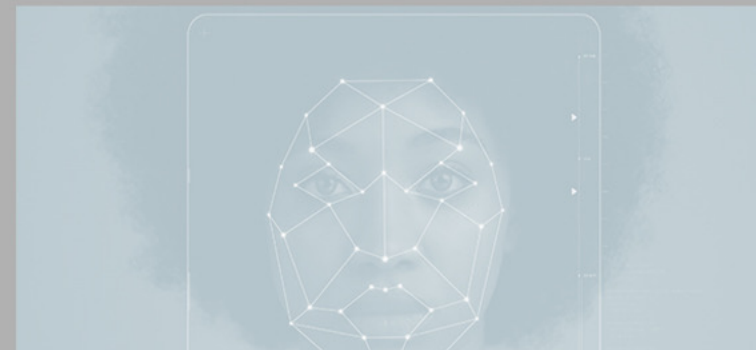
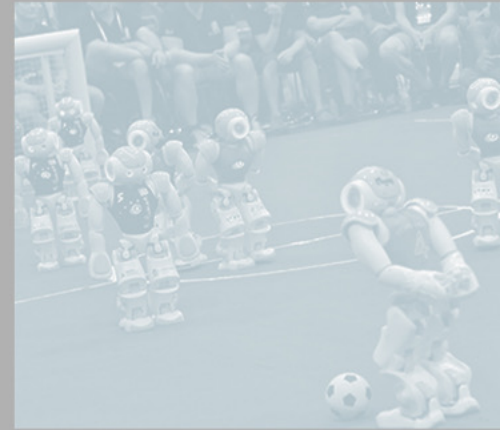


FAKE NEWS

Gathering Strength, Gathering Storms

The One Hundred Year Study on Artificial Intelligence (AI100)
2021 Study Panel Report



One Hundred Year Study on Artificial Intelligence (AI100)

2021 Study Panel

- Michael L. Littman (CS), Brown Univ. Chair
- Ifeoma Ajunwa (Law), Univ. of North Carolina
- Guy Berger (Economics), LinkedIn
- Craig Boutilier (CS), Google
- Morgan Currie (STS), U. of Edinburgh
- Finale Doshi-Velez (CS), Harvard University
- Gillian Hadfield (Law), University of Toronto
- Michael C. Horowitz (Political Sci.), U. of Penn
- Charles Isbell (CS), Georgia Inst. Of Technology
- Hiroaki Kitano (CS), Okinawa Inst. Of S&T
- Karen Levy (Information Science), Cornell Univ.
- Terah Lyons (technological policy)
- Melanie Mitchell (CS), Santa Fe Institute
- Julie Shah (CS), MIT
- Steven Sloman (Philosophy), Brown University
- Shannon Vallor (Philosophy), U. of Edinburgh
- Toby Walsh (AI), University of New South Wales

One Hundred Year Study on Artificial Intelligence (AI100)

“Starting with this second report in the AI100 series, we propose the start of the following persistent template for future reports:

- Reflections
- Deep dive
- Standing questions
- Community voices”

2016	2021	2026	2031	2036	2041	2046	2051	2056	2061	2066	2071	2076	2081	2086	2091	2096	2101	2106	2111
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Time Capsule: Capture what was top of mind.

Standing Question 1:

What are some examples of pictures that reflect important progress in AI and its influences?

Will share as we go...

Standing Question 2:

What are the most important advances in AI?

Highlights:

- generative adversarial networks
- transformer language models
- robotic deliveries during the pandemic
- expansion of AI systems into hospitals



DALL-E: combines image generation and language modeling

“Stained-glass window of a blue strawberry”

Combines all three elements in a novel but sensible way

Standing Question 3:

What are the most inspiring open grand challenge problems?

Highlights:

- existing research challenges
- making AI:
 - generalize well
 - understand causal factors
 - pick up cultural norms



Robocup: Challenge human champions in 2050

Steady progress, but still quite weak

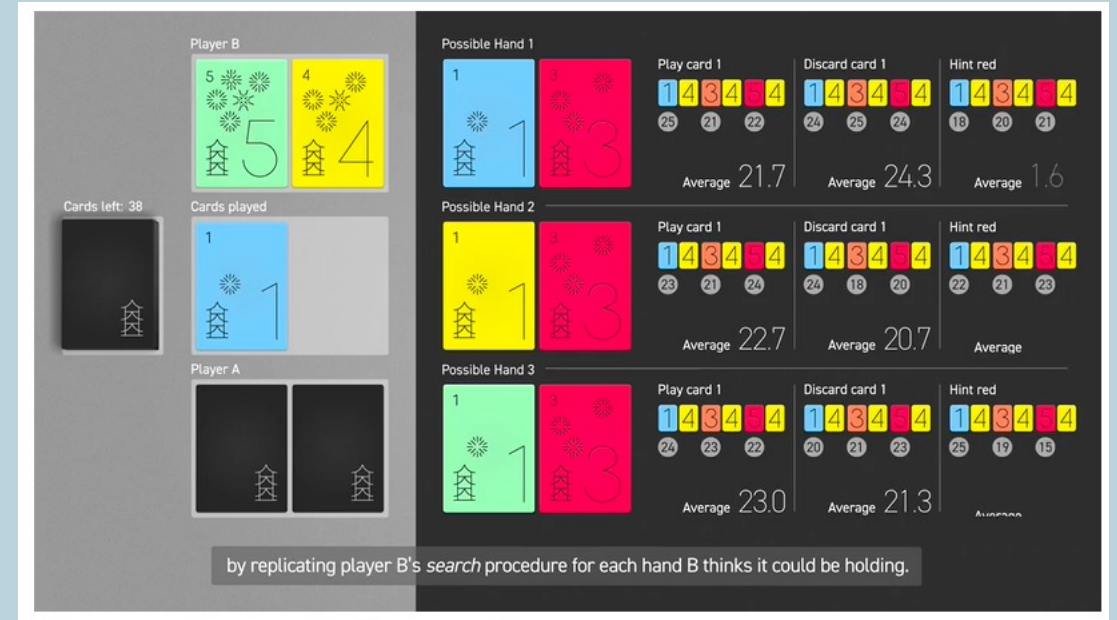
Standing Question 4:

How much have we progressed in understanding the key mysteries of human intelligence?

Not a lot.

Studying network effects is promising

- intelligence arises from interaction between brain regions
- intelligence manifests in cooperation between groups of people



“Hanabi” AI

Demonstrates new interest in AI that cooperates

Standing Question 5:

What are the prospects for more general artificial intelligence?

- “Human level” AI systems feel further away than they did 5 years ago.
- Some technologies are showing some promise in terms of generality:
 - Unsupervised language models pick up surprisingly large amounts of information about the world just by skimming text.
 - Meta-learning systems are being shown to learn how to learn more effectively.

The chair of the committee working for the AI-based organization creates examples.
The chair of the committee working for the AI-based organization create examples.
The members of the committee working for the AI-based organization creates examples.
The members of the committee working for the AI-based organization create examples.]

Large unsupervised language models (GPT-3, BERT, etc.) learn a lot about language but also some world knowledge.

They are providing some useful services online, but still fall short of general intelligence.