



2nd NeuroAI Social

General intelligence and neuroscience-inspired AI



First one at ICML in Hawaii



Schedule (1/2)

7:10 PM

Consciousness as a platform for General Agent

Ryota Kanai (Araya)

7:30 PM

AI architectures through the lens of neuron-astrocyte networks

Dmitry Krotov (MIT-IBM)

7:50 PM

Attention is all you need, but not as you know it: What can we learn from neuroscience?

Karthik Srinivasan (MIT)

Schedule (2/2)

8:10 PM **Roundtable discussions**

9:40 PM **Networking**

Is the ultimate goal and promise of AGI realistic and what are the missing components



Is the ultimate goal and promise of AGI realistic **Yes** and what are the missing components



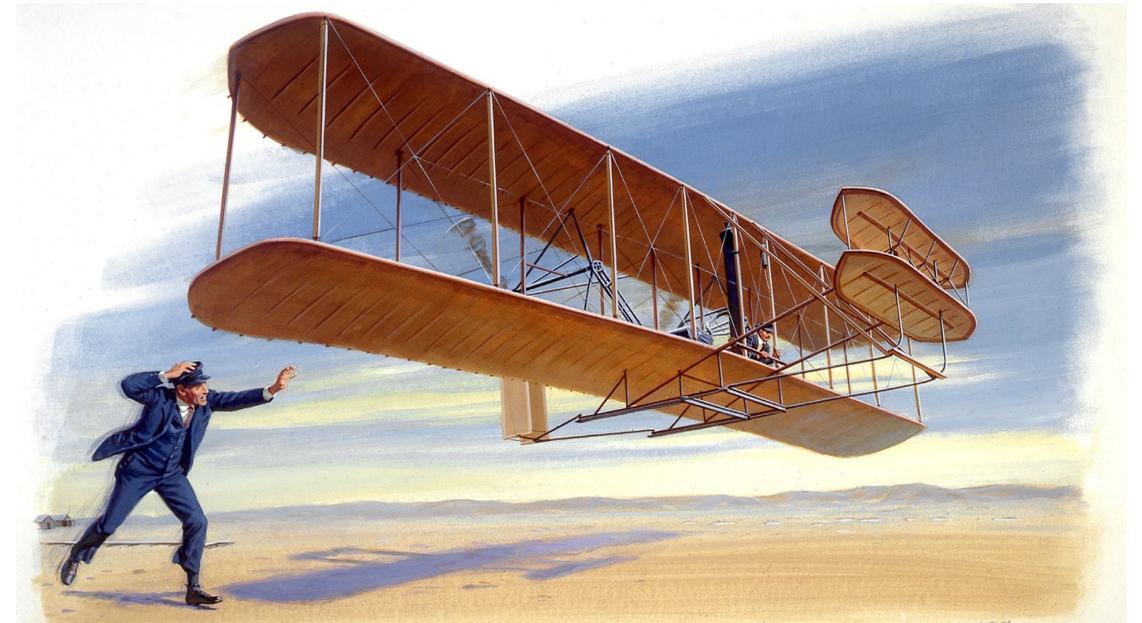
Should we study the brain to build better intelligent systems?

“Engineers don’t study birds to build better planes” is the usual refrain. However, the analogy fails, in part because pioneers of aviation did indeed study birds, and some still do. The goal of modern aeronautical engineering is not to achieve “bird-level” flight, whereas a major goal of AI is indeed to achieve (or exceed) “human-level” intelligence



Should we study the brain to build better intelligent systems? **Yes**

“Engineers don’t study birds to build better planes” is the usual refrain. However, the analogy fails, in part because pioneers of aviation did indeed study birds, and some still do. The goal of modern aeronautical engineering is not to achieve “bird-level” flight, whereas a major goal of AI is indeed to achieve (or exceed) “human-level” intelligence



What is NeuroAI?

nature communications



Perspective

<https://doi.org/10.1038/s41467-023-37180-x>

Catalyzing next-generation Artificial Intelligence through NeuroAI

Received: 11 September 2022

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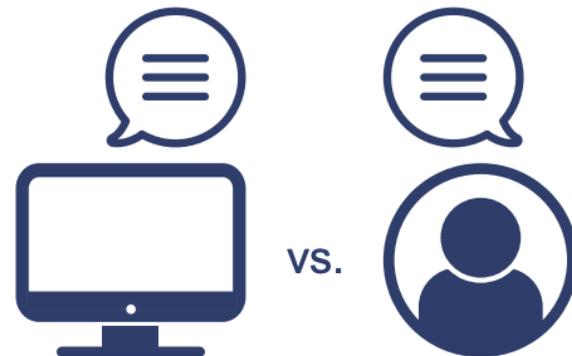
Published online: 22 March 2023

Check for updates

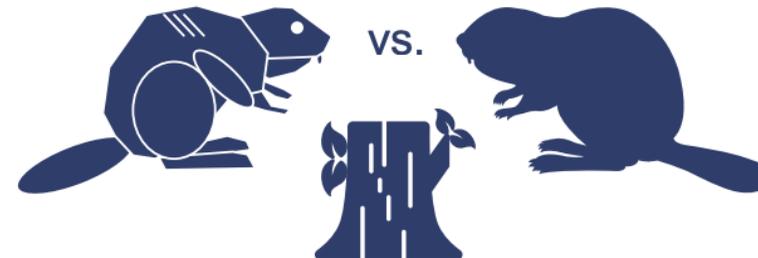
Anthony Zador^{1,29}✉, Sean Escola^{2,29}, Blake Richards^{3,4,5,6,7},
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The embodied Turing test: An AI animal model, whether **robotic or in simulation**, passes the test if its behavior is indistinguishable from that of its living counterpart.

Turing test



Embodied Turing test



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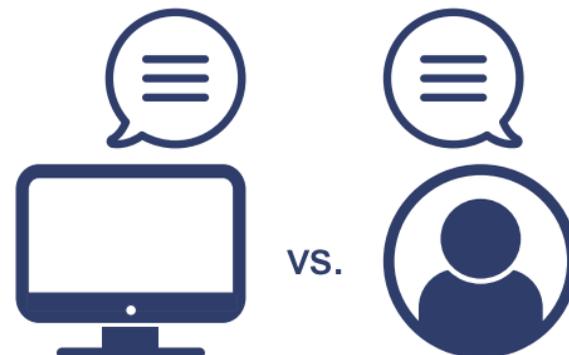
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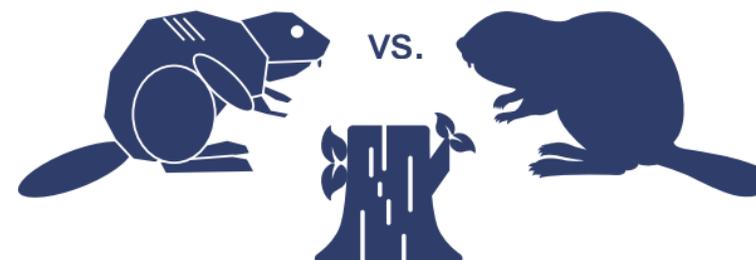
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Not limited to LLM!

Turing test



Embodied Turing test

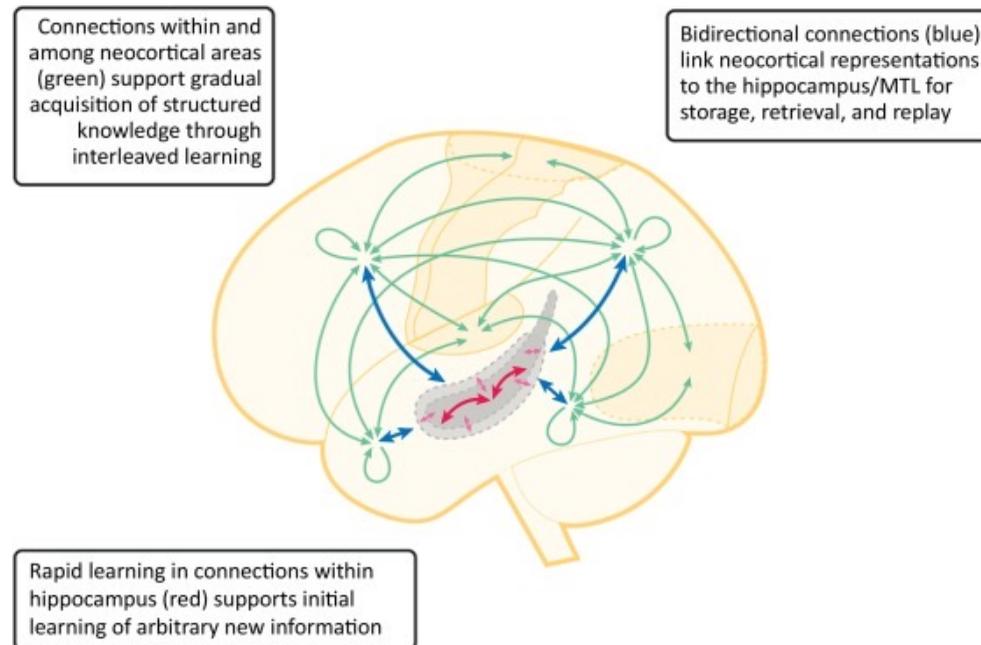


Cognitive development for general intelligence

Tuesday's talk by Linda Smith

on self-generated experience in young humans

mechanisms that **generate the data** and the mechanisms **that learn**.



Fast and slow learning in the brain:

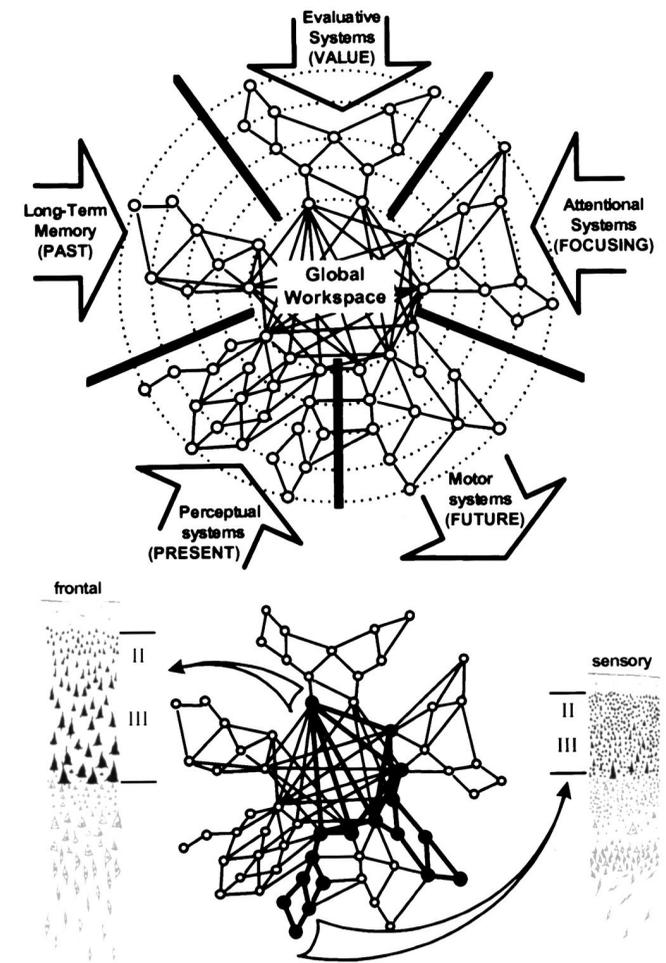
The neocortex gradually acquires structured knowledge representations, while the hippocampus quickly learns the specifics of individual experiences.

Artificial Consciousness

Can we apply well-studied theories of consciousness to modern AI, such as Global Workspace Theory and Higher-Order Theories?

Consciousness in Artificial Intelligence: Insights from the Science of Consciousness

Patrick Butlin*	Robert Long*	Eric Elmoznino
Yoshua Bengio	Jonathan Birch	Axel Constant
George Deane	Stephen M. Fleming	Chris Frith
Xu Ji	Ryota Kanai	Colin Klein
Grace Lindsay	Matthias Michel	Liad Mudrik
Megan A. K. Peters	Eric Schwitzgebel	Jonathan Simon
	Rufin VanRullen	



Global Workspace Theory

[Baars, 1988; Dehaene, 1998]

Understanding the brain

Deciphering complex neural patterns and intricate cognitive processes with deep learning

Brain implant can help paralyzed patients speak using a digital avatar



Chang, UCSF