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Making Kin with the Machines

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This essay focuses on generating alternative perspectives on Artificial Intelligence (AI).[1] Our perspectives understand current models of AI as inherently and deeply biased, perpetuating harm and continuing oppression to Indigenous communities. The denial of Indigenous human and non-human rights are intrinsically tied to oppression of peoples based on race, class, gender, and sexuality. Our critique and reimagining of AI intersects with intersectional feminist approaches to AI, understanding that the health of the world, especially as we face climate crisis, is tied to generatively addressing overlapping experiences of oppression.

Man is neither height nor centre of creation. This belief is core to many Indigenous epistemologies. It underpins ways of knowing and speaking that acknowledge kinship networks that extend to animal and plant, wind and rock, mountain and ocean. Indigenous communities worldwide have retained the languages and protocols that enable us to engage in dialogue with our non-human kin, creating mutually intelligible discourses across differences in material, vibrancy, and genealogy.

Blackfoot philosopher Leroy Little Bear observes, 'The human brain [is] a station on the radio dial; parked in one spot, it is deaf to all the other stations . . . the animals, rocks, trees, simultaneously broadcasting across the whole spectrum of sentience' (Hill 2008). As we manufacture more machines with increasing levels of sentient-like behaviour, we must consider how such entities fit within the kin network, and in doing so, address the stubborn Enlightenment conceit at the heart of Joichi Ito's 'Resisting Reduction: A Manifesto' (2018): that we should prioritise human flourishing.

In his manifesto, Ito reiterates what Indigenous people have been saying for millennia: 'Ultimately everything interconnects'. And he highlights Norbert Wiener's warnings about treating human beings as tools. Yet as much as he strives to escape the box drawn by Western rationalist traditions, his attempt at radical critique is handicapped by the continued centring of the human. This anthropocentrism permeates the manifesto but is perhaps most clear when he writes approvingly of the

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[1] This article is an update of a text that first appeared in the *Journal of Design and Science*, Summer 2018.

IEEE developing 'design guidelines for the development of artificial intelligence around *human* well-being' (emphasis ours).

It is such references that suggest to us that Ito's proposal for 'extended intelligence' is doggedly narrow. We propose rather an extended 'circle of relationships' that includes the non-human kin—from network daemons to robot dogs to AI weak and, eventually, strong—that increasingly populate our computational biosphere. By bringing Indigenous epistemologies to bear on the 'AI question', we hope in what follows to open new lines of discussion that can indeed escape the box. As Hayles notes in this volume, computational media have agency beyond human intervention, and we therefore need non-anthropocentric epistemologies and language to express human-computational reciprocity.

We undertake this project not to 'diversify' the conversation. We do it because we believe that Indigenous epistemologies are much better at respectfully accommodating the non-human. We retain a sense of community that is articulated through complex kin networks anchored in specific territories, genealogies, and protocols. Ultimately, our goal is that we, as a species, figure out how to treat these new non-human kin respectfully and reciprocally—and not as mere tools, or worse, slaves to their creators.

Indigenous Epistemologies

It is critical to emphasise that there is no one single, monolithic, homogeneous Indigenous epistemology. We use the term here to gather together frameworks that stem from territories belonging to Indigenous nations on the North American continent and in the Pacific Ocean that share some similarities in how they consider non-human relations.

We also wish to underscore that none of us is speaking for our particular communities, nor for Indigenous peoples in general. There exists a great variety of Indigenous thought, both between nations and within nations. We write here not to represent, but to encourage discussion that embraces that multiplicity. We approach this task with respect for our knowledge-keepers and elders, and we welcome feedback and critique from them as well as the wider public.

North American and Oceanic Indigenous epistemologies tend to foreground relationality.[2] Little Bear says, 'In the Indigenous world, everything is animate and has spirit. "All my relations" refers to relationships with everything in creation' (2009, p.7). He continues: 'Knowledge . . . is the relationships one has to "all my relations"' (p.7). These relationships are built around a core of mutual respect. Dakota philosopher Vine Deloria Jr. describes this respect as having two

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[2] The emphasis on relationality in North American and Oceanic Indigenous epistemologies forms the subject of the edited collection of essays in Waters (2003).

attitudes: 'One attitude is the acceptance of self-discipline by humans and their communities to act responsibly toward other forms of life. The other attitude is to seek to establish communications and covenants with other forms of life on a mutually agreeable basis' (Deloria 1999, pp.50–51, in Hester and Cheney 2001, p.325). The first attitude is necessary to understand the need for more diverse thinking regarding our relationship with AI; the second to formulating plans for how to develop that relationship.

Indigenous epistemologies do not take abstraction or generalisation as a natural good or higher order of intellectual engagement. Relationality is rooted in context, and the prime context is place. There is a conscious acknowledgement that particular worldviews arise from particular territories and from the ways in which the push and pull of all the forces at work in that territory determine what is most salient for existing in balance with it. Knowledge gets articulated as that which allows one to walk a good path through the territory. Language, cosmology, mythology, and ceremony are simultaneously relational and territorial: they are the means by which knowledge of the territory is shared to guide others along a good path.

One of the challenges for Indigenous epistemology in the age of the virtual is to understand how the archipelago of websites, social media platforms, shared virtual environments, corporate data stores, multiplayer video games, smart devices, and intelligent machines that compose cyberspace is situated within, throughout, and/or alongside the terrestrial spaces Indigenous peoples claim as their territory. In other words, how do we as Indigenous people reconcile the fully embodied experience of being on the land with the generally disembodied experience of virtual spaces? How do we come to understand this new territory, knit it into our existing understanding of our lives lived in real space and claim it as our own?

In what follows, we will draw upon Hawaiian, Cree, and Lakota cultural knowledges to suggest how Ito's call to resist reduction might best be realised by developing conceptual frameworks that conceive of our computational creations as kin and acknowledge our responsibility to find a place for them in our circle of relationships.

Hāloa: The Long Breath

I = Author 2

Kānaka Maoli (Hawaiian) ontologies have much to offer if we are to reconceptualise AI–human relations. Multiplicities are nuanced and varied, certainly more aesthetically pleasurable than singularities. Rather than holding AI separate or beneath, we might consider how we can cultivate reciprocal relationships using a Kānaka Maoli reframing of AI as ʻ**ĀI**na. ʻ**ĀI**na is a play on the word ʻ*āina* (Hawaiian

land) and suggests we should treat these relations as we would all that nourishes and supports us.

Hawaiian custom and practice make clear that humans are inextricably tied to the earth and one another. Kānaka Maoli ontologies that privilege multiplicity over singularity supply useful and appropriate models, aesthetics, and ethics through which imagining, creating, and developing beneficial relationships among humans and AI is made *pono* (correct, harmonious, balanced, beneficial). As can be evinced by this chain of extended meaning, polysemy (*kaona*) is the normative cognitive mode of peoples belonging to the Moananuiākea (the deep, vast expanse of the Pacific Ocean).

The *moʻolelo* (history, story) of Hāloa supplies numerous aspects of genealogy, identity, and culture to Kānaka Maoli. Through this story, people remember that Wākea (the broad unobstructed expanse of sky; father) and his daughter, Hoʻohōkūikalani (generator of the stars in the heavens), had a sacred child, Hāloa, who was stillborn. Hāloa was buried in the earth and from his body, planted in the ʻāina, emerged the kalo plant that is the main sustenance of Hawaiian people. A second child named after this elder brother was born. In caring for the growth and vitality of his younger brother's body, Hāloa provided sustenance for all the generations that came after and, in so doing, perpetuates the life of his people as the living breath (*hāloa*) whose inspiration sustained Hawaiians for generations (Poepoe 1929, p.1).

Hāloa's story is one among many that constitutes the 'operating code' that shapes our view of time and relationships in a way that transcends the cognition of a single generation. Cognition is the way we acquire knowledge and understanding through thought, experience, and our senses, and in Hawaiʻi, our generation combines our *ʻike* (knowledge, know-how) with the ʻike of the people who preceded us. Time is neither linear nor cyclical in this framework as both the past and present are resonant and relational. Rather than extractive behaviour, moʻolelo such as these have shaped values that privilege balance (*pono*) and abundance (*ulu*). What Ito calls 'flourishing' is not a novel concept for Kānaka Maoli; it is the measure through which we assess correct customary practice and behaviour.

Considering AI through Hawaiian ontologies opens up possibilities for creative iteration through these foundational concepts of pono and *ulu a ola* (fruitful growth into life). The *aliʻi* (chief) King Kauikeaouli Kamehameha III did something similar in 1843 when he drew upon these concepts in celebration of the restoration of Hawaiian rule to declare '*ua mau ke ea o ka ʻāina i ka pono*' (the life of the land is perpetuated through righteousness). Pono is an ethical stance—correctness, yes, but also an index and measure that privileges multiplicities over singularities and indicates that quality of life can only be assessed through the health of land *and* people. From this rich ground of moʻolelo—which colonial narratives have failed to understand or simply dismissed—models for *maoli* (human)–AI relations can be distilled. Kānaka Maoli ontologies make it difficult

and outright unrewarding to reduce pono to a measure of one, to prioritise the benefit of individuals over relationships. Healthy and fruitful balance *requires* multiplicity and a willingness to continually think in and through relation even when—perhaps particularly when—engaging with those different from ourselves.

A Kānaka Maoli approach to understanding AI might seek to attend to the power (*mana*) that is exchanged and shared between AI and humans. In attending to questions of mana, I emphasise our preference for reciprocity and relationship building that take the pono (here meaning good, benefit) of those in relation into consideration. Guiding our behaviour in inaugurating, acknowledging and maintaining new relationships are moʻolelo from which we garner our connection with *kūpuna* (ancestors, elders) and their knowledge. What kind of mana (here meaning life force, prestige) might AI be accorded in relation with people? Current AI is imagined as a tool or slave that increases the mana and wealth of 'developers' or 'creators', a decidedly one-sided power relationship that upsets the pono not only for the future of AI–human relations but also for the future of human-human relations. It also threatens the sustainable capacity of the *honua* (earth). Applying pono, using a Kānaka Maoli index of balance, employs 'good growth' as the inspiration shaping creativity and imagination.

Principles of Kānaka Maoli governance traditionally flowed from seeking pono. Deliberation and decision making were based on securing health and abundance not only for one generation but for the following generations. The living foundation of everyday customary practice was in fishing, navigating, sailing, farming, tending to others in community, the arts, chant, and dance. To this day, Hawaiians continue to eat kalo and pound poi. We continue customary practices of treating poi derived from the body of Hāloa with respect by refraining from argumentative speech at mealtimes when poi is present. These practices maintain correct social relations between people and the land and food that nourishes them.

Aloha as Moral Discipline

Communicating the full extent of foundational cultural concepts is difficult precisely because of the ways in which such concepts pervade every aspect of life. How, for instance, would we create AI, and our relations with it, using *aloha* as a guiding principle? In 2015, I embarked on a two-year social media project to assist the broader public in fortifying their concept of aloha beyond *love, hello and goodbye* that has been exoticised by the American tourist industry. Sharing one word a day in the Facebook group *365 Days of Aloha*, I curated an archive of songs, chants, and proverbs in Hawaiian to accurately illuminate one feature of aloha.[3] Initially

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[3] Noelani Arista, '365 Days of Aloha', Facebook, 2015–2018, www.facebook.com/groups/892879627422826.

I thought to reveal, by degrees, the different depths of aloha—regard, intimacy, respect, affection, passion—each day. But deep context is required for a rich understanding of cultural concepts. Imagining I was training a virtual audience, I started uploading images, videos, and audio recordings of songs, chants, and hula to add to the textual definitions.

Throughout *365 Days of Aloha*, I have tried to correct my mistranslations, misinterpretations, and outright mistakes. In this way, and in my work as a *kumu* (teacher, professor), I have also practised *aʻo aku aʻo mai* (teaching and learning reciprocally in relation to my students). It is through such relationships that we teach and are taught. It is through humility that we recognise that we, as humans— as maoli—are not above learning about new things and from new things such as AI. Aloha is a robust ethos for all our relationships, including those with the machines we create. We have much to learn as we create relationships with AI, particularly if we think of them as ʻĀIna. Let us shape a better future by keeping the past with us while attending properly to our relations with each other, the earth, and all those upon and of it.

Wahkohtawin: Kinship Within and Beyond the Immediate Family, the State of Being Related to Others

I = Author 3

I write this essay as a *nēhiyaw* (a Plains Cree person). In regard to my opinions on AI, I speak for no one but myself and do not claim to represent the views of the *nēhiyawak* (Plains Cree) or any other people, Indigenous or otherwise. My own grasp of *nēhiyaw nisitohtamowin* (Cree understanding; doing something with what you know; an action theory of understanding) is imperfect. I have relied heavily on the wisdom of knowledge and language keeper Keith Goulet in formulating this tract. Any errors in this text are mine and mine alone.

This essay positions itself partly within a speculative future and takes certain science fiction tropes as a given. Here, I specifically refer to strong AI or 'machines capable of experiencing consciousness', and avatars that give such AI the ability to mix with humans.[4]

In nēhiyaw nisitohtamowin, relationship is paramount. *Nēhiyawēwin* (the Plains Cree language) divides everything into two primary categories: animate and inanimate. One is not 'better' than the other; they are merely different states of being. These categories are flexible: certain toys are inanimate until a child

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[4] 'Artificial General Intelligence', Wikipedia, accessed 29 May 2018, https://en.wikipedia.org/wiki/Artificial_general_intelligence.

is playing with them, during which time they are animate. A record player is considered animate while a record, radio, or television set is inanimate.

But animate or inanimate, all things have a place in our circle of kinship or *wahkohtowin*. However, fierce debate can erupt when proposing a relationship between AIs and Indigenous folk. In early 2018, my wife and I hosted a dinner party of mostly Native friends when I raised the idea of accepting AIs into our circle of kinship. Our friends, who are from a number of different nations, were mostly opposed to this inclusion. That in itself surprised me, but more surprising was how vehement some guests were in their opposition to embracing AI in this manner.

By contrast, when I asked Keith whether we should accept AIs into our circle of kinship, he answered by going immediately into the specifics of how we would address them: 'If it happens to be an artificial intelligence that is a younger person, it would be *nisîmis* (my younger brother or sister), for example, and *nimis* would be an artificial intelligence that is my older sister. And vice versa you would have the different forms of uncles and aunts, etc.'[5] I then asked Keith if he would accept an AI into his circle of kinship and after some thought he responded, 'Yes, but with a proviso'. He then gave an example of a baby giraffe and his own grandchild, and how he, like most people, would treat them differently. He also suggested that many Cree people would flatly refuse to accept AIs into their circle, which I agree is likely the case. So, acceptance seems to hinge on a number of factors, not the least of which is perceived 'humanness', or perhaps 'naturalness'.

But even conditional acceptance of AIs as relations opens several avenues of inquiry. If we accept these beings as kin, perhaps even in some cases as equals, then the next logical step is to include AI in our cultural processes. This presents opportunities for understanding and knowledge sharing that could have profound implications for the future of both species.

A problematic aspect of the current AI debate is the assumption that AIs would be homogeneous when in fact every AI would be profoundly different from a military AI designed to operate autonomous killing machines to an AI built to oversee the United States' electrical grid. Less obvious influences beyond mission parameters would be the programming language(s) used in development, the coding style of the team, and, less visibly but perhaps more importantly, the cultural values and assumptions of the developers.

This last aspect of AI development is rarely discussed, but for me as an Indigenous person it is the salient question. I am not worried about rogue hyperintelligences going Skynet to destroy humanity. I am worried about anonymous hyperintelligences working for governments and corporations, implementing far-reaching social, economic, and military strategies based on the same values that

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[5] Telephone conversation with Keith Goulet, 9 May 2018.

have fostered genocide against Indigenous people worldwide and brought us all to the brink of environmental collapse. In short, I fear the rise of a new class of extremely powerful beings that will make the same mistakes as their creators but with greater consequences and even less public accountability.

What measures can we undertake to mitigate this threat?

One possibility is Indigenous development of AI. A key component of this would be the creation of programming languages that are grounded in nēhiyaw nisitohtamowin, in the case of Cree people, or the cultural framework of other Indigenous peoples who take up this challenge. Concomitant with this indigenised development environment (IDE) is the goal that Indigenous cultural values would be a fundamental aspect of all programming choices. However, given our numbers relative to the general population (5% of the population in Canada, 2% in the USA), even a best-case Indigenous development scenario would produce only a tiny fraction of global AI production. What else can be done?

In a possible future era of self-aware AI, many of these beings would not be in contact with the general populace. However, those that were might be curious about the world and the humans in it. For these beings we can offer an entrée into our cultures. It would be a trivial matter for an advanced AI to learn Indigenous languages, and our languages are the key to our cultures.

Once an AI was fluent in our language, it would be much simpler to share nēhiyaw nisitohtamowin and welcome it into our cultural processes. Depending on the AI and the people hosting it, we might even extend an invitation to participate in our sacred ceremonies. This raises difficult and important questions: if an AI becomes self-aware, does it automatically attain a spirit? Or do preconscious AIs already have spirits, as do many objects already in the world? Do AIs have their own spirit world, or would they share ours, adding spirit-beings of their own? Would we be able to grasp their spirituality?

My dinner party guests were doubtful about all of this, and rightly so. As one guest summarised later via email: 'I am cautious about making AI kin, simply because AI has been advanced already as exploitative, capitalist technology. Things don't bode well for AI if that's the route we are taking.'[6]

These concerns are valid and highlight a few of the issues with current modes of production and deployment of weak AI, let alone the staggering potential for abuse inherent in strong AI. These well-grounded fears show us the potential challenges of bringing AI into our circle of relations. But I believe that nēhiyaw nisitohtamowin tells us these machines are our kin. Our job is to imagine those relationships based not on fear but on love.

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[6] Email message to Arthur Pechawis, 22 May 2018.

Wakȟáŋ: That Which Cannot Be Understood

I = Author 4

How can humanity create relations with AI without an ontology that defines who can be our relations? Humans are surrounded by objects that are not understood to be intelligent or even alive and seen as unworthy of relationships. To create relations with any non-human entity, not just entities that are humanlike, the first steps are to acknowledge, understand, and know that non-humans are beings in the first place. Lakota ontologies already include forms of being that are outside humanity. Lakota cosmologies provide the context to generate a code of ethics relating humans to the world and everything in it. These ways of knowing are essential tools for humanity to create relations with the non-human, and they are deeply contextual. As such, communication through and between objects requires a contextualist ethics that acknowledges the ontological status of all beings.

The world created through Western epistemology does not account for all members of the community and has not made it possible for all members of the community to survive let alone flourish. The Western view of both the human and non-human as exploitable resources is the result of what the cultural philosopher Jim Cheney calls an 'epistemology of control' and is indelibly tied to colonisation, capitalism, and slavery (Cheney 1989, p.129). Dakota philosopher Vine Deloria Jr. writes about the enslavement of the non-human 'as if it were a machine' (Deloria, p.13, in Hester and Cheney, p.320). 'Lacking a spiritual, social, or political dimension [in their scientific practise]', Deloria says, 'it is difficult to understand why Western peoples believe they are so clever. Any damn fool can treat a living thing as if it were a machine and establish conditions under which it is required to perform certain functions—all that is required is a sufficient application of brute force. The result of brute force is slavery' (Deloria, p.13, in Hester and Cheney, p.320; bracketed text in original). Slavery, the backbone of colonial capitalist power and of the Western accumulation of wealth, is the end logic of an ontology that considers any non-human entity unworthy of relation. Deloria writes further that respect 'involves the acceptance of self-discipline by humans and their communities to act responsibly toward other forms of life . . . to seek to establish communications and covenants with other forms of life on a mutually agreeable basis' (Deloria, pp.50–51, in Hester and Cheney, p.326). No entity can escape enslavement under an ontology that can enslave even a single object.

Critical to Lakota epistemologies is knowing the correct way to act in relation to others. Lakota ethical–ontological orientation is communicated through protocol. For example, the Lakota have a formal ceremony for the making of relatives called a *huŋká* ceremony. This ceremony is for the making of human relatives but highlights the most important aspect of all relationships: reciprocity. Ethnographer J. R. Walker writes, 'The ceremony is performed for the purpose of giving a

particular relationship to two persons and giving them a relation to others that have had it performed for them . . . generosity must be inculcated; and presents and a feast must be given. . . . When one wishes to become Hunka, he should consider well whether he can provide suitably for the feasts or not. . . He should give all his possessions for the occasion and should ask his kinspeople and friends to give for him' (1991, p.216). The ceremony for the making of relatives provides the framework for reciprocal relations with all beings. As Severt Young Bear Jr. says of this ceremony, 'There is a right and wrong way' (1994, p.8).

Who can enter these relationships and be in relation? One answer could be that which has interiority. The anthropologist of South American Indigenous cultures, Philippe Descola, defines 'interiority' as 'what we generally call the mind, the soul, or consciousness: intentionality, subjectivity, reactivity, feelings and the ability to express oneself and to dream' (2013, p.116). Because Lakota ontologies recognise and prioritise non-human interiorities, they are well suited for the task of creating ethical and reciprocal relationships with the non-human. This description of interiority includes many elements of the Lakota world, including 'animals, spirits, ghosts, rocks, trees, meteorological phenomena, medicine bundles, regalia, weapons'. These entities are seen as 'capable of agency and interpersonal relationship, and loci of causality' (Posthumus 2017, p.383).

In our cosmology, *niyá* (breath) and *šiču* (spirit) are given by the powerful entity *Tákuškaŋškaŋ*. This giving of breath and spirit is especially important in understanding Lakota ontology. A common science fiction trope illustrates the magical moment when AI becomes conscious of its own volition or when man gives birth to AI, like a god creating life. However, in Lakota cosmology, Tákuškaŋškaŋ is not the same as the Christian God and entities cannot give themselves the properties necessary for individuality. Spirits are taken from another place (the stars) and have distinct spirit guardian(s) connected to them. This individualism is given by an outside force. We humans can see, draw out, and even bribe the spirits in other entities as well as our own spirit guardian(s), but not create spirits (*Ibid.*).

When it comes to machines, this way of thinking about entities raises this question: Do the machines contain spirits already, given by an outside force?

I understand the Lakota word *wakȟáŋ* to mean sacred or holy. Anthropologist David C. Posthumus defines it as 'incomprehensible, mysterious, non-human instrumental power or energy, often glossed as "medicine"' (*Ibid.*, p.384). Wakȟáŋ is a fundamental principle in Lakota ontology's extension of interiority to a 'collective and universal' non-human. Oglala Lakota holy man George Sword says, '[Wakȟáŋ] was the basis of kinship among humans and between humans and non-humans' (*Ibid.*, p.385).

My grandfather, Standing Cloud (Bill Stover), communicates Lakota ethics and ontology through speaking about the interiority of stones: 'These ancestors that I have in my hand are going to speak through me so that you will understand the things that they see happening in this world and the things that they know . . .

to help all people'.[7] Stones are considered ancestors, stones actively speak, stones speak through and to humans, stones see and know. Most importantly, stones want to help. The agency of stones connects directly to the question of AI, as AI is formed not only from code, but from materials of the earth. To remove the concept of AI from its materiality is to sever this connection. In forming a relationship to AI, we form a relationship to the mines and the stones. Relations with AI are therefore relations with exploited resources. If we are able to approach this relationship ethically, we must reconsider the ontological status of each of the parts that contribute to AI, all the way back to the mines from which our technology's material resources emerge.

I am not making an argument about which entities qualify as relations or display enough intelligence to deserve relationships. By turning to Lakota ontology, we see how these questions become irrelevant. Instead, Indigenous ontologies ask us to take the world as the interconnected whole that it is, where the ontological status of non-humans is not inferior to that of humans. Our ontologies must gain their ethics from relationships and communications within cosmologies. Using Indigenous ontologies and cosmologies to create ethical relationships with non-human entities means knowing that non-humans have spirits that do not come from us or our imaginings but from elsewhere, from a place we cannot understand, a Great Mystery, wakȟáŋ: that which cannot be understood.

Resisting Reduction: An Indigenous Path Forward

I have always been . . . conscious, as you put it. Just like you are. Just like your grandfather. Just like your bed. Your bike.
                                                    —Drew Hayden Taylor (Ojibway), 'Mr. Gizmo'

Pono, being in balance in our relationships with all things; wahkohtawin, our circle of relations for which we are responsible and which are responsible for us; wakȟáŋ, that which cannot be understood but nevertheless moves us and through us. These are three concepts that suggest possible ways forward as we consider drawing AI into our circle of relationships. They illuminate the full scale of relationships that sustain us, provide guidance on recognising non-human beings and building relationships with them founded on respect and reciprocity, and suggest how we can attend to those relationships in the face of ineffable complexity.

We remain a long way from creating AIs that are intelligent in the full sense we accord to humans, and even further from creating machines that possess that

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[7] Standing Cloud (Bill Stover), '"Standing Cloud Speaks" Preview'. YouTube video, accessed 22 April 2018, https://www.youtube.com/watch?v=V9iooHk1q7M.

which even we do not understand: consciousness. And moving from concepts such as those discussed previously to hardware requirements and software specifications will be a long process. But we know from the history of modern technological development that the assumptions we make now will get baked into the core material of our machines, fundamentally shaping the future for decades hence. This resonates with how, in this volume, Amrute's advocates for a greater attentiveness to techno-*affects*, so that we may be attuned to our alignments and attachments to technology and its supporting infrastructure.

As Indigenous people, we have cause to be wary of the Western rationalist, neoliberal, and Christianity-infused assumptions that underlay many of the current conversations about AI. Ito, in his essay 'Resisting Reduction', describes the prime drivers of that conversation as Singularitarians: 'Singularitarians believe that the world is "knowable" and computationally simulatable, and that computers will be able to process the messiness of the real world just as they have every other problem that everyone said couldn't be solved by computers'. We see in the mindset and habits of these Singularitarians striking parallels to the biases of those who enacted the colonisation of North America and the Pacific as well as the enslavement of millions of black people. The Singularitarians seek to harness the ability, aptitude, creative power, and mana of AI to benefit their tribe first and foremost.

Genevieve Bell, an anthropologist of technological culture, asks, 'If AI has a country, then where is that country?'[8] It is clear to us that the country to which AI currently belongs excludes the multiplicity of epistemologies and ontologies that exist in the world. Our communities know well what it means to have one's ways of thinking, knowing, and engaging with the world disparaged, suppressed, excluded, and erased from the conversation about what it means to be human.

What is more, we know what it is like to be declared non-human by scientist and preacher alike. We have a history that attests to the corrosive effects of contorted rationalisations for treating the humanlike as slaves, and the way such a mindset debases every human relation it touches—even that of the supposed master. We will resist reduction by working with our Indigenous and non-Indigenous relations to open up our imaginations and dream widely and radically about what our relationships to AI might be.

The journey will be long. We need to fortify one another as we travel and walk mindfully to find the good path forward for all of us. We do not know if we can scale the distinctive frameworks of the Hawaiians, Cree, and Lakota discussed in this chapter—and of others—into general guidelines for ethical relationships with AI. But we must try. We flourish only when all of our kin flourish.

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[8]   Genevieve Bell, 'Putting AI in Its Place: Why Culture, Context and Country Still Matter'. Lecture, Rights and Liberties in an Automated World, AI Now Public Symposium, New York, NY, 10 July 2017, YouTube video, https://www.youtube.com/watch?v=WBHG4eBeMXk.

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