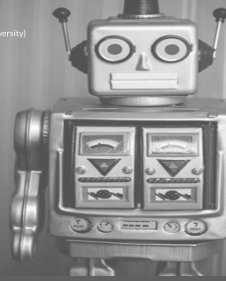



INTELLIGENCE IN HUMANS, NON-HUMAN ANIMALS, AND MACHINES



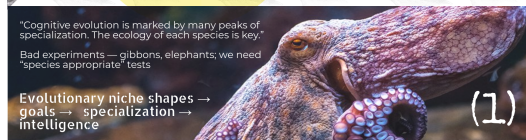


Argument

(1) A species' survival needs are not only what measures its intelligence, but what most fundamentally shapes it.

(2) We can't provide for an artificial system the type of shaping of intelligence that a naturally evolved species' survival needs provides for its members' intelligence.

(C) We can't develop an artificial system that is intelligent in anything like the way that the members of a naturally evolved species are intelligent.

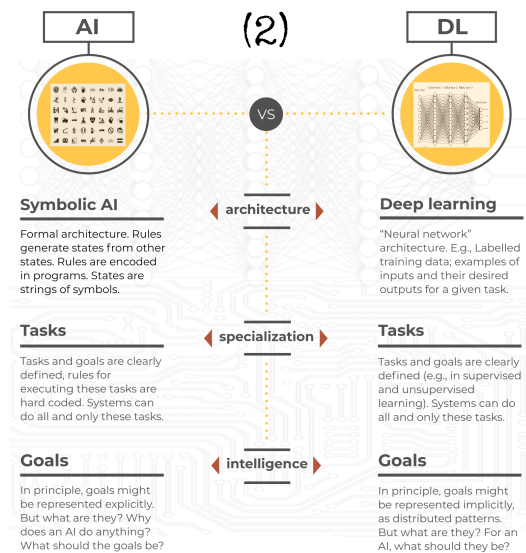


"Cognitive evolution is marked by many peaks of specialization. The ecology of each species is key."

Bad experiments — gibbons, elephants; we need "species appropriate" tests

Evolutionary niche shapes → goals → specialization → intelligence

(1)

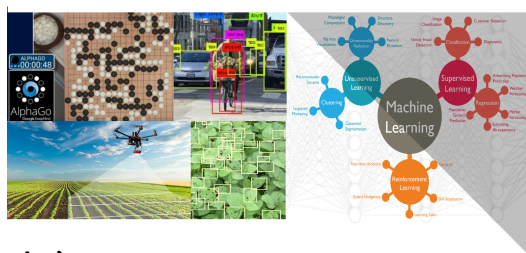


The intelligence of a naturally evolved species consists in its abilities to perform specialized tasks in the pursuit of certain goals.

This intelligence is shaped over millennia by the evolutionary niche that each individual species evolves to occupy.

We don't know how to replicate such shaping of intelligence either in symbolic AI systems or deep learning systems.

Even if we did, what sort of shaping would we provide? What is the evolutionary niche that such an AI is meant to occupy?



(C) We can't develop an artificial system that is intelligent in anything like the way that the members of a naturally evolved species are intelligent.

Not only because we don't know how, but because it's not clear the idea makes sense.*

*Of course we can (because we already do) develop AIs that perform specific, clearly defined tasks well, including tasks we're good at and tasks we don't perform well (although we're still better at lots of clearly defined tasks—e.g., chess).