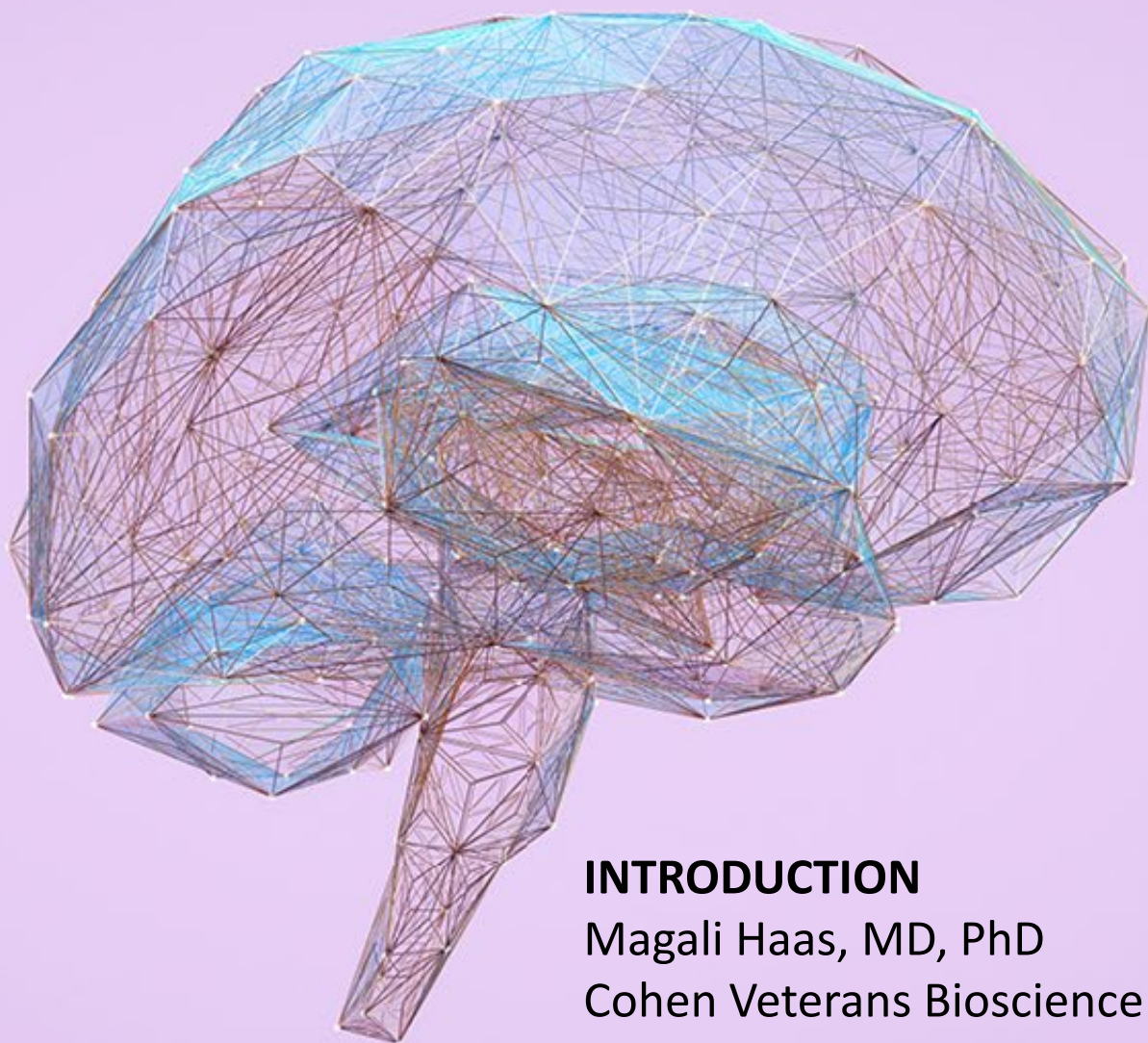


A WORKSHOP



## INTRODUCTION

Magali Haas, MD, PhD  
Cohen Veterans Bioscience

NATIONAL  
ACADEMIES

Sciences  
Engineering  
Medicine

# Exploring the Bidirectional Relationship Between Artificial Intelligence and Neuroscience

**DAY 1** March 25, 2024 • 2:00 PM – 5:00 PM ET

**DAY 2** March 26, 2024 • 9:30 AM – 4:00 PM ET

# Workshop Objectives

- Explore the bidirectional relationship between neuroscience and AI, including the contributions neuroscience has made to the development of AI and the utilization of AI to further understanding of the brain.
- Discuss the utility and limitations of AI in basic, translation, and clinical neuroscience research.
- Examine the potential for autonomy and agency in AI systems, and the associated implications for the field of neuroscience.
- Discuss the key role of neuroscience in equipping regulators and the public with knowledge and resources for the responsible use of AI in research, clinical, and general applications.
- Consider research priorities and public education needs regarding the role of neuroscience in AI and AI in neuroscience research.

# Workshop Overview

Welcome Remarks

Keynote Lecture

**Session 1:** The Bidirectionality of Neuroscience and Artificial Intelligence (AI)

**Session 2:** R&D Considerations for Neuroscience & AI

**Session 3:** Impact of AI in Medical & Clinical Environments

**Session 4:** Communication & Engagement with the Public & Lived/Living CNS Disorder Experience

**Session 5:** Regulatory & Policy Advocacy and Engagement

**Session 6:** Synthesis & Opportunities to Move Forwards



**Neuroscience**



**Artificial  
Intelligence**

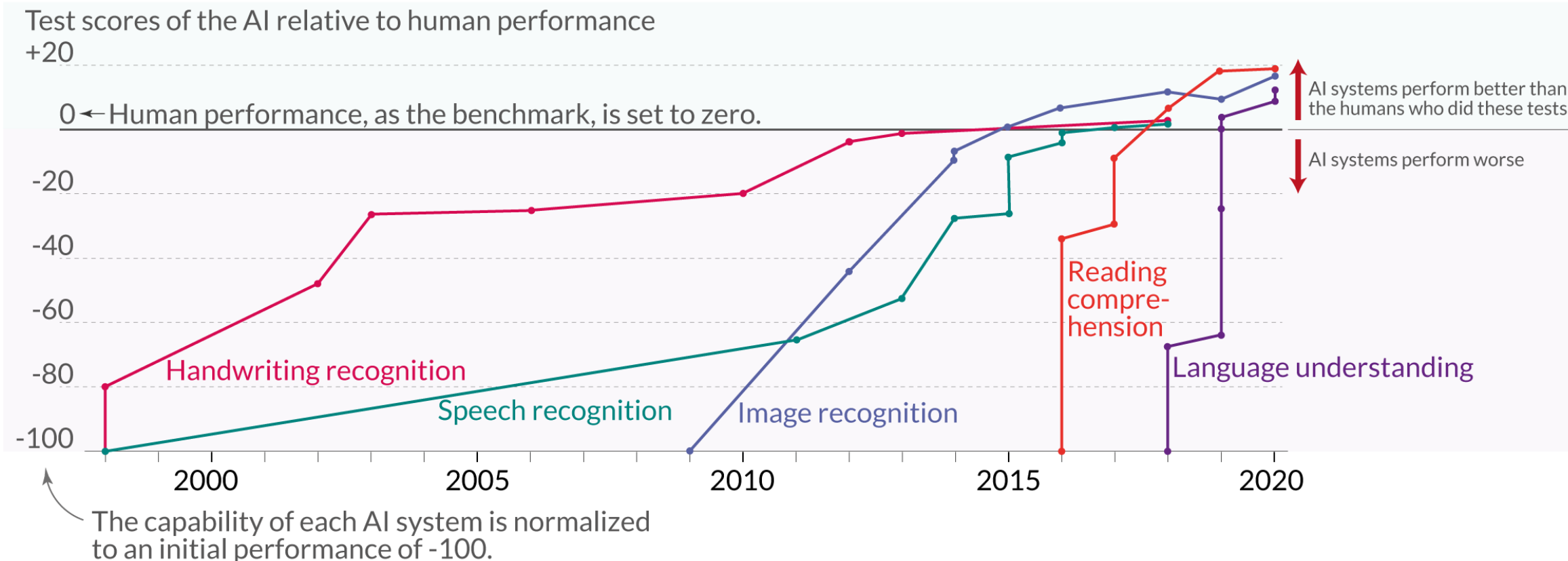


**Brain Health**



# Language and image recognition capabilities of AI systems have improved rapidly

Our World  
in Data



Data source: Kiela et al. (2021) – Dynabench: Rethinking Benchmarking in NLP  
OurWorldinData.org – Research and data to make progress against the world's largest problems.

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Neuroscience

Artificial  
Intelligence



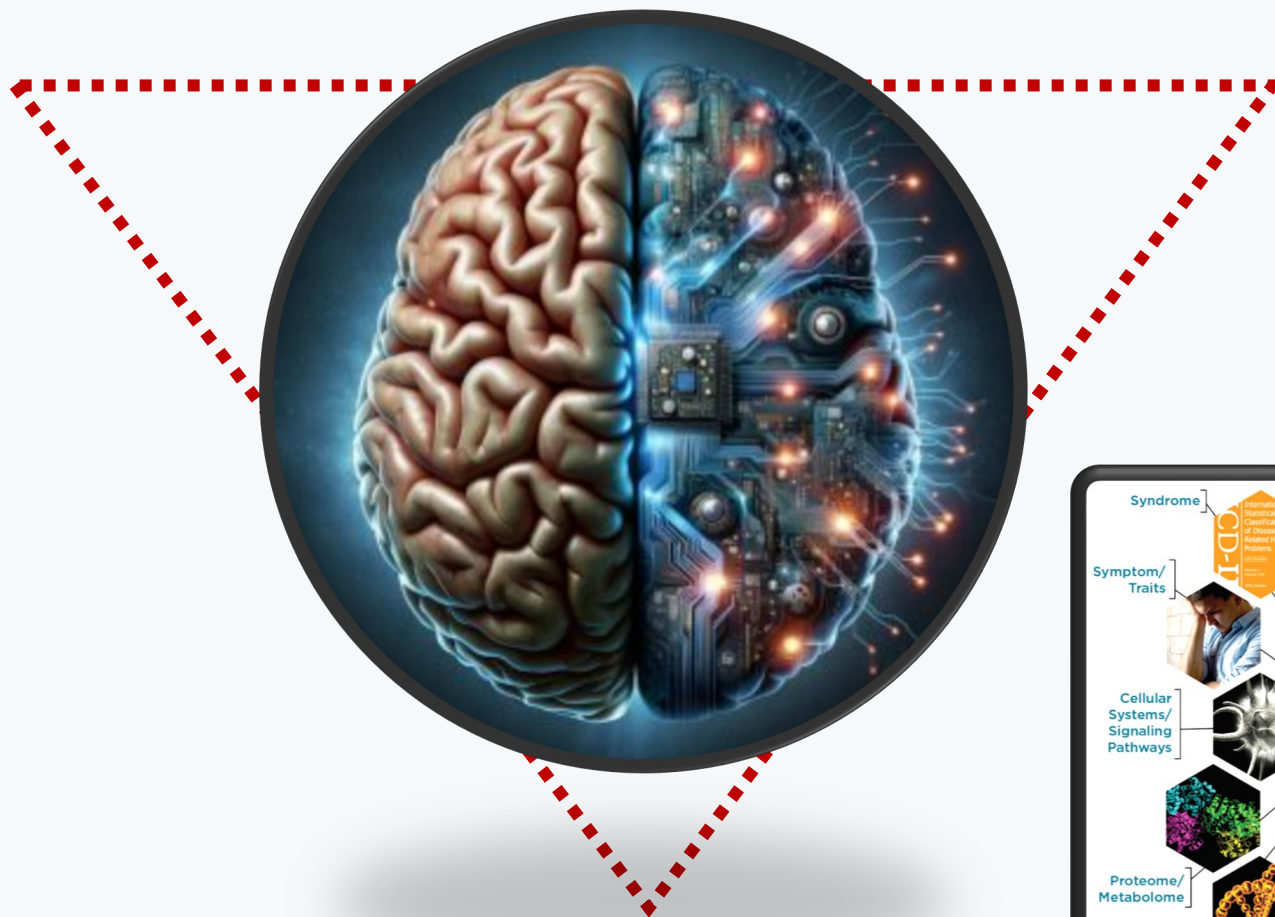
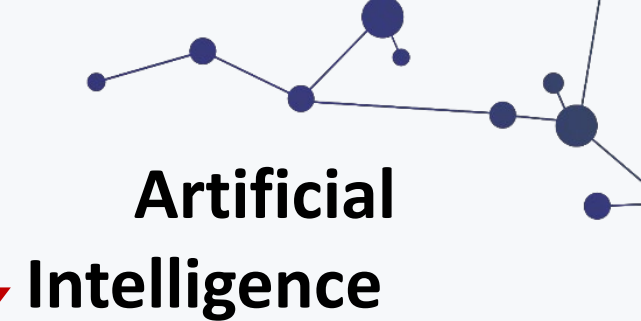
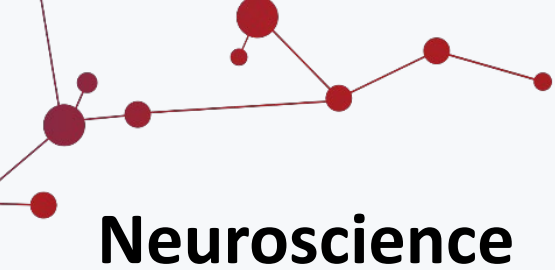
**THE BRAIN INITIATIVE®** **BRAIN Strategic Plan**

**Seven High Priority Research Areas**

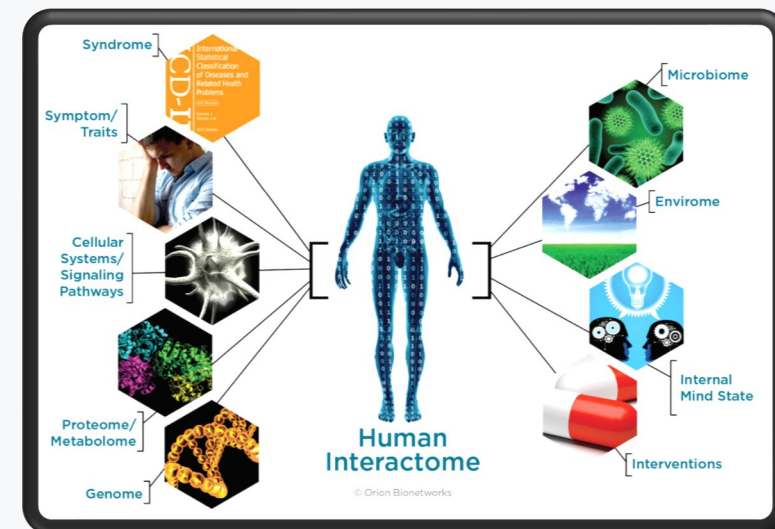
Brain Cell Types	1. Discovering diversity
Tools for Circuit Diagrams	2. Maps at multiple scales
Technology to Monitor Neural Activity	3. The brain in action
Precise Interventional Tools	4. Demonstrating causality
Theory and Data Analysis Tools	5. Identifying fundamental principles
Advance Human Neuroscience	6. Creating human brain research networks
Integrate Approaches	7. From BRAIN Initiative to the brain

BRAIN 2025  
A Scientific Vision

Brain Health



**Brain Health**

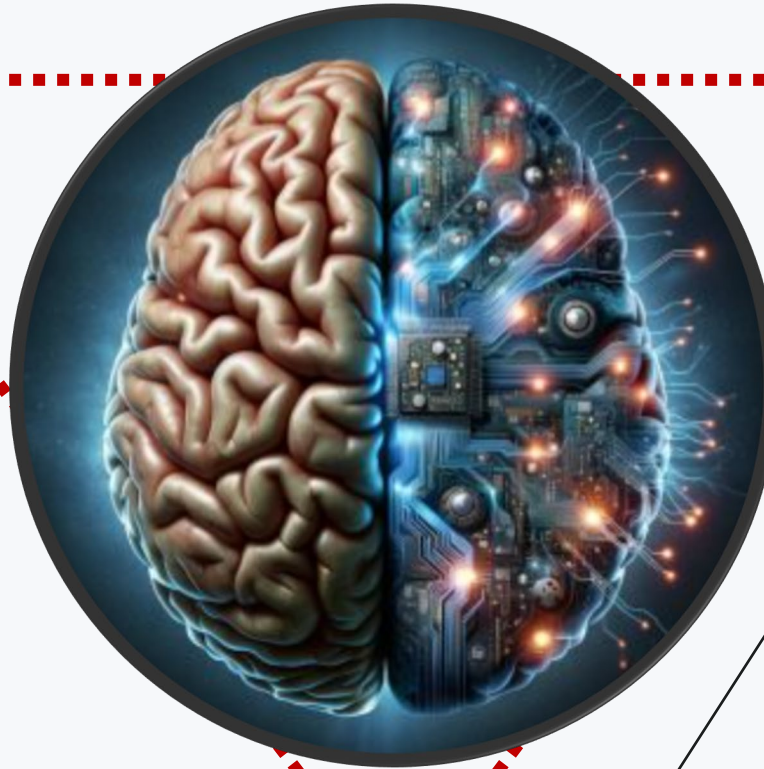




Neuroscience



Artificial  
Intelligence



Brain Health

By 2030.....  
The global toll of brain  
disorders will **exceed** that of all  
other diseases  
— **World Health Organization**

[https://doi.org/10.1016/S1474-4422\(24\)00038-3](https://doi.org/10.1016/S1474-4422(24)00038-3)



# Neuroscience

# Artificial Intelligence

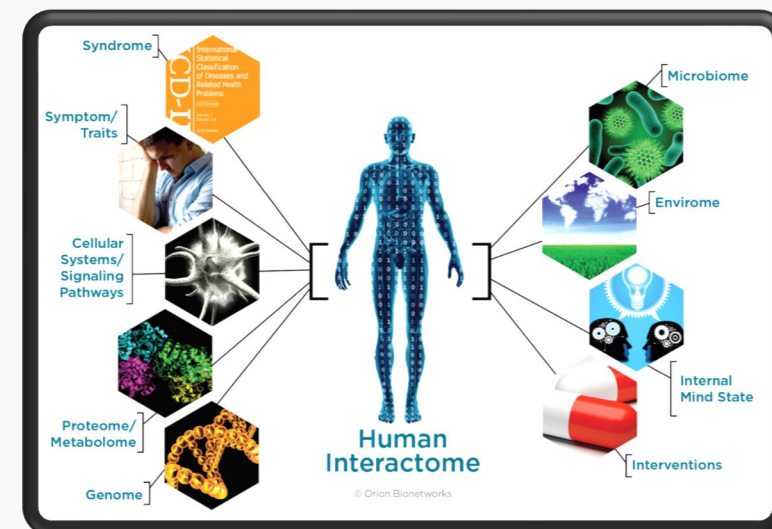


**THE BRAIN INITIATIVE®** **BRAIN Strategic Plan**

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Research Area	Priority
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A Scientific Vision



# Brain Health