

# Indigenous Protocol and Artificial Intelligence

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## Abstract

The Abundant Intelligences research program imagines anew how to conceptualize and design Artificial Intelligence (AI) based on Indigenous Knowledge (IK) systems. Our approach is grounded in Indigenous epistemologies containing robust conceptual frameworks for understanding how technology can be developed in ways that integrate it into existing lifeways, support the flourishing of future generations, and are optimized for abundance rather than scarcity. Our goal is to advance methods for improving AI to better serve Indigenous communities and others through exploring and developing culturally-grounded AI systems that support Indigenous ways of knowing and that recognize the abundant multiplicity of ways of being intelligent in the world. This institutional presentation will introduce Abundant Intelligences, a six-year international research program that aims at exploring how IK systems might provide pathways towards rebuilding AI's epistemological foundations to transform these tools away from colonial practices of exclusion, extraction, manipulation, and eradication and into engines of abundance for increasing our care of one another and our world.

## Keywords

Indigenous research, Indigenous epistemologies, Indigenous Knowledges, artificial intelligence, machine learning, computational practice, cultural knowledge

## Introduction

Abundant Intelligences is an ambitious, large-scale research program exploring how to integrate IK and AI systems. It is conducted by an international research team, co-directed by Prof. Lewis at the Indigenous Futures Research Centre at Concordia University, Montreal, and Prof. Hēmi Whaanga at Massey University in New Zealand. The research team currently consists of 48 co-investigators and collaborators at 13 universities/research institutes and 8 community-based organizations in Canada, the United States, and New Zealand.

The research program takes on the challenge of imagining, designing, and developing AI based on IK systems. Our overall objective is to explore how IK systems might

provide pathways towards rebuilding AI's epistemological foundations to transform these tools away from colonial practices of exclusion, extraction, manipulation, and eradication and into engines of abundance for increasing our care of one another and our world.

Abundant Intelligences mobilizes an international and interdisciplinary team of experts, coalesced in locally-rooted 'Pods', to collaborate with Indigenous communities and learn from, and with, their knowledge holders to bring novel perspectives to transforming AI. It allows us to think about AI from across disciplinary and cultural boundaries and thus to expand the operational definition(s) of intelligence to include a wider spectrum of behaviors that humans and non-humans use to make sense of the world. Exploring epistemologies and methods beyond the Western approaches favored by current AI research, we draw upon Indigenous epistemologies to develop imaginations, frameworks, and languages to enrich our understanding of what it means to be intelligent. In doing so, we are establishing new community-oriented methods for creating culturally-grounded AI systems better suited to Indigenous contexts, ways of knowing, and community flourishing. At the same time, our work will inform AI research beyond Indigenous contexts, contributing to the field generally so it can better support humane and abundant futures for all.

This presentation aims at introducing ISEA 2024 audience members to our growing network, in the hopes of inviting attendants, both from technological and artistic fields, to apply to our growing international team. Abundant Intelligences is a Research-Creation Partnership grant that explores and develops culturally-grounded AI systems that support Indigenous Sovereignty and Indigenous Ways of Knowing through the integration of creative research towards developing new technologies aimed at destabilizing coded biases in AI and machine-learning technologies.

## Research Axes

The Abundant Intelligences research program relies on three research axes: Integration Axis, Imaginaries Axis, and Intelligence Axis.

### *Integration Axis*

IK systems that inform mainstream AI research is fraught with epistemic challenges. Fundamental questions about

what counts as knowledge, how we understand that knowledge, and how we act on that knowledge become acute when such different frameworks for engaging the world come into relationship with one another. For instance, much IK is not captured by, maintained in, or disseminated through text. Rather, it resides in cultural practices such as stories, songs, dance, and lore.

#### *Imaginaries Axis*

“We live in the future. Come join us.”

- Kanaka Maoli scholar Bryan Kuwada [1].

In order to transform AI, we must envision Indigenous futures grounded in community priorities and dreams. We will do this through developing ‘future imaginaries’ [2] that point us toward alternative research and development paths for AI that promote abundance rather than scarcity, exploitation, and control.

Future imaginaries are visions of the future shared by a group and used to motivate change in the present. They create vocabularies for envisioning future socio-technological realities and strategies for realizing those realities. Developing future imaginaries allows us to play through different foundational assumptions about how things are and will be with regards to AI. Most importantly, they allow groups to “practice the future together” [3] to iterate collaboratively through future scenarios wherein AI is based on IK and Indigenous values.

#### *Intelligence Axis*

The Integration and Imaginaries work will lay the foundation for prototyping AI technologies. We have identified five areas of interest to mainstream AI researchers that can benefit from active and rich engagements with IK frameworks and practices, and which engage areas of interest to the Indigenous communities with which we work.

#### **Pods**

The Abundant Intelligences research program operates through locally-rooted Pods that bring IK knowledge-holders, cultural practitioners, language-keepers, educational institutions, and community vitalization organizations together with physical scientists, engineers, artists, designers, social scientists, and humanists. Infrastructure for the pods are provided by media and technology labs located at Partner organizations. Pod participants gather in the labs to imagine, conceptualize, design, and prototype new computational practices in tight collaboration with their local Indigenous communities. These Pods employ mixed methods, weaving together research-creation, qualitative research, and quantitative approaches to knowledge production within a context of Indigenous research frameworks.

Abundant Intelligences currently has three formalized pods and two pods in development. Throughout the duration of this six-year grant, we hope to expand our Pod network. The

three pods at the moment are the Aotearoa Pod, Niitsitapi + Kanien’kehá:ka Pod, and the Ka Hawai’i Pae ‘Āina Pod.

For the presentation, the Aotearoa Pod will be presenting Abundant Intelligences as a whole, as well as the specifics of their individual Pod. Witehira will discuss Te Whakawhiti Whakaaro o Te Kete Tuari, meaning "Navigating Generative Pathways," an exploration of the historical continuum of Māori engagement with new technologies and our unique processes embedded in customary Māori arts practice. Whaanga will present on the Abundant Intelligences research program and the challenge of imagining, designing, and developing AI based on IK systems. Whaanga and Anderson will then discuss how our communities, language and cultural experts have been engaging in new technologies and how this resulted in the international research collaboration.

The Aotearoa Pod is co-hosted at Indigenous Design & Innovation Aotearoa (Wellington, New Zealand) and Massey University (Palmerston North, New Zealand) and supported by Te Hiku Media (Kaitiaki, New Zealand). Team members within the project will travel to various community marae (a communal space belonging to a particular tribe) to run and facilitate wānanga (intensive discussions/deliberations). The Pod will focus on articulating, shaping, and designing AI through a Māori lens. The work will be founded on Māori methodologies, epistemologies, ontologies, modes of engagement, practice, and language.

The Pod will mobilize AI technology to explore the centrality of hapū (kinship group) and connection in creative, language, cultural, and wellbeing contexts. In particular, this Pod will work with AI scientists and engineers to develop methods for incorporating and assessing how AI-based tools that integrate an Indigenous worldview can be applied to data and datasets. The ultimate goal is to develop AI that brings a more holistic Māori-centric picture of language, culture, health, wellbeing, whakapapa (genealogical connection), and connectivity to Māori data and data sets. Projects hosted by the Pod will be grounded in kaupapa Māori methodologies. They will use mixed methods with wānanga to shape how the underlying computational architectures might need to be reshaped to inform different kawa / tikanga (shifting customs and practices), place, space, and design.

The Abundant Intelligences Aotearoa Pod is led by experts in Indigenous epistemologies and methodologies (Professor Linda Tuhiwai Smith; Professor Graham Hingangaroa Smith), ICT, digital artefacts, data repositories, VR, and AR (Kevin Shedlock), Māori epistemology, ontology, ceremony, practice, and incantation (Professor Sir Pou Temara), Māori astronomy, epistemology, ontology, ceremony, practice, and incantation (Professor Rangi Mātāmua), Māori creative practice (Dr Johnson Witehira), Indigenous NLP and community-centered language revitalization (Peter-Lucas Jones and Keoni Mahelona - Te Hiku Media), neuroscience

(Dr Melanie Cheung), and linguistics, VR, AR and digital ethics and repositories (Professor Hēmi Whaanga).

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