

The AI Race: Why Current Neural Network-based Architectures are a Poor Basis for Artificial General Intelligence

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Abstract

Artificial General Intelligence is the idea that someday an hypothetical agent will arise from artificial intelligence (AI) progresses, and will surpass by far the brightest and most gifted human minds. This idea has been around since the early development of AI. Since then, scenarios on how such AI may behave towards humans have been the subject of many fictional and research works. This paper analyzes the current state of artificial intelligence progresses, and how the current AI race with the ever faster release of impressive new AI methods (that can deceive humans, outperform them at tasks we thought impossible to tackle by AI a mere decade ago, and that disrupt the job market) have raised concerns that Artificial General Intelligence (AGI) might be coming faster than we thought. In particular, we focus on 3 specific families of modern AIs to develop the idea that deep neural networks, which are the current backbone of nearly all artificial intelligence methods, are poor candidates for any AGI to arise due to their many limitations, and therefore that any threat coming from the recent AI race does not lie in AGI but in the limitations, uses, and lack of regulations of our current models and algorithms.

References

Sublime, J. 2024. The AI Race: Why Current Neural Network-based Architectures are a Poor Basis for Artificial General Intelligence. *Journal of Artificial Intelligence Research*, 79: 41–67.