

Reflections: Indigenous Protocols for Artificial Intelligence (IP//AI)

Workshop #3 ISEA2024, Everywhen,
by Kathryn Gledhill-Tucker





IP//AI Workshop, Back row, L-R: Corey Ruha, Desna Whaanga-Schollum, Melissa DeLaney, Mike Hill, Rosie Baum, Tianee Stanley, Sherice Kazzi, Kathryn Gledhill-Tucker, Carollyn Kavanagh, Front row, L-R: Sasha Sarago, Chantel Bates, r e a , Karlie Noon, Gabriela Ferraro, Angie Abdilla, Jenn Brazier, Aushaf Widisto.

On 27 June at QUT Kelvin Grove, as part of ISEA2024 Everywhen, the participatory workshop Indigenous Protocols for Artificial Intelligence (IP//AI) delved into the historical development of AI and its contemporary applications.

Devised and led by Professor Angie Abdilla Old Ways, New in collaboration with Dr Gabriela Ferraro and Dr Safiya Okai-Ugbaje from ANU School of Cybernetics in partnership with ANAT, the session explored data, algorithms, and the methodologies of Machine Learning (ML).

Participants engaged in two-way learning to examine Indigenous automated systems alongside current Machine Learning practices, aiming to innovate engineering possibilities rooted in cultural practices and care for Country and kin.

Participants benefited from this conceptually technical and culturally focused explorative learning, centred on caring for Country and kin within an artificially intelligent (AI) system.

In response ANAT commissioned this article by Nyungar technologist and writer Kathryn Gledhill-Tucker, aptly titled Reflection: ISEA2024, Everywhen, Indigenous Protocols for Artificial Intelligence (IP//AI) Workshop #3. We're delighted to share this insightful feature around this significant and timely workshop and ongoing work.

ANAT, in partnership with the ANU School of Cybernetics, proudly continued its support of Old Ways, New during ISEA2024 Everywhen, hosting this third workshop in a series that builds on seven years of research and engagement, starting with the inaugural gathering in Hawaii in 2019.

ANAT and our project partners pay respect to the First Nations of the land known as Australia and to the Traditional Owners in their continued cultural, spiritual and technological practices.

This extends to respect to all First Nations peoples beyond Australian shores. As the very first storytellers, First Nations peoples hold invaluable knowledge and perspectives that are vital in the research, interrogation and development of traditional and emerging technologies, across both our physical and digital realms.

Together we are gathering across many unceded lands that have been forcibly colonised.

ANAT works on Kaurna yarta and Boonwurrung Country of the Kulin Nation.



The artwork Meditation on Country depicts a creation story of time immemorial. On Turrbal and Yuggera Country, we walk into a liminal space enclosed with curtained walls, sponge-like flooring, and a circular screen suspended from the ceiling. We are bathed in light and sound resonates in our bones. With our backs to the ground, we experience an immersive, collaborative conversation between ancient creation stories and Western knowledges of astrophysics that depict how we come to Earth, from the stars. This dance between disciplines encourages us to engage in what Angie Abdilla refers to as a ‘trajectory of enquiry’ about how knowledges are formed, and what determines what we know to be true. An extended metaphor of this interplay between Western and Indigenous epistemologies is illustrated through old school algorithms such as Conway’s Game of Life (1970) and a flocking algorithm called ‘Boids’ (1986).

You may have seen a flock of dozens, or perhaps hundreds, of birds move in a way that appears as a singular, dancing being in the sky. Boids (a “bird-oid” object) is an attempt to simulate this behaviour and represent it in code. Each bird in a flock has a limited perception of its surroundings but makes quick decisions based on local information. In a Boids algorithm, the choices of each bird can be crudely represented as parameters of cohesion (fly towards your neighbours, or flockmates), separation (avoid hitting nearby flockmates), and alignment (fly in the same direction as your flockmates). The algorithmic flight path of a singular bird won’t be too interesting, but when applied at scale, the emergent properties

of this flocking behaviour create the mesmerising visual effect of a fluid, swarming mass. In many ways, this is one illustration of the conversations fostered by the Indigenous Protocols for Artificial Intelligence (IP//AI) Workshop #3 at [ISEA2024 Everywhen](#): what Indigenous protocols can we apply to the exercise of building artificial intelligence? What kind of emerging properties could we expect?

Artificial intelligence today finds its roots in the discipline of Cybernetics. The word ‘cybernetics’ comes the Greek ‘kybernētēs’, meaning helmsperson; to steer, like a boat. We can take this as encouragement to steer the industry of technology in a direction that is safe, responsible and sustainable. The creation story of Cybernetics emerges from a series of conferences starting in the 1940s that brought together a trans-disciplinary (but mostly white, male) group of researchers from biology, psychology, and engineering. In 1955, in a pitch for significant funding to embark on a research project on artificial intelligence, a group of scientists led by John McCarthy approached a definition of AI characterised by precision and automation: ‘The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it.’¹ This initial agenda of artificial intelligence was to formalise language, decision-making, and learning, and encode these into machines. It was built on the assumption that if we could know how the brain works, we could simulate intelligence. At this time, the definition of AI is ultimately incentivised by the pursuit of funding in an environment overshadowed by the Cold War. This environment influenced the types of questions that were asked, i.e. the trajectory of enquiry: how can I teach a machine to translate Russian communications, and predict the arc of missile artillery?

By learning this history and others, we can acknowledge the narratives that brought us to this place without being bound by them. We can recognise the systems of capitalism, imperialism, and the military-industrial complex that permeate the machines we use, and make more thoughtful choices about the future of art and science. Looking at artificial intelligence technologies today, we see manifestations of the extractive business models and

¹ McCarthy, J., Minsky, M., Shannon, C. E., Rochester, N., & Dartmouth College. (1955). A proposal for the Dartmouth summer research project on artificial intelligence. <https://doi.org/10.1609/aimag.v27i4.1904>



“There is a lossy compression that happens when articulating complex ideas of Indigenous relationality in a non-Indigenous language...”

Image: Old Ways, New and Chantel Bates .

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systems of surveillance that permeate our society; data- and compute-intensive statistical models, like large language models, that rely on huge amounts of machine-readable depictions of human behaviour, to capture more attention, to influence more purchase decisions, in the pursuit of limitless growth and profit. It is imperative to imagine technological futures that look and feel different. To actively create spaces for conversations that imagine machines built to help, rather than exploit, us. To create technologies that honour our responsibility to Country and Kin.

The workshop hosted at ISEA2024 Everywhen is a continuation of a conversation held by the Indigenous Protocols for Artificial Intelligence (IP//AI) Working Group, with support from the Australian Network for Art & Technology (ANAT). These gatherings began in 2019, with a working group led by Angie Abdilla, Dr. 'Ōiwi Parker Jones, and Jason Lewis, in collaboration with a number of interdisciplinary participants. At ISEA, on Turrbal and Yuggera Country, Indigenous peoples from nations across Australia, Aotearoa and beyond came together to continue these discussions, grounded in respectful relationships built on a balance of perspectives and knowledges. The intention is to support the next generation of Indigenous technologists to steward the conversation of technological growth, and consider the ways our cultural knowledges and protocols may inform the way we use (or, indeed, choose not to use) new technologies. By changing who is in the room, we may imagine new types of scientific knowledges and influence the trajectory of technology.

At the heart of ISEA2024 is this concept of the 'everywhen'; a way of seeing the world non-linearly, where every time is layered upon Country, like sheets of sand. By inviting this worldview into our discussions of AI, we resist the assumption of the inevitability of techno-solutionism and the linear trajectory of technological progress. We are invited to slow down. It is a liberation to imagine alternate futures of technology, not bound by the tools dominating today's markets or the machines that came before them. Imagine a world where instead of extraction and exploitation, the creation story of artificial intelligence was built from protocols of Caring for Country and Caring for Kin.



To open our discussions, we reflect on our relationship with machines and our earliest memories of them. We ask, what is technology? What does it mean for something to be 'artificial' or 'intelligent', and in what ways are we limited by this framing? We can consider machine learning as a subset of artificial intelligence, which is itself a subset of automation. All automated systems are cultural systems. We consider the spectrum of components, tools, automations, and complex systems. Our cultures contain ancient automated systems in the shape of fishing technologies and eel traps. We have ceremonies informed by seasons that tell us how to care for and how to be in kinship with Country. We have complex ceremony for the production of materials to ensure it can be harvested at a sustainable scale. We use star maps and constellations, the scintillation of stars; all components of navigation systems. When we come into these conversations about technology, it is not necessary to have a degree in computer science or sufficient expertise in software engineering. Our knowledge systems give us language and frames of thinking that can inform our relationship with machines.

We explore the faces of AI as depicted in common media. If you plug the term 'AI' into a search engine, you may see a grid of smooth chrome faces on cyan backgrounds, humanoid and symmetrical beings that approximate the bodies of young, white women. You may see the elongated hand of a cyborg stretching towards a faceless human, like God towards Adam in The Creation of Man. These metaphors reflect a particular history and relationship with technology



that has a limited worldview: an assumption of machine's subservience towards humans. In considering these images, we ask: what are the power dynamics embedded in these relationships? How is the human privileged in a Western, hierarchical system? How does this differ to the complex kinship systems of First Nations cultures? If we are to consider AI as an entity inside this kinship system, what is our responsibility towards it?

In many ways, Indigenous peoples, who have been interrogating the Colonial Project from both inside and outside, are well placed to imagine different futures of AI. Highly relevant to conversations of machine learning are questions of protocols around knowledges and knowledge systems. As Indigenous peoples, we have a cultural understanding that knowledge is a privilege and a responsibility. We do not assume access to a story just because we want it. This comes into conflict with modern machine learning systems (particularly large language models), whose voracious training sets depend on unrestricted access to information. They are hungry for data. To resist this consumption is to threaten the existence of modern AI. But at this inflection point, where we have the opportunity to negotiate a new trajectory of innovation, we can introduce new permissions and protocols: at what point is knowledge shared? Do they have the right cultural authority to share that knowledge? What stories are open? What stories are restricted? If we are the parents of AI, what intuition are we embedding within it?

When discussing technology, innovation and Indigenous protocols, we brush up against the limitations of the English language; a language that is inherently transactional. There is a lossy compression that happens when articulating complex ideas of Indigenous relationality in a non-Indigenous language. The vibration and resonance of language sits at the heart of knowledge sharing. Our languages are more than words in a dictionary; they are inseparable from our connection to Country.

As perhaps an inevitable consequence of centering Country in our work, we spend considerable time reflecting on the materiality of technology. The smart device that arrives in our homes in neat packaging obfuscates a history and material reality of exploitation. In [Anatomy of an AI system](#), Kate Crawford and Vladen Joler explore 'Amazon Echo as an anatomical map of human labour, data and planetary resources.'² In studying the manufacturing process of the Echo, we see a metaphor that can be extrapolated outwards, to enhance our understanding of the complex systems of the technology industry. The flow of resources from open cut mines in the Global South, through undersea internet cables along the seabed, to data warehouses, to consumers in the Global North reflect the broader systems of power entrenched within technology. We ask: how might supply chains be designed with responsibility and sustainability at the forefront?

In many ways, Big Tech are the new colonisers. We can add the GPU manufacturer NVIDIA to the collection of companies like Meta, Apple, Amazon, Google, whose business models depend on the exploitation of Country and Kin in the pursuit of profit. This is not a metaphorical colonising, but an extension of history, of what Tuck and Yang refer to as the 'expropriation of fragments of Indigenous worlds, animals, plants and human beings, extracting them in order to transport them to—and build the wealth, the privilege, or feed the appetites of—the colonizers'.³ In order to imagine healthy futures of technology and AI, it is important for us to question the concentration of power within this handful of corporations.

We consider the politics at the heart of technology: is technology a neutral tool until a human touches it? Is it even possible for technology to be neutral when its materiality is fundamentally embedded with Country? As exemplified by the Echo, the components of computer hardware come from rare earth minerals extracted from open cut mines, located on somebody's Country. When a machine is discarded into landfill, its components are once again returned to Country. What kind of ceremonies could we introduce to these death cycles, to allow a sustainable reintroduction to the land?

There are limitations and risks of automation. Things that require human judgement ought to be reserved for humans. In her keynote discussion of Meditation on Country, Angie Abdilla expressed hesitancy in incorporating generative AI into the artwork. At the end of the piece, we watch the flocks of algorithmically generated birds slowly morph between species in an uncanny display of avian chimaeras. Generated beaks, feathers, wings, and tails look convincing in isolation, but when patchworked together, approach absurdity. As the algorithm attempts to fill in the gaps of missing data, producing confusing bird-likes, we see the limitations of these tools in action; a metaphor for the proliferation of machine learning in contemporary life.

Any 'Indigenous AI' will be shaped by the cultural protocols of that community, and our communities are diverse. But there is also an incredible sense of connectedness between nations that are reflected in our approaches to technology. Songlines are a technology that carry stories across countries, through millenia, maintaining a fidelity that is unfathomable to modern computing systems. The shelf life of a cassette, compact disc, or data warehouse could only dream of achieving the longevity of the songline. The conversation of Indigenous protocols in AI will continue. This is the greatest gift of the IP//AI workshops; the opportunity to come together with Indigenous cousins from across the world, share food and stories, and imagine futures in which we can all thrive. In gathering, we open the space to ask new questions, to open new trajectories of enquiry.

About Meditation on Country

The artwork was based on, and inspired by, the referencing of the Big Bang in the deep-time, orally transmitted Creation Story by Elder and lawman Uncle Ghillar Michael Anderson. The Creation Story has encoded complex cultural information within metaphor, which aligns with specific Western astrophysics. The conceptual, creative research approach combines both paradigms of evolutionary knowledges - story and space data, to produce a cross-cultural 'simulation.' We did this by using a combination of early, current, and foundational ML models and datasets to generate parts of the soundscape and visualisations. These elements were coupled with voice recordings by Indigenous musicians Emma Donovan and Eric Avery, using vibration and resonance through the ancient medium of chanting, traditionally used to bring life into being, connect with our ancestors, and, for this artwork, induce an immersive, meditative experience. While the artwork unites an Indigenist and Western knowledge of Creation Time, it also draws our attention to the historical cultural biases within Western evolutionist science by considering the phenomenal ability of Indigenous scientific observation, ancient technologies, and our differing ways of seeing, being, and knowing.

² Crawford, K., & Joler, V., (2018). Anatomy of an AI System: The Amazon Echo As An Anatomical Map of Human Labor, Data and Planetary Resources, AI Now Institute and Share Lab, <https://anatomyof.ai>

³ Tuck, E., & Yang, K. W. (2012). Decolonization is not a metaphor. Decolonization: Indigeneity, Education & Society, 1(1). Retrieved from <https://jps.library.utoronto.ca/index.php/des/article/view/18630>

The Indigenous Protocols for Artificial Intelligence (IP//AI) was co-founded in 2018
by Prof Angie Abdilla, Director of [Old Ways, New](#).

This year, Indigenous Protocols for Artificial Intelligence (IP//AI) is in partnership with
the Australian Network for Art and Technology ([ANAT](#));

Abdilla co-designed the workshop with Dr Gabriela Ferraro and Dr Safiya Okai-Ugbaje from the
[ANU School of Cybernetics](#). Abdilla and Ferraro co-facilitated the two-way learning for a group of Indigenous
creatives, researchers, and technologists.

Imagery: Joe Ruckli, Chantel Bates and Old Ways, New.



OLD WAYS, NEW

