

# On Neural Network Decoloniality & Literacy



A decolonial approach to neural networks must take into account the needs of the wide spectrum of human and non-human.

A restructuring of the inherent architectures of existing neural networks must be reprogrammed.  
We must choose the cooperative over the adversarial.

There is an illusion that humans are the pinnacle of intelligence,  
and from this intelligence an artificial super-intelligence will be built.

These illusions must be addressed as a desire stemming from the Western patriarchal and  
white supremacist system:  
a desire for an overlord, a desire to be controlled and to control.

Why must we conform to these ideas?

We must challenge these ideologies built into current artificial intelligence systems with an understanding of neural  
networks as nothing more than a crude mathematical reduction of the nervous system.

Intelligence permeates our whole reality, it is embedded into every material and being.  
Intelligence goes beyond systems of 'objective' understanding.

Intelligence as the spirit of the cosmic reality of life.

# A brief history of neural networks:

“The idea of neural networks began unsurprisingly as a model of how neurons in the brain function, termed ‘connectionism’ and used connected circuits to simulate intelligent behaviour.

In 1943, portrayed with a simple electrical circuit by neurophysiologist Warren McCulloch and mathematician Walter Pitts. Donald Hebb took the idea further in his book, *The Organization of Behaviour* (1949), proposing that neural pathways strengthen over each successive use, especially between neurons that tend to fire at the same time thus beginning the long journey towards quantifying the complex processes of the brain.

Two major concepts that are precursors to Neural Networks are: ‘Threshold Logic’ — converting continuous input to discrete output

‘Hebbian Learning’ — a model of learning based on neural plasticity, proposed by Donald Hebb in his book “*The Organization of Behaviour*” often summarized by the phrase: “Cells that fire together, wire together.”

both proposed in the 1940’s. In 1950s, as researchers began trying to translate these networks onto computational systems, the first Hebbian network was successfully implemented at MIT in 1954.

Around this time, Frank Rosenblatt, a psychologist at Cornell, was working on understanding the comparatively simpler decision systems present in the eye of a fly, which underlie and determine its flee response. In an attempt to understand and quantify this process, he proposed the idea of a Perceptron in 1958, calling it Mark I Perceptron. It was a system with a simple input output relationship, modeled on a McCulloch-Pitts neuron, proposed in 1943 by Warren S. McCulloch, a neuroscientist, and Walter Pitts, a logician to explain the complex decision processes in a brain using a linear threshold gate. A McCulloch-Pitts neuron takes in inputs, takes a weighted sum and returns ‘0’ if the result is below threshold and ‘1’ otherwise.”

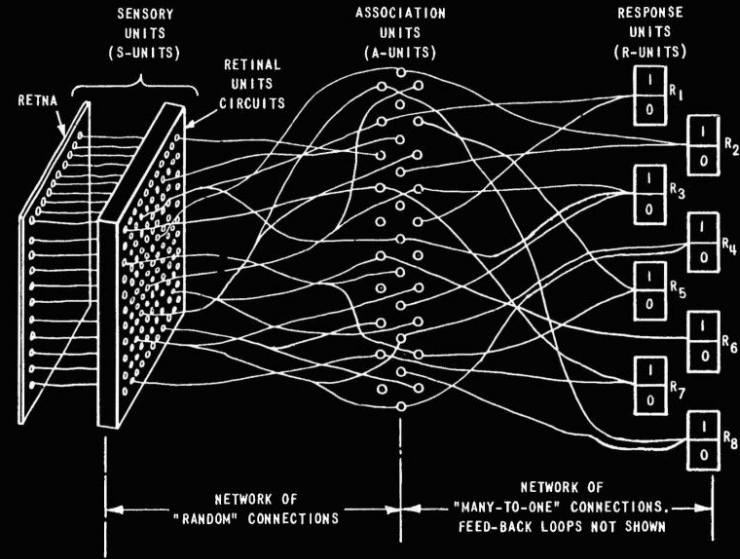


Figure 1 ORGANIZATION OF THE MARK I PERCEPTRON

Source:

<https://towardsdatascience.com/a-concise-history-of-neural-networks-2070655d3fec#:~:>

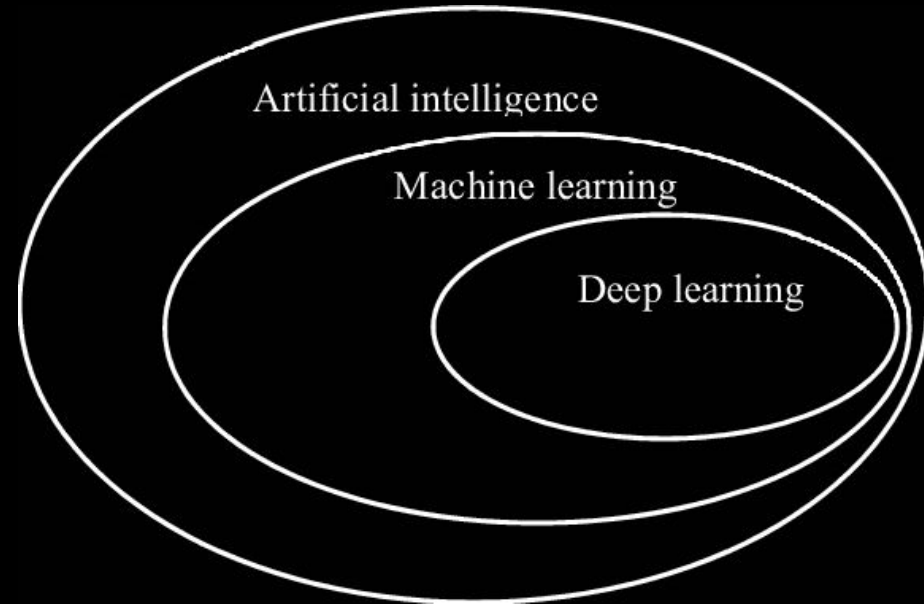
# On Neural Network Literacy:

Parting from the idea that literacy is an important part of knowledge production and its demystification; we believe it's important to highlight some technical learning resources to begin understanding and getting started in this field.

There are a plethora of open source resources for education on Machine Learning, Deep Learning and AI, but because of the characteristics of this wide ranging field, there is hardly any centralized educational resource to begin learning about what exactly is Machine Learning and where to start.

Here we compile an introductory list of free learning resources which are relevant to understanding this field, mostly focused on the intersection of Machine Learning, Neural Networks and computational arts:

- Mother Cyborgs' *A People's guide to AI*  
<https://alliedmedia.org/resources/peoples-guide-to-ai>
- Dr. Rebecca Fiebrink's (free Kadenze course) *Machine Learning for Musicians and Artists*  
<https://www.kadenze.com/courses/machine-learning-for-musicians-and-artists/info>
- Gene Kogan's *machine learning 4 artists* (book/website):  
<https://ml4a.github.io/>
- Valerio Velardo's *The Sound of AI* (Deep Learning for Audio tutorials both technical and theoretical):  
<https://www.youtube.com/channel/UC7PEjMe1uRSirmSpznqvJfQ>



# On Indigenous AI protocol:

“ The Indigenous Protocol and Artificial Intelligence (A.I.) Working Group develops new conceptual and practical approaches to building the next generation of A.I. systems.

The working group is interested the following questions:

- From an Indigenous perspective, what should our relationship with A.I. be?
- How can Indigenous epistemologies and ontologies contribute to the global conversation regarding society and A.I.?
- How do we broaden discussions regarding the role of technology in society beyond the largely culturally homogeneous research labs and Silicon Valley startup culture?
- How do we imagine a future with A.I. that contributes to the flourishing of all humans and non-humans? “

Source: <https://www.indigenous-ai.net/>



# On Resistance AI (NEURIPS 2020 Workshop):

“The goal of the Resistance AI Workshop is to examine how AI shifts power and how we can build human/AI systems that shift power to the people.

It has become increasingly clear in recent years that AI research, far from producing neutral tools, has been concentrating power in the hands of governments and companies and away from marginalized communities. Unfortunately, the NeurIPS Conference — one of the largest and most esteemed machine learning conferences in the world — has until now lacked a venue explicitly dedicated to understanding and addressing this concerning reality. As Black feminist scholar Angela Davis famously said, "Radical simply means grasping things at the root." Resistance AI exposes the root of the current reality: technology rearranges power. We believe that when we are engaged in Resistance AI, we can both resist AI that centralizes power in the hands of the few and we can dream up and build human/AI systems that put power in the hands of the people. This workshop will be a space for AI researchers and marginalized communities to discuss and reflect on AI-fueled inequity and co-create our dreams and tactics of how to work toward Resistance AI. “

Source: <https://twitter.com/resistanceai>

# On decoloniality and computing:

“ I suggest practitioners and researchers adopting a decolonial computing perspective are required, at a minimum, to do the following: (sic)

- Firstly, consider your geo-political and body- political orientation when designing, building, researching, or theorizing about computing phenomena.
- Secondly, embrace the “ decolonial option ” as an ethic, attempting to think through what it might mean to design and build computing systems with and for those situated at the peripheries of the world system, informed by the ways of thinking and knowing (epistemologies) located at such sites, with a view to undermining the asymmetry of local-global power relationships, and effecting the decentering of Eurocentric/Western-centric universals.. ”

## **A Brief Introduction to Decolonial Computing by Syed Mustafa Ali**

source: [https://www.researchgate.net/publication/303980379\\_A\\_brief\\_introduction\\_to\\_decolonial\\_computing](https://www.researchgate.net/publication/303980379_A_brief_introduction_to_decolonial_computing)

# Further reading and resources:

We have presented here a very introductory reader on resources which frame the development of A.I., deep learning and neural networks from a place of resistance and non-hegemony.

Since this is a huge undertaking and not the work of one single person, we have compiled further links and resources in the are.na block which are open to expanding and collaboration.

“ On Neural Network Decoloniality & Literacy ” are.na block found here:

<https://www.are.na/moises-horta/on-neural-network-decoloniality-literacy>

For further discussion and engagement, you can join our “ Decolonial Computing & AI ” Telegram group here:

<https://t.me/joinchat/1UgUUL7i8cq1hC9WxC0DvA>



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