

Welcome to AAAI-MAKE 2022

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Artificial intelligence is fascinating.

... for me. I assume it is for you too ;-).



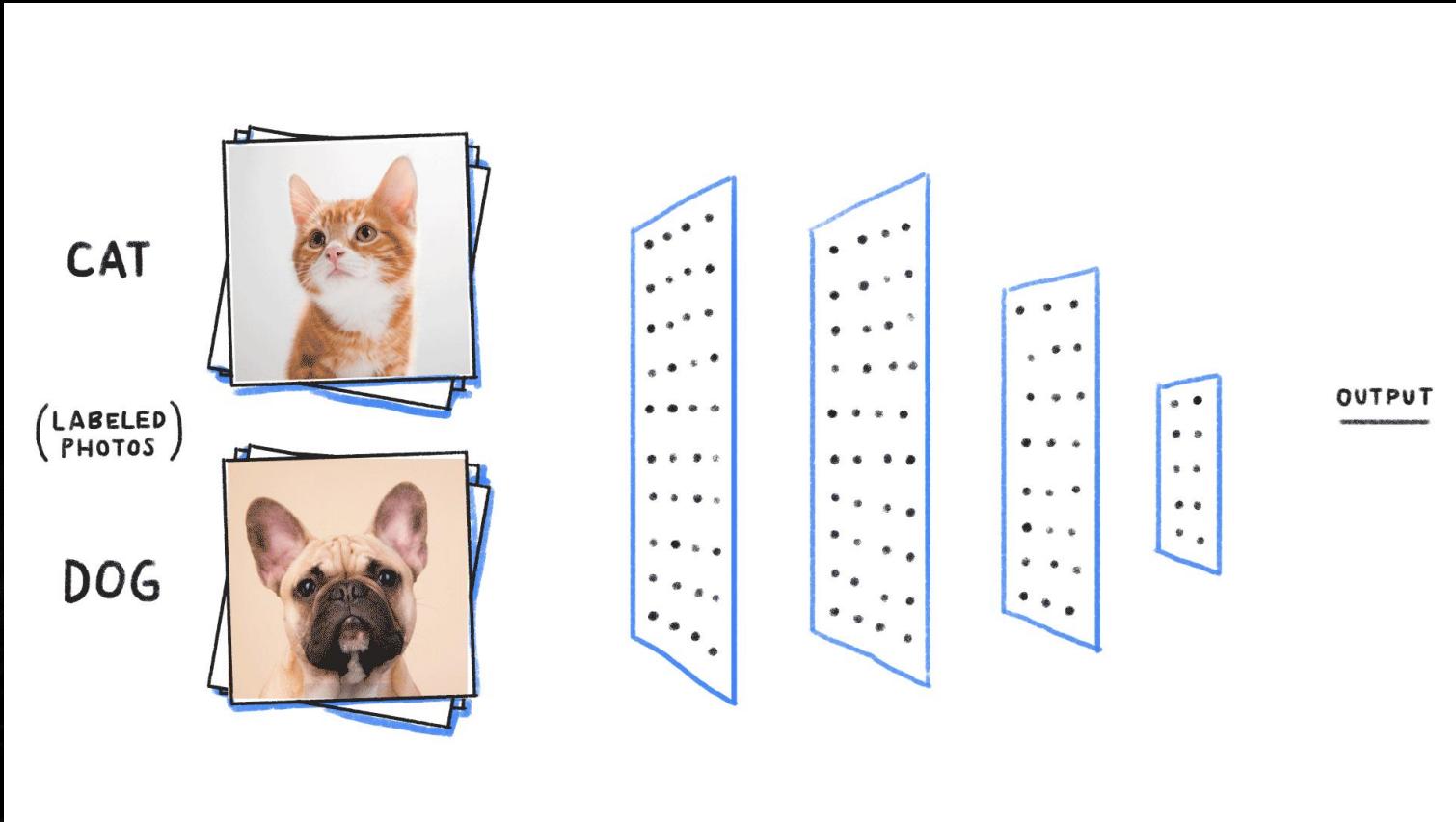
AI
e.g., Robotics



Machine learning ... powerful and impressive ...

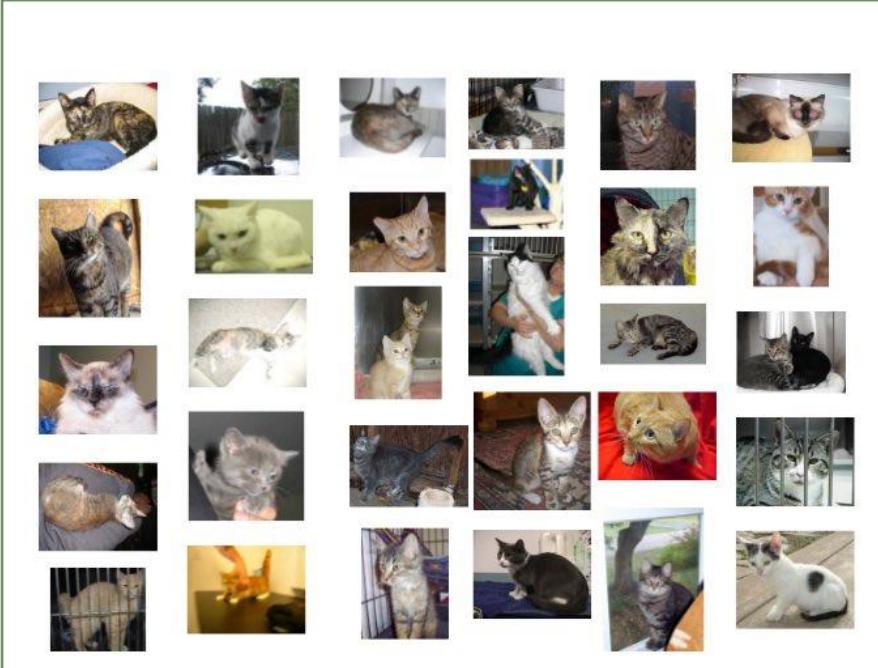


So maybe we want to distinguish ...

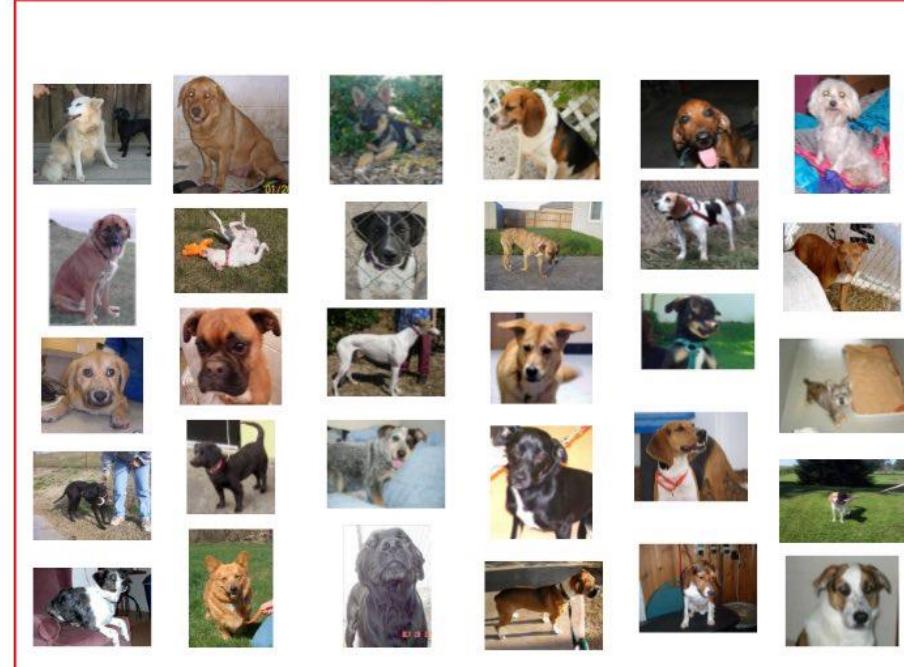


What we need is a vast set of labelled training data!

Cats



Dogs



Sample of cats & dogs images from Kaggle Dataset

He needs a good example ...

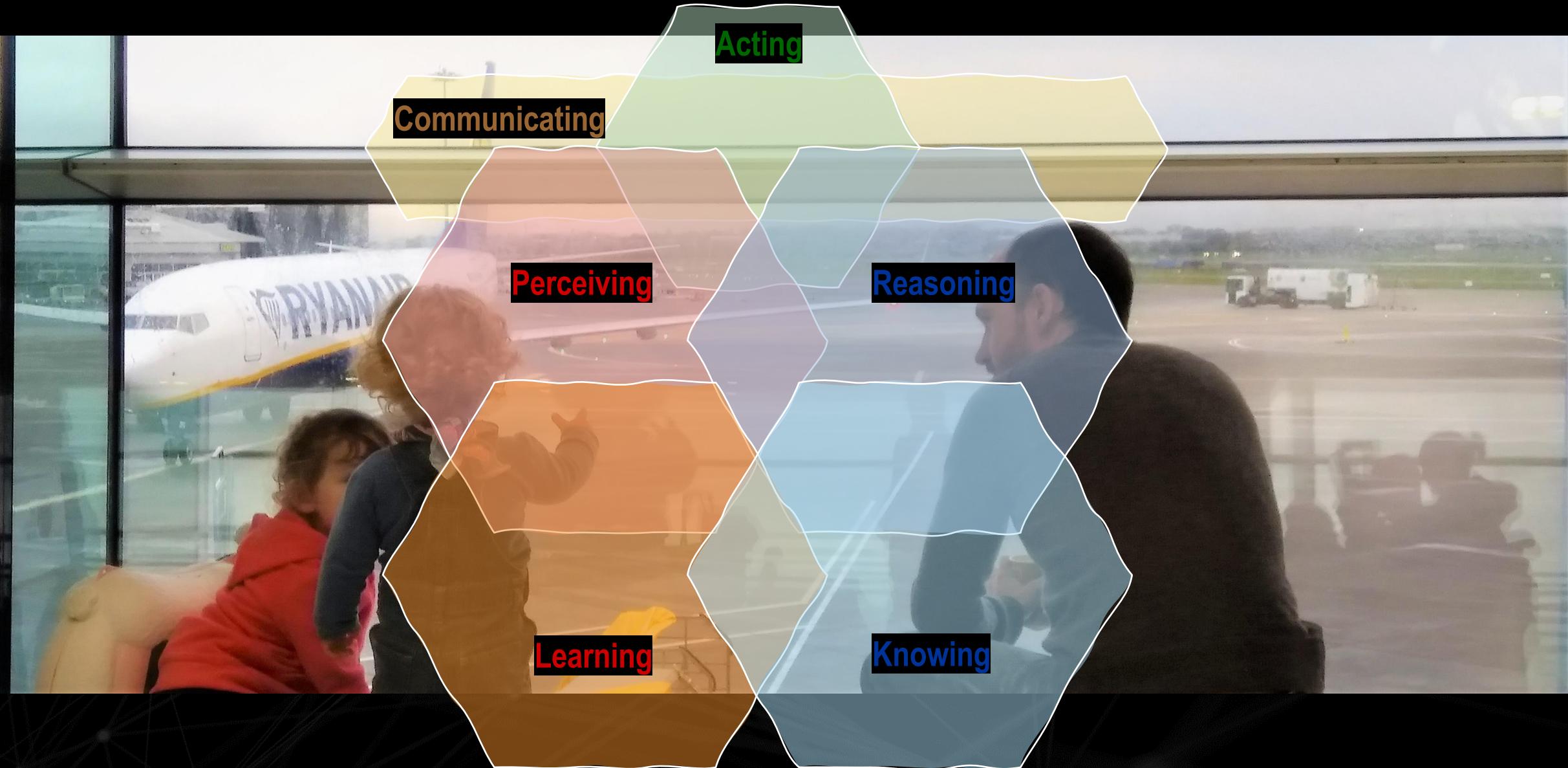


Human intelligence running on “the wet hardware”.

Human intelligence (or its acquisition) is much more interesting to me.



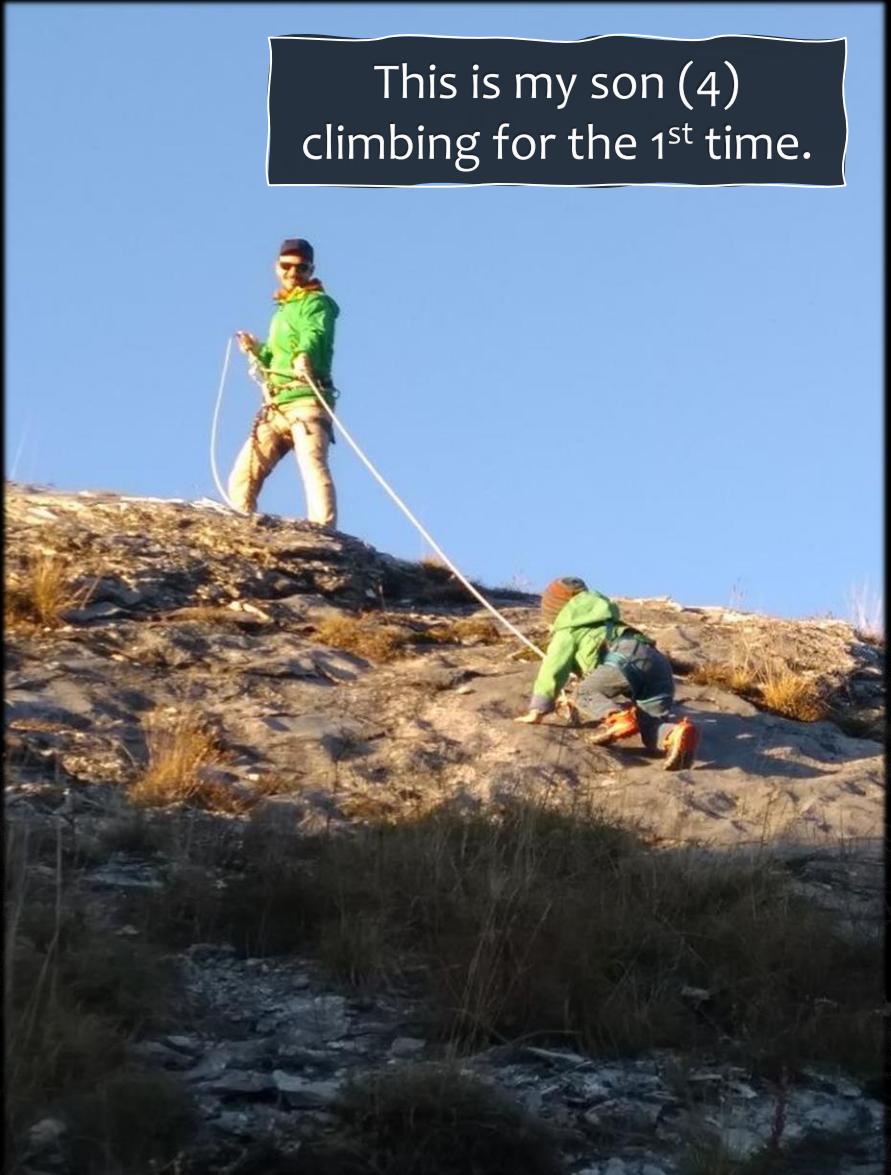
Human Intelligence & Capabilities



Learning something new & Problem-Solving

Human vs. AI



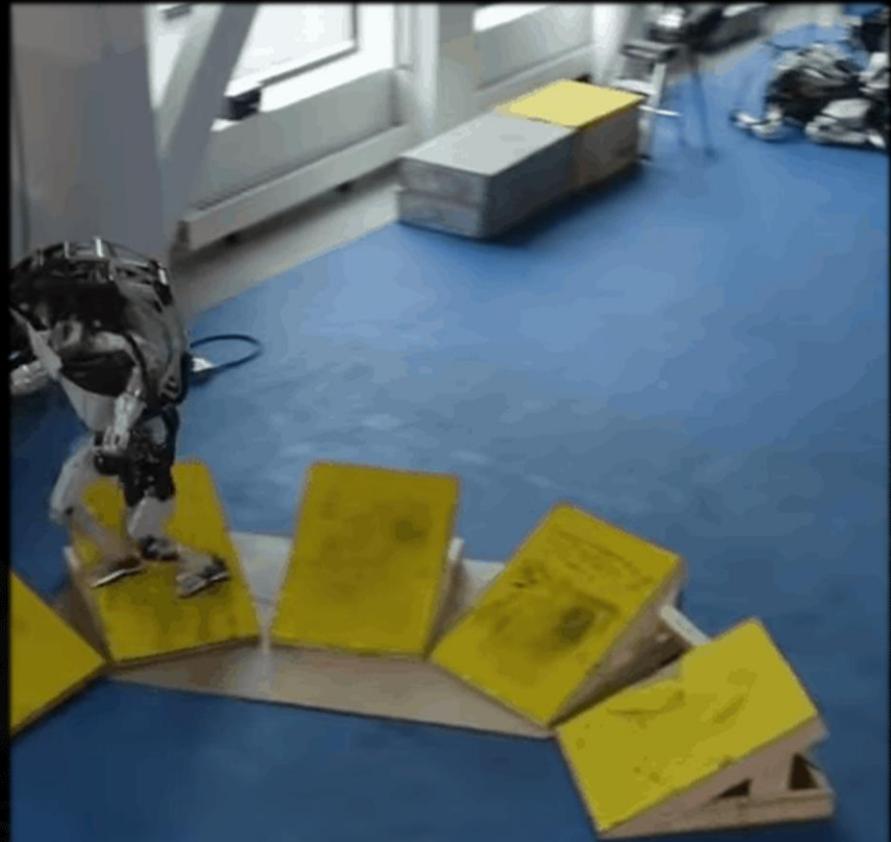
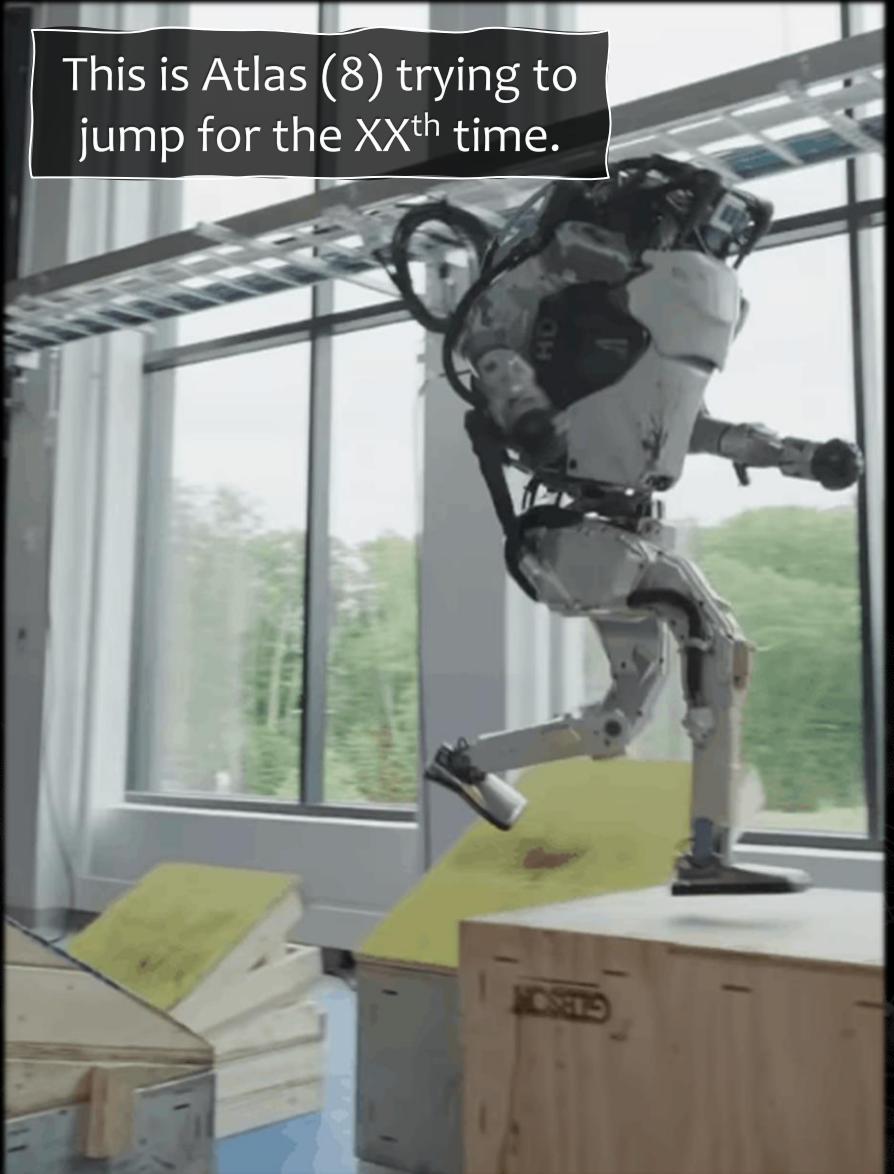


This is my son (4)
climbing for the 1st time.



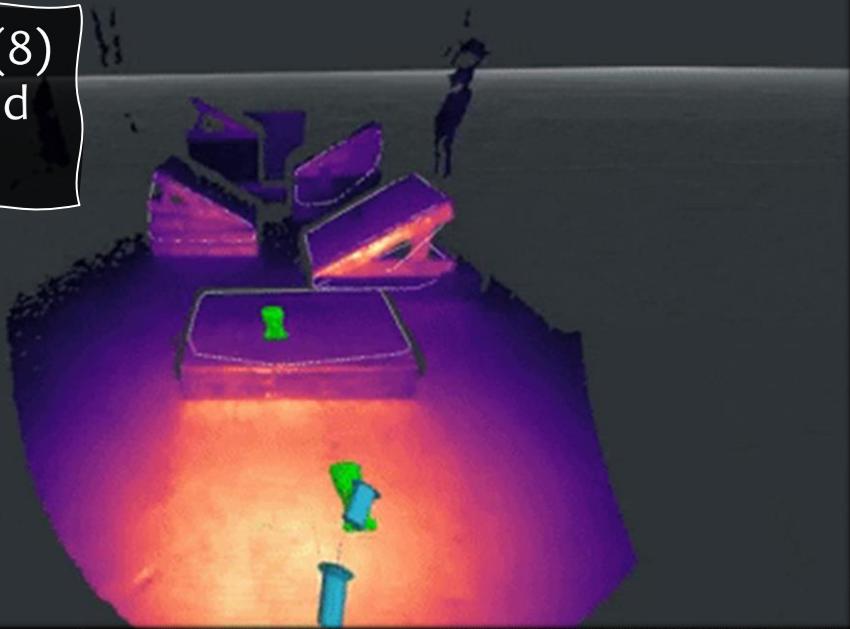
This is my son (4)
climbing for the 2nd time.

This is Atlas (8) trying to jump for the XXth time.



This is Atlas (8) trying to walk on sloping ground.

This is Atlas (8)
trying to find
its path.



- Learned/trained model
- Current sensor data
- Some formal knowledge (code)
- ...

➤ **(Mainly) tacit/non-explainable model**

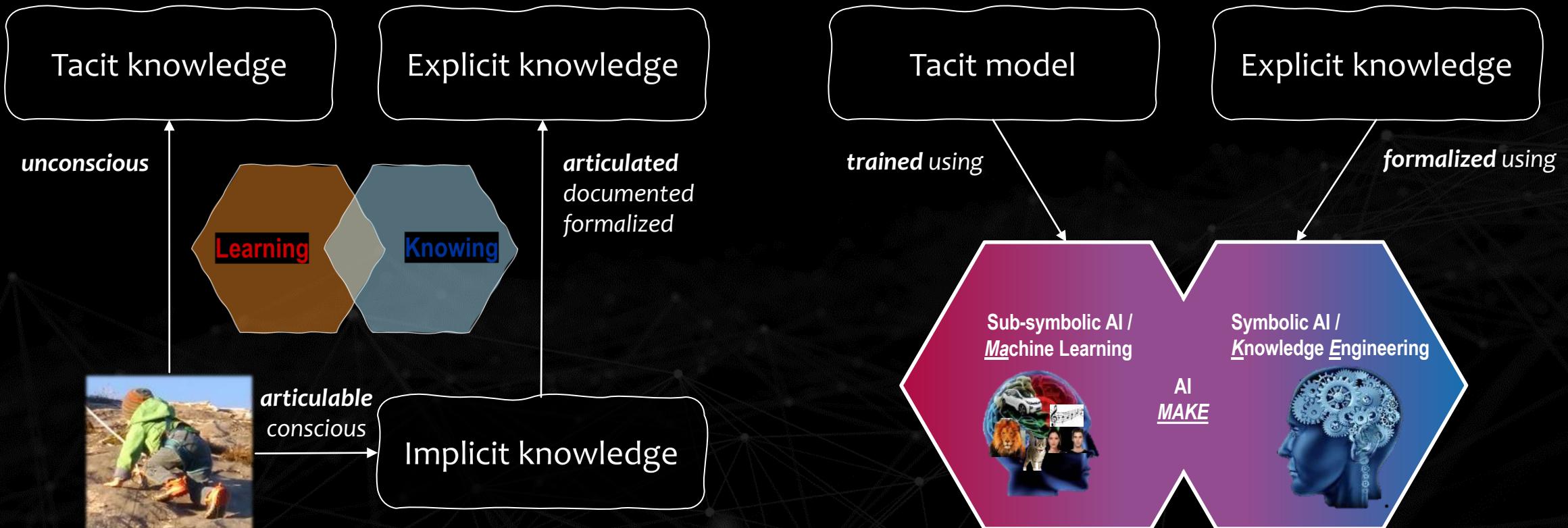
This is my son (4)
climbing for the 1st time.

- Context
- Experience
- Common-sense
- Shared conceptualization & abstraction
- ...

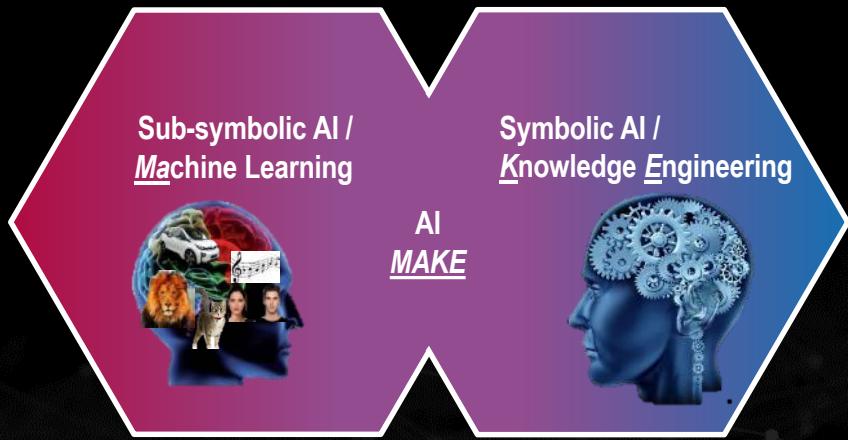


- **Tacit (unconscious) knowledge**
- Implicit (articulable) or **explicit** (articulated) **knowledge**

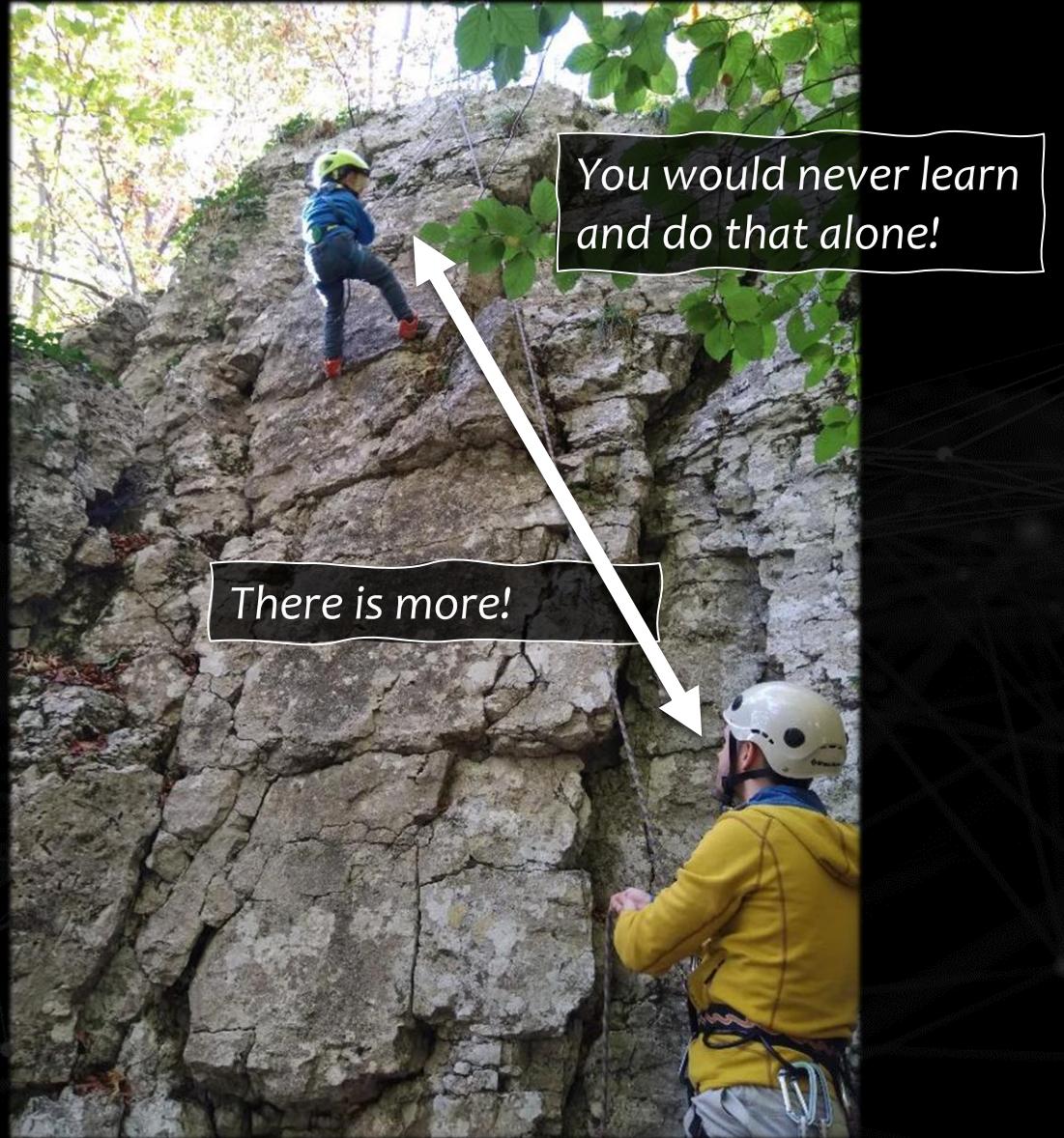
Human («Actor») vs. Digital Agent (AI)



So, there we have it: MAKE!



... but ...



Collaboration | $1 + 1 > 2$



Explicit knowledge

- Externalization
- Articulation
- Communication
- ...
- Documentation
- Formalization



Tacit knowledge

- Socialization
- Experience
- Empathy
- Awareness of capabilities
- Continuous alignment
- Continuous conformance
- ...

$$1 + 1 > 2$$

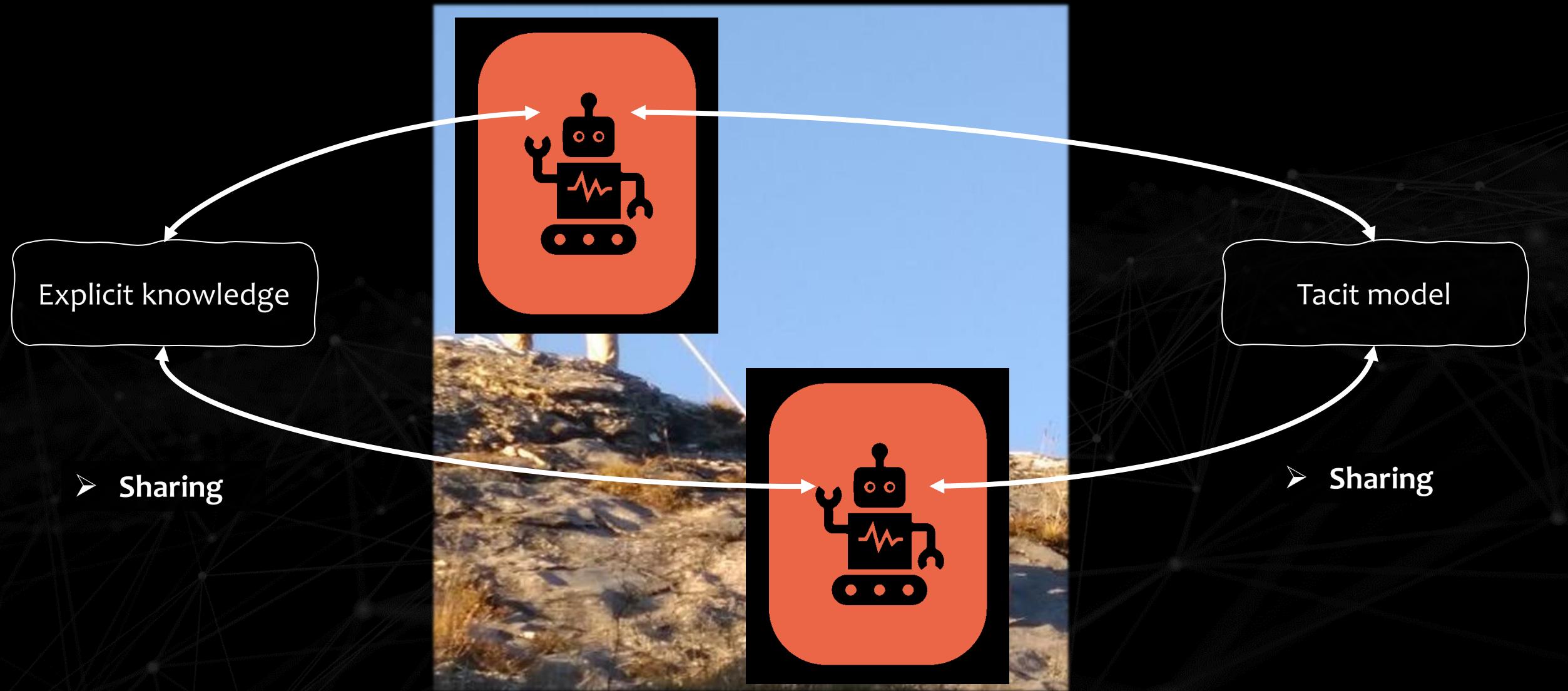


A human ^{agent} in the loop of another human ^{agent}.

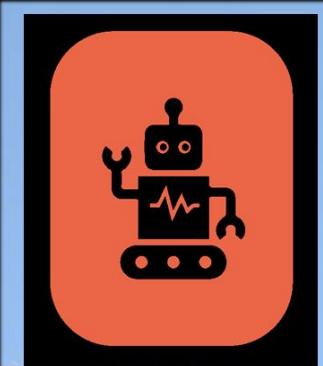


**Intelligent
System**

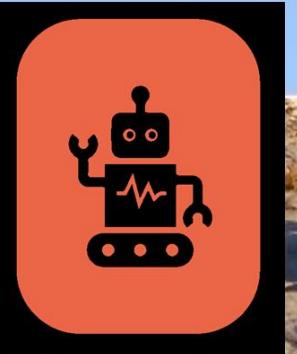
Digital Agent Collaboration



Digital Agent vs. Human («Actor»)



Good at unsupervised learning.



Unsupervised learning of:

- Model
- Knowledge base

Supervised would be human-in-the-loop



Good at supervised learning.

Supervised learning of:

- Explicit knowledge

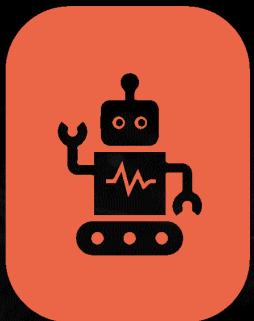
(Un-)supervised learning of:

- Tacit & experiential knowledge

What about problems digital agents or
people (alone) can't solve?



Hybrid Intelligence (HI)

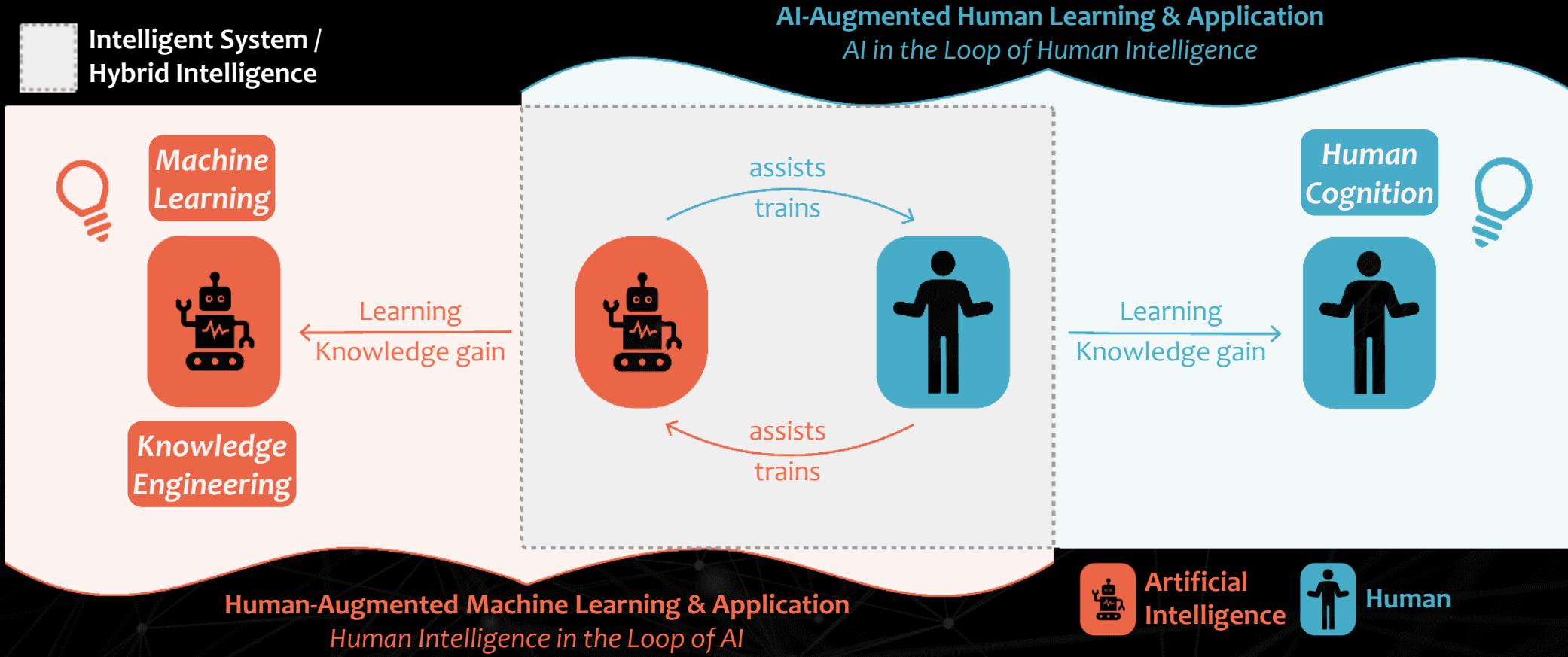


HI means “... using the complementary strengths of **human intelligence** and **AI**, so that they can perform better than each of the two could separately”.



Intelligent System

Hybrid Intelligence



So, why MAKE makes sense?

... because it does!



MAKE is the basis for digital agents collaborating in HI systems.



So, let's have fun with:

AAAI-
MAKE





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