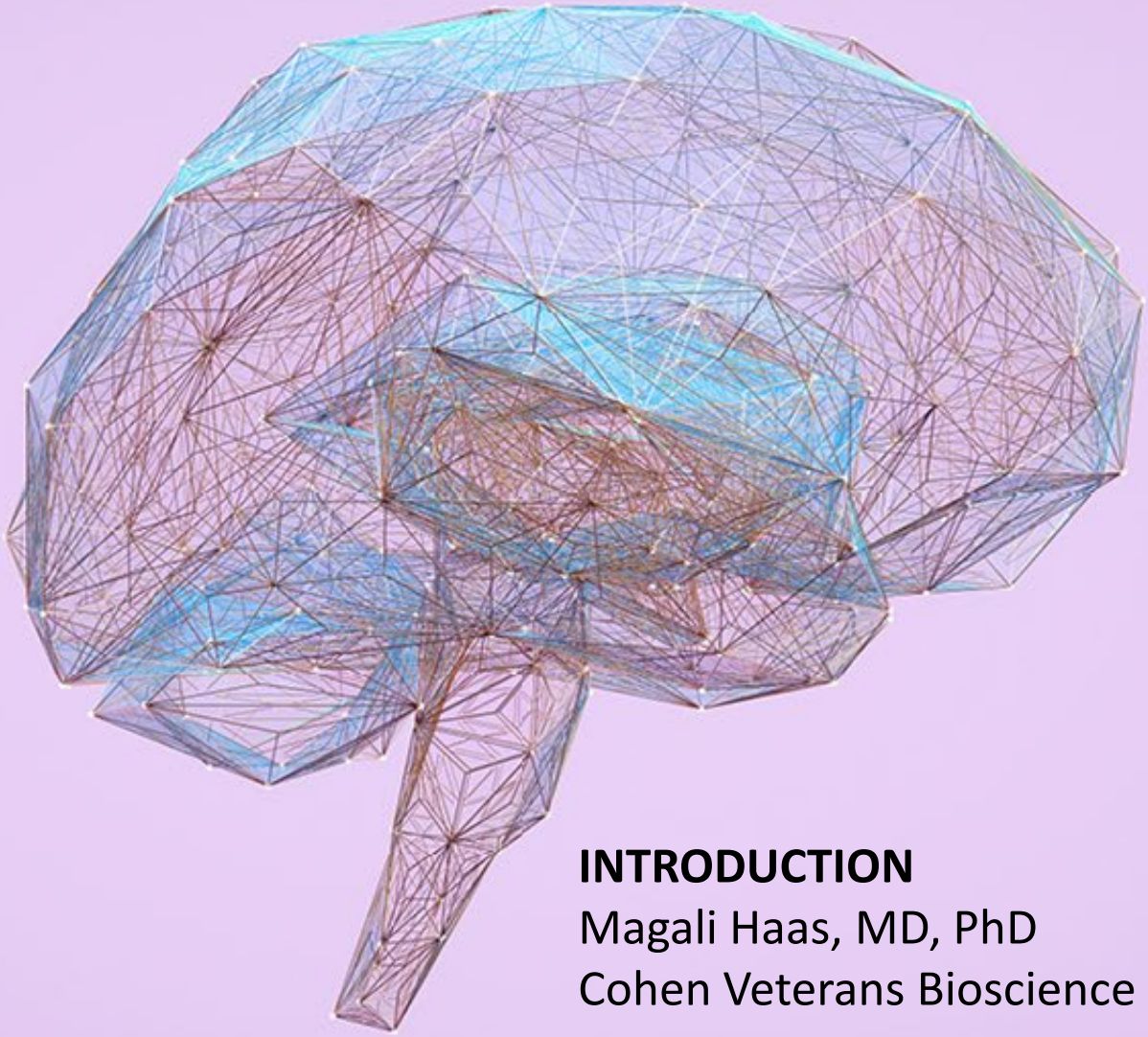
A WORKSHOP



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

**INTRODUCTION**
Magali Haas, MD, PhD
Cohen Veterans Bioscience

# 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

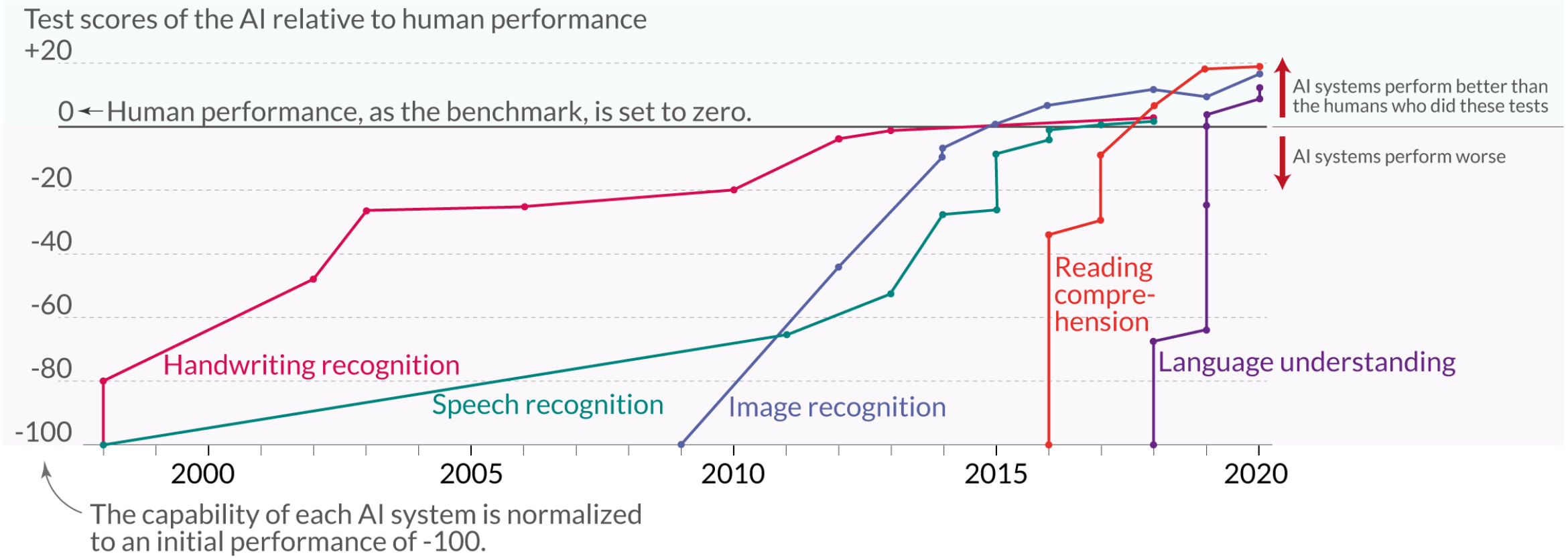
Brain Health



Source: DALL-E/OpenAi

# 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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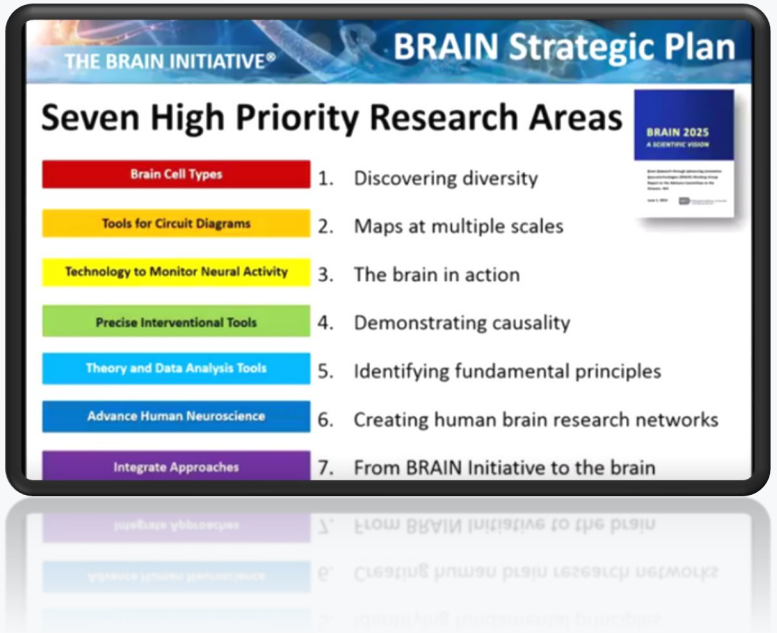
# Neuroscience

# Artificial Intelligence




# Brain Health

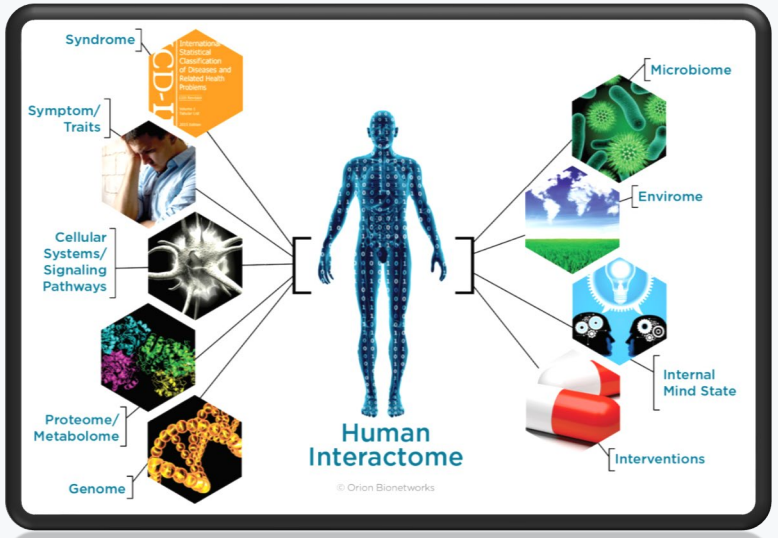


Source: DALL-E/OpenAi

Neuroscience

Artificial Intelligence

Brain Health






Source: DALL-E/OpenAi

Neuroscience

Artificial Intelligence

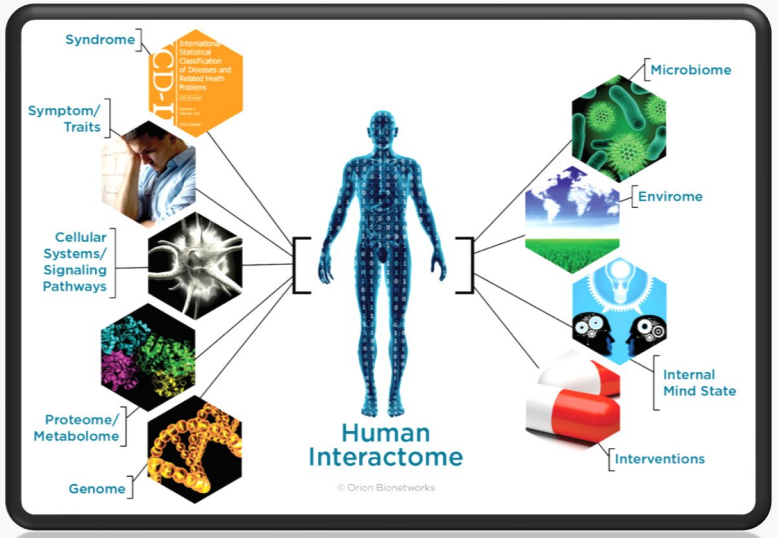
Brain Health

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

# Neuroscience

# Artificial Intelligence




# Brain Health



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