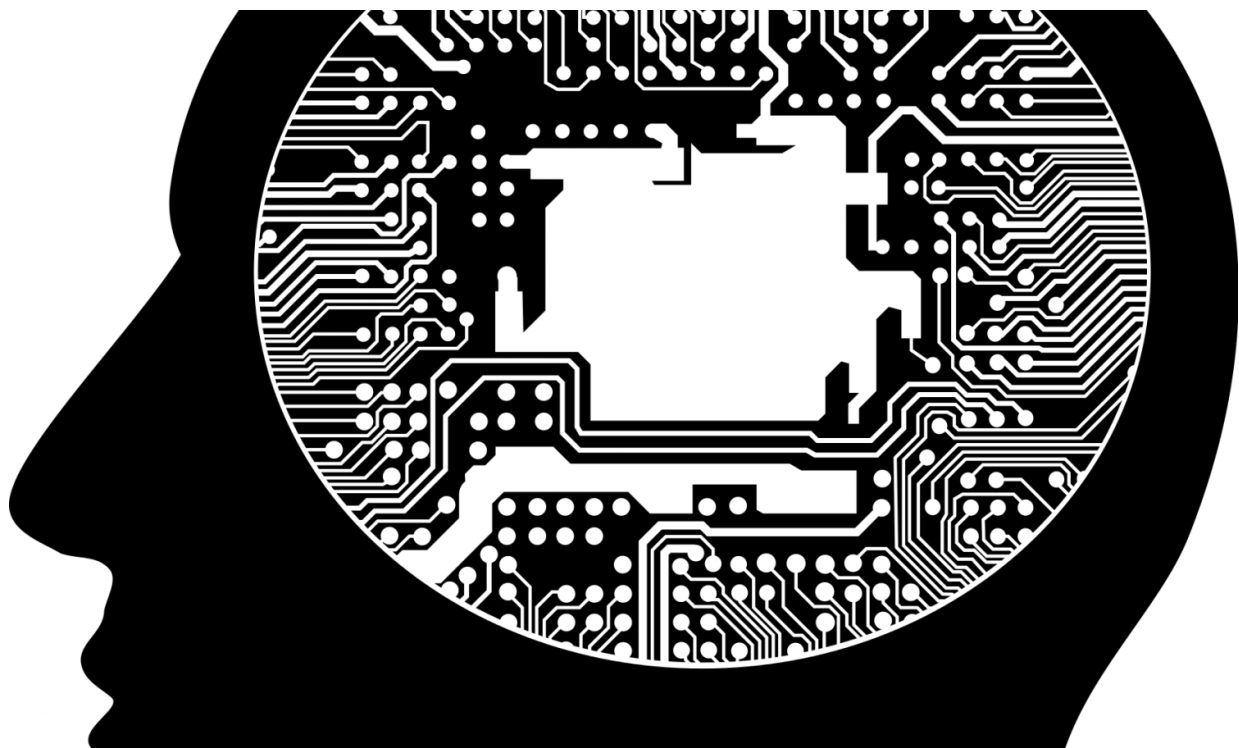


# Experts predict when AI will surpass humans in all tasks

June 2 2017, by Nancy Owano

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(Tech Xplore)—Big questions about humanity's future also merit a side question over humanity's future alongside machines.

How long before AI outperforms humans in various tasks?

A bracing new study presents responses from professionals working in that field.

"When Will AI Exceed Human Performance? Evidence from AI Experts," is by Katja Grace, John Salvatier, Allan Dafoe, Baobao Zhang and Owain Evans, and it is on arXiv.

Actually, this paper reveals not if this will happen but when, asking how many things will AI be able to do even better than we can?

"Researchers believe there is a 50% chance of AI outperforming humans in all tasks in 45 years and of automating all human jobs in 120 years." Yes, *all*.

Interestingly, Asian respondents expected the dates much sooner than did North Americans.

Discussing the study, *MIT Technology Review* said, "While North American researchers expect AI to outperform humans at [everything](#) in 74 years, researchers from Asia expect it in just 30 years."

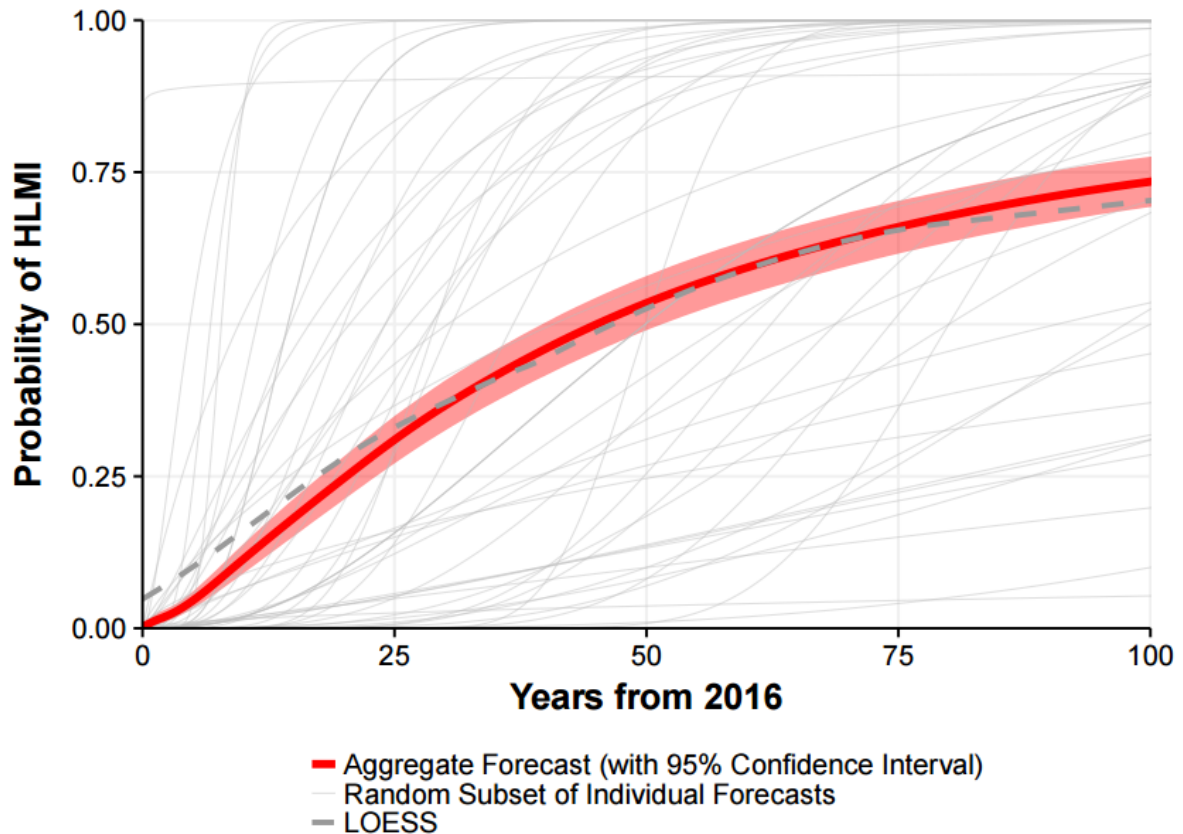
The study is from University of Oxford and Yale University, with 352 people responding.

How familiar were respondents with the topic?

"Our survey population was all researchers who published at the 2015 NIPS and ICML conferences (two of the premier venues for peer-reviewed research in machine learning). A total of 352 researchers responded to our survey invitation," they wrote.

(NIPS stands for Neural Information Processing Systems and ICML, for International Conference on Machine Learning.)

The researchers asked 1,634 and 352 responded.



Aggregate subjective probability of 'high-level machine intelligence' arrival by future years. Credit: arXiv:1705.08807 [cs.AI]

A key phrase to note in examining this study is "High-level machine intelligence" (HLMI). The authors explained that this intelligence level is "achieved when unaided machines can accomplish every task better and more cheaply than human workers."

Researchers predicted AI will outperform humans in many activities in the next ten years, such as translating languages (by 2024), writing high-

school essays (by 2026), driving a truck (by 2027), working in retail (by 2031), writing a bestselling book (by 2049), and working as a surgeon (by 2053).

In general, any talk of AI in future years shows that predictions and estimates regarding artificial intelligence send some running under the blankets. They have fearful expectations of [machines](#) not only outperforming but overtaking mankind.

Somewhere closer to the center of debate, however, are simply those who say the advancements are inevitable, and we had best be prepared for changes.

"The reality is that AI will have a dramatic impact on all aspects of people's lives, and it's going to happen sooner than most of us realize," wrote Ryan Bort in *Newsweek*. "The consensus arrived at by the world's top AI [researchers](#) bears this out. Admittedly, it's a little frightening, especially if you have a job that involves anything technique-based or formulaic. Yes, that includes bloggers."

The authors did not ignore the question of AI safety expectations, asking respondents if HLMI's impact would be positive or negative.

"What are the chances this will lead to extreme outcomes (either positive or negative)?"

The findings:

HLMI is seen as likely to have positive outcomes but catastrophic risks are possible.

Respondents were asked whether HLMI, over the long run, would have a positive or negative impact on humanity. They assigned probabilities to

outcomes on a five-point scale. The median probability was 25% for a "good" outcome and 20% for "extremely good" outcome. The probability was 10% for bad outcome; 5% for an outcome "Extremely Bad" (e.g., human extinction)."

But perhaps the last word about this report belongs to *TechRepublic's* Conner Forrest.

"While the findings may seem extraordinary, it's worth noting how limited current AI and machine learning systems are. There is still substantial human involvement in wrangling, cleansing, and processing the data needed to power these algorithms, and most AI is extremely narrow in its [focus](#)."

**More information:** When Will AI Exceed Human Performance? Evidence from AI Experts, arXiv:1705.08807 [cs.AI]  
[arxiv.org/abs/1705.08807](https://arxiv.org/abs/1705.08807)

### **Abstract**

Advances in artificial intelligence (AI) will transform modern life by reshaping transportation, health, science, finance, and the military. To adapt public policy, we need to better anticipate these advances. Here we report the results from a large survey of machine learning researchers on their beliefs about progress in AI. Researchers predict AI will outperform humans in many activities in the next ten years, such as translating languages (by 2024), writing high-school essays (by 2026), driving a truck (by 2027), working in retail (by 2031), writing a bestselling book (by 2049), and working as a surgeon (by 2053). Researchers believe there is a 50% chance of AI outperforming humans in all tasks in 45 years and of automating all human jobs in 120 years, with Asian respondents expecting these dates much sooner than North Americans. These results will inform discussion amongst researchers and policymakers about anticipating and managing trends in AI.

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