



**10<sup>th</sup> Anniversary Workshop**  
NSF Science and Technology Center  
2013-2023

**A Symposium on Intelligence: Brains, Minds, and Machines**

Center for Brains, Minds, and Machines (CBMM)  
MIT Quest for Intelligence (MIT Quest)

MIT Brain and Cognitive Sciences Complex (MIT Bldg. 46)

Singleton Auditorium

October 6<sup>th</sup> & 7<sup>th</sup>, 2023

The goal of the workshop is to celebrate a decade of CBMM's accomplishments, and to explore the future of pursuing the natural science of intelligence and fundamental principles of learning, while leveraging its synergies with AI. Deep learning was inspired by neuroscience and led to a better computational understanding of primate perception. It also led to surprising engineering advances such as AlphaGo, Alphafold, and LLMs. This symposium aims to take stock of what has been scientifically accomplished so far, to illuminate key open problems, especially in terms of understanding the fundamental theory of learning and common principles of natural and artificial intelligence, and to chart next steps in our research on intelligence.

**Schedule**

**DAY 1: Friday, October 6, 2023**

2:30pm to 2:45 pm	<b>Welcome</b> Tomaso Poggio, CBMM Phil Regalia, NSF Dan Huttenlocher, MIT Schwarzman College of Computing
2:45pm to 4:00 pm	<b>CBMM after 10 years – the Quest now</b> CBMM faculty (T. Poggio, B. Katz, A. Barbu, J. DiCarlo)
4:00 pm to 4:30 pm	Coffee Break
4:30 pm to 6:00 pm	<b>Interacting with the Physical World</b> Which aspects of human intelligence require embodiment? Motor control: was it the key for development of human intelligence? Is embodiment necessary for consciousness?  Panel Chair: <a href="#">D. Rus</a> Invited Panelists: M. Jazayeri, L. Kaelbling, M. Raibert, M. Wilson
6:30 pm	Dinner: Catalyst Restaurant, Kendall Square

**DAY 2:****Saturday, October 7, 2023**

8:00 am	Coffee & Light Breakfast
9:15 am to 9:30 am	Welcome
9:30 am to 11:00 am	<b>Neuroscience to AI and Back Again</b> Review of progress and success stories in understanding perception in primates and replicating it in machines. Key open questions. Synergies. CNNs vs transformers as models of cortex.  Panel Chair: <b>J. DiCarlo</b> Invited Panelists: I. Fiete, N. Kanwisher, C. Koch, T. Konkle, G. Kreiman
11:00 am to 11:15 pm	Coffee Break
11:15am to 12:45 pm	<b>Language and Thought</b> Is natural language the language of thought? LLMs as models of human language and thought. Are LLMs aligned with neuroscience and with human behavior? What is still missing?  Panel Chair: <b>J. Tenenbaum</b> Invited Panelists: E. Fedorenko, S. Gershman, P. Isola, E. Spelke, S. Ullman
12:45 pm to 2:00 pm	Lunch
2:00 pm to 3:30 pm	<b>Research on Intelligence in the Age of AI</b> On which critical problems should Neuroscience, Cognitive Science, and Computer Science focus now? Do we need to understand fundamental principles of learning -- in the sense of theoretical understanding like in physics -- and apply this understanding to real natural and artificial systems? Similar questions concern neuroscience and human intelligence from the society, industry and science point of view.  Panel Chair: <b>T. Poggio</b> Invited Panelists: D. Hassabis*, G. Hinton*, A. Shashua*, D. Siegel, I. Sutskever*
	<i>Note: The names above indicated with an asterisk (*) will be joining the workshop remotely.</i>
3:30 pm to 4:15 pm	Closing Remarks
4:30pm	<b>Reception</b> Location: MIT Bldg. 46 Atrium (3rd floor)