survey-Report.pdf>.

¹³¹. Gade, Christian B. N. A Discourse on African Philosophy : A New Perspective on Ubuntu and Transitional Justice in South Africa. Lanham, Maryland: Lexington Books, 2017.

¹³². Peter Thiel is known to favor the lack of diversity at the early stages of startups <https://blakemasters.com/post/21437840885/peter-thiels-cs183-startup-class-5-notes-essay>; <https://www.entrepreneur.com/article/237677>.

Society can benefit from such expertise in its goal to reduce inequality. Non-tech disciplines of study that focus on the human experience and issues of equality can also contribute to better minimizing the discriminative effects of ADMS. Numerous studies have shown that diverse companies tend to perform better than non-diverse companies.¹³³

BIASES IN PROCEDURE AND DATA

The process of building automated decision-making systems is riddled with biases in two major areas: in the selection of features and within the data. The process of building machine learning systems requires time, effort, capital, and material—value-based conscious decisions. This process is not an unbiased one; it is a process that directly embeds the creators' ethical values through the selection of features. The creation of technology is often an assertion of value, the assertion of a world outlook. Ultimately, companies create technology to solve the problems they care about and believe to be worthwhile. Problems arise if what is worthwhile is a matter of profit and market dominance. The ethics of those who hold the power to bring about technology is important. It is their ethics that become applied through their spheres of influence.

Racial and gender discrimination are entrenched in society and these biases are reproduced in the digital realm.¹³⁴ Within ADMS, data is the digital representation of the behaviors of people. If people have biases, the data about their behaviors will also have biases. Internet companies that fail to take into account the societal biases that exist are likely to perpetuate and enforce them through the ADMS they create. The ADMS that are built are often closed to public scrutiny, which prevents adequate correction and effectively codifies the biases into digital law.

The negative consequences that arise in the use of automated decision-making systems reflect failures to affirm and protect the humanity of others. The assumed default human, often the white male, and his default seat of power, often the Western world, is often expected to reflect how the world is and should be. This is the idealized human whom these tools often protect along with his institutions. The definition of human needs to be expanded greatly and accorded equally to all humans. When this is done appropriately it will be reflected in the design and use of artificial intelligent systems.

Racial and gender discrimination are entrenched in society and these biases are reproduced in the digital realm.

This is not a critique against whiteness, but a critique aimed at a poorly developed conception of being a person. Whiteness/White supremacy is a manifestation of an individualism that justifies, explicitly or implicitly, the concentration of power and its benefits amongst white bodies and white institutions. To better accord "humanity" to all, the identity of the human/self needs to escape its individualistic constructs and regard a person as a person through meaningful concrete relationships with other persons. A shared humanity, a oneness and indissoluble interconnectedness between all humans, needs to be the paramount human identity and positionality from which we organize our societies, and produce the technological advances that maintain social harmony.

THE FAILURE TO RECOGNIZE THE INTERCONNECTEDNESS OF SOCIETY

The misguided belief in the neutrality of technology, a view that observes the structure of society as independent from the design and use of technology, perpetuates existing social inequalities and power imbalances. While AI systems may be used to target those with privilege through influencing their decisions, those who benefit from social privileges and protections are better able to offset negative effects of ADMS. Communities that lack social protections are left to carry the pieces when technology breaks. The assumption that technology designed in exclusion is neutral and equally applicable to all societies is fundamentally flawed.

¹³³. European Commission. Directorate-General for Employment, Social Affairs Equal Opportunities. Unit D.3. The Business Case for Diversity : Good Practices in the Workplace. Luxembourg: Office for Official Publications of the European Communities, 2005; See World Economic Forum, "The business case for diversity in the workplace is now overwhelming", <https://www.weforum.org/agenda/2019/04/business-case-for-diversity-in-the-workplace/>

¹³⁴. Noble, 2018.

Technology emerges from interconnected social processes and it reflects the currents of power, or the ways power flows within a society. The process of creating digital technology requires a series of dependencies which, due to systematic inequality, are not equally accessible to all. These dependencies include capital, technical capabilities and favorable networks. Technology is not separated from the social processes that produce it. The existing power structures become replicated. If how one accesses or benefits from technology is a function of power, then those with enough power—economic, political or otherwise—will likely receive the most benefits. The disenfranchised in society will be left out as they are at the marginalized end of power distribution. Artificial Intelligence technology is modeled after society and it is likely to replicate the social structures that exist.

THE COMMODIFICATION OF OUR DIGITAL SELVES

The construction of value in the digital technology industry based on the commodification of users amounts to processes of reduction that lead to the isolation and dehumanization of individuals. The commodification resulting from designing one-sided objectives—objectives ultimately designed to increase a company's profits, sometimes through the capture of a user's attention—results in a diminished digital representation of ourselves and treats people as a means rather than an end. The extraction of our data reduces a holistic view of a person and leads to models designed to maximize profit.

Algorithmic personalization and individualization, void of the consent and cooperation of those who will be affected by such algorithms, may also lead to processes of dehumanization that reduce individuals to mere commodifiable metrics. When what a user can view is uniquely tailored by a platform, it can lead to isolation and an incomplete worldview that can be at odds with the benefits of society. As a result, users are likely to become disconnected from the rest of society. This can be exacerbated by platforms that are designed to be addictive. The manner in which algorithms are used to make recommendations is often designed purely to maximize objectives that lead to the profit of the platforms. Maximizing public good is an afterthought in practice. Certain worldviews become dominant, not because they are good for society, but because they reflect the biases and metrics of those who are empowered.

In some sense the purpose of ADMS—to provide recommendations amidst great uncertainty—is not new. It has previously appeared in the form of divination. Machine learning is digital divination. The current process of *digital divination* is flawed because it is based on individualistic values. In the case of recommendation systems, the recommendations are ultimately designed to maintain a user's attention for as long as possible. Even if it could be argued that users ultimately are recommended the content they desire, it does not necessarily mean this provides value to a user. Users may be introduced to harmful content and choices that ultimately do not provide balanced value to them. Furthermore, users are not able to assert greater control in expressing their values into the algorithms and, instead, are enclosed in the value construct



that is determined by digital companies. The metric of success quickly becomes maximizing a user's attention and behavior as opposed to successfully collaborating with the user to provide value-based recommendations.

A holistic model of divination, as such found in Sub-Saharan Africa, is based on relationality, probability, rationality, and a series of algorithmic steps.¹³⁵ This is a model where both diviner and recipient cooperate and collaborate to reach a mutually agreed upon recommendation.¹³⁶ This process takes into account a holistic view of the consuler which consists of the individual, community, environment and the spiritual. In this divination, a consultant is able to play an active role in the determination process including rejecting a recommendation. When a company is incentivized to prioritize their own profits over the user's good and societal good, however, it creates a precarious situation in which harmful content may be maximized if it will maximize profits. ADMS that are closed off and deployed at a large scale end up amounting to systems of mass influence.

The process of individualizing a person strips a person from their connectedness and status as an integral part of the whole, therefore bringing vulnerability to the person, community, or both. Reduction or objectification of an entity leads to commodification of that entity. This reduces a person's humanity, which can lead to the violation of their human rights, in particular the right to solidarity. Cooperation involves communication and consent to sharing one's information. An opportunity exists to restructure online recommendations into an activity that incorporates a user's preferences and the benefits to society at large.

When global power is centralized amongst a few societies, especially so in the North, it ensures a select few actors will dominate the process of creating the technology used globally.

THE CENTRALIZATION OF DATA AND RESOURCES

Power is centralized among a few companies, countries, and continents through the centralization of data, capital, capabilities, and infrastructure that is required when producing artificial intelligence systems. The centralization of data, common in the large internet platforms that use artificial intelligence in shaping online experiences, has ceded control over large portions of the internet experience to a few private corporations without public accountability, allowing for business models that prioritize private interests over public good. Furthermore, advertisement-driven business models are leading to exploitative processes through the commodification of our digital selves. This commodification, enabled by centralization, creates a negative cycle that encourages excessive surveillance of individuals in order to better commodify them.¹³⁷

When technology is applied on a global scale, it creates a global community. The human community is diverse in its values and priorities and these differences must be considered to prevent discrimination of any particular group. A problem arises when a particular value system is applied to other communities who might share different values. Extending community to vulnerable populations extends protection and recourse to marginalized communities. Vulnerable populations should be recognized as part of the community and should be considered in the design, implementation, and ecosystem of machine learning. Their voices should be included in the discourse on ethics in machine learning as a condition to addressing inequalities which may be exacerbated by machine learning systems. The current discourse on ethics and machine learning is not only exclusive but also does not consider alternative ethical systems. A homogeneity is assumed when discussing ethics in technology and posits Western ethics as the default framework for addressing the harmful effects of technology.

When global power is centralized amongst a few societies, especially so in the North, it ensures a select few actors will dominate the process of creating the technology used globally. The increase of power among a few actors increases the potential and impact of harm by those actors. Powerful multinational companies whose core incentives are not public good are in a position to create technology with devastating impacts. As technology is value-laden and its creation reflects an outlook on how society ought to be, the imposition of technology on societies without their representation in its creation is also an imposition of values. This is a reproduction of historical colonial relationships and, just as in the past, is likely to create structural exploitation and inequality.

¹³⁵. Oluwole, Sophie B. *Socrates and Ọrúnmilà : Two Patron Saints of Classical Philosophy*. Revised ed. Lagos, Nigeria: Ark Publishers, 2015.

¹³⁶. Peek, 1991.

¹³⁷. Zuboff, 2019.

Ethics and Technology

African philosophers would assert that the discriminatory effects of technology are the expected result of individualistic behaviors that violate ubu-Ntu ethics. The efficiency and optimization that technology can promote is not necessarily morally sound or fit for a society. Mazisi Kunene warns:

Thus, a highly ethically advanced society need not necessarily be technologically advanced; equally a technologically advanced society does not automatically possess a high ethical level. Indeed more often than not technological advancement tends to barbarize society, since by its very nature it implies a high degree of competitiveness for resources. In short, the instruments or tools for modelling man's material environment do not necessarily improve the ethical quality of society.¹³⁸

Greed is the ultimate form of individualism. The vice of greed is antithetical to the generosity, interconnectedness, and empathy required by ubuntu. The slain South African human rights leader Steve Biko quotes the anti-colonial leader and first president of Zambia, Kenneth Kaunda, when he asks, "is there any way that my people can have the blessings of technology without being eaten away by materialism and losing the spiritual dimension from their lives?"¹³⁹ Technology that is built only reflecting an individualistic worldview can disconnect us from one another, therefore causing a spiritual decline. Furthermore, Biko states that technology has the ability to shift us away from placing value in human relationships, asserting, "We must seek to restore to the black people a sense of the great stress we used to lay on the value of human relationships."¹⁴⁰

The discriminatory effects of technology demand much more than a technological solution: according to traditional Sub-Saharan African philosophy, technology requires a spiritual shift.¹⁴¹ Spirituality, the "social ethic" is what African societies consider civilization: this consists of "the elevation of social action and social cohesiveness as the highest ideal of society."¹⁴² Social cohesion requires adequate representation through inclusive measures. As long as inequality exists, the process of inclusion is incomplete.

The exclusive value system behind the design of technology may be fundamentally changed if, according to ubuntu, an individual's dignity does not lie in their capacity for rationality and autonomy but in the fact that an individual is an irreplaceable and necessary part of the whole whose role is to strengthen the whole. Ubuntu describes the role of the individual as to maximize public good, restore breaks in harmony by affirming the dignity of all, and create the necessary environment for all to thrive. Rulership is collaborative. Influence should be collaborative for the benefit of the one being influenced.

The idea that technology is neutral and can best arbitrate human affairs is comparable to a creation myth. Creation narratives, often engraved in mythological lore, only serve to justify ruling power structures and how power ought to be acquired and distributed. Euro-North American traditions have for centuries developed creation myths that have justified racist and patriarchal power structures. From attributing divine will for the domination of the non-Western world, to an exclusive claim to rationality, the racialization of science, the supposed neutrality of algorithms, and the continued coloniality delivered through the guise of modernity, creation myths serve as the social and unspiritual ethics of how the distribution of power ought to be. From within the constraints and depths of these myths, whose egalitarian promises of equality are doomed to remain elusive, humanity is led to draw its experience and destiny. These racist, colonial, and largely patriarchal myths are really the same outmoded myth of white supremacy told in different ways, sometimes explicitly, other times implicitly, but adapted for each social epoch.

Technology and Policy using Ubuntu

The way forward in addressing the negative effects of ADMS and the economic, political and social structures that shape it is to recognize the communal and social person as the point of departure. Society must see a human as a whole, directly

¹³⁸. Kunene, Mazisi. *The Ancestors & the Sacred Mountain: Poems. African Writers Series*. London ; Exeter, N.H., USA: Heinemann Educational, 1982, p. 235.

¹³⁹. Biko, 1979.

¹⁴⁰. Ibid.

¹⁴¹. For a related discussion of the role of spirituality in tech ethics, see Van Noppen, this volume

¹⁴². Kunene, 1982.

connected to the environment and community. The harmful connection between climate change and cloud computing infrastructure that much of ADMS now rely on must be addressed.¹⁴³ Technology should be created with a normative goal to eradicate inequality through the participation of the most disenfranchised. The data collected from users that powers ADMS should be used for public good and made available to the public in ways that protect privacy and promote the wellbeing of society. Communities should be able to treat their data as intellectual property that can be licensed or revoked from online platforms. Greater funding and access to technical skillsets must be made available to the most disenfranchised. The ways in which algorithms make considerations should allow users to be able to directly shape the recommendations they receive. Technology companies should tailor recommendations with agreed upon social ideals based on human dignity and social cohesion.

There are technical methods that allow for the training of machine learning to occur in a decentralized manner in which user data never leaves a user's device. A possible online platform can be one where private internet giants never have access to a user's data. "Differential privacy" maybe used to provide mathematical guarantees of privacy that prevent cross data attacks that occur when different datasets are mixed to re-identify data.¹⁴⁴ Similar to Tim Berners-Lee's idea of pods within the *solid* framework, users can have private "pods" in which they have full control of their data.

The ubuntu conception of a new internet would be that user data is never given directly to other companies; instead, an intermediary is created: when a company seeks a user's data to display within a user's device, the browser acts as the intermediary to assemble the data. A user makes a request to a platform, the platform sends a request to the user for their data, the user accepts this request, and then the user's device, with the user's permission, retrieves the data and assembles it entirely on the device along with the content. Stated differently, the internet company sends a "recipe", the user approves the recipe (or modifies it), and the browser collects the "ingredients" from the user's private data store and assembles them, according to the recipe, entirely on a user's device without sending the data back to an internet company.

Offline technology may also be created to use Bluetooth, Wi-Fi and ultrasonic technology to create peer-to-peer networks.¹⁴⁵ Users can form secure networks with each other without the invasive oversight of internet platforms. This would directly address the high cost of internet services in developing and, globally, mitigate internet censorship and exploitation by centralized bodies.

Policy makers should play an active role in providing measures that allow a human to become a communal person. Public impact assessment bodies should be created to understand the ethical impact of algorithms on society. Policy makers in developing regions should assess the extent to which technology can achieve social and economic solidarity of their citizens. Legislation should be enacted to allow users and communities to maintain greater access to and control of their data. Other regions of the world, similar to the European Union, can also create region-wide technology legislation policy to protect local users. In developing regions, policies should be adopted that ensure large tech companies do not monopolize the market through their provision of free or heavily subsidized data bundles. When services from large internet platforms are offered for free through telecom partnerships, it displaces local innovators who cannot afford to offset the costs of data for their users.

Tech companies seeking to create technology to achieve ethical outcomes should consider the following ubuntu principles: solidarity, reconciliation, equality, equity, and community.¹⁴⁶ Through solidarity, technology that creates social cohesion should be pursued. Reconciliation should be a practice that places disenfranchised communities in positions of power within the company and in society. The principle of equity mandates that technology companies reduce inequality through their product offerings. The principle of equality is rooted in human dignity, and mandates that human rights protections should shape technology. The principle of community encourages tech companies to give greater control of the product and its use to the community.

¹⁴³. Greenpeace. "Make IT Green: Cloud Computing and Its Contribution to Climate Change." 2010.

¹⁴⁴. Dwork, Cynthia. "Differential Privacy." *Automata, Languages And Programming*, Pt 2, 4052, 2006, pp. 1-12; Sweeney, L. "Guaranteeing Anonymity When Sharing Medical Data, the Datafly System." *Proceedings : A Conference of the American Medical Informatics Association. AMIA Fall Symposium*, 1997, pp. 51-55.

¹⁴⁵. An open-source project "Ayanda", by the author, achieves this <https://github.com/bantucracy/ayanda>.

¹⁴⁶. "Ubuntu Ethics – 'Being/Becoming Human,'" Bantucracy, 2019, <https://ubuntuethics.com/>.

Conclusion

The way in which personhood is defined has implications that can disenfranchise or empower humanity. The traditional Western conception of personhood based on rationality has for centuries treated Euro-Americans as the progenitors and de facto stewards of rationality. This definition has been used to support Euro-American claims to superiority. It is assumed the political, economic, and social systems that arose from Western personhood are universally applicable because they are rational. In reality, this has been a thinly veiled cover that has propelled the subjugation of those deemed to lack the acceptable degree of rationality. This definition of rational personhood was used by Euro-Americans to bring salvation to the “unfortunate” others through colonialism and capitalism. However, salvation through individualism and Western modernity has been riddled with contradictions, false promises, and a diminished personhood of those affected.

Today’s salvation, deeply motivated by rationality as personhood, and enabled by capitalism and modern colonialism, is the use of artificial intelligence to automate decision making about the lives of humans. It is the same weaponization of rationality that has dominated Euro-American conquests. The belief in the neutrality of automated decision-making systems is deeply misguided and shares the same flaws and contradictions of its predecessors. The negative effects of ADMS on groups historically marginalized by Euro-American modernity affirms the dehumanizing effects of basing the essence of personhood on rationality.

Rational personhood is flawed in both practice and theory. It is in contradiction to itself, creating the inequality it seeks to abolish. Its inconsistency and incompleteness as a formal system is known mathematically, yet the pursuit of a mechanical and artificial personhood continues unabated. Mechanical thinking and computationally solving human needs without addressing the holistic needs of humans are not the improvements on human thinking and progress they are purported to be. The ethical limitations of rationality as personhood are apparent. Now is the opportune moment for society, academia, and the computing industry to remove itself from the traps of rational personhood and reconcile themselves to a relational understanding of personhood.

The philosophy of *ubu-Ntu*, through its robust conception of relationality, offers humanity the chance to re-imagine not just the internet, or artificial intelligence, but also what it means to be human, existing in an interconnected world. In this sense, as in the words of the Suthu and Nguni philosophers, *ubu-Ntu* is one of Africa’s greatest gifts to the world.

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