

Is the Future in the hands of Artificial Intelligence (AI)

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Abstract— In the present paper we will discuss the current state of Artificial Intelligence (AI) research and its future opportunities. Distinction between strong and weak AI and the related concepts of general and specific AI is made, insisting on the importance of corporality as a key aspect to achieve AI of a general nature. Also discussed the need to provide common-

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Introduction

The difficulty in grasping what intelligence actually is directly carries over to the attempts of emulating it in machines. The term Artificial Intelligence has been around for many decades and, depending on technological progress at the respective time, it has carried quite different connotations. The fact that the marketing departments of large software companies have captured the term AI for their own purposes has not helped to improve clarity either. If we apply Legg and Hutter definition strictly, then no Artificial Intelligence exists today. No existing computer program today is able to achieve goals

sense knowledge to the machines in order to move toward the ambitious goal of building general AI. Also its impact is likely to only continue to grow. AI has the potential to vastly change the way that humans interact, not only with the digital world, but also with each other, and closes with a brief reflection on the risks of AI.

in a range of environments comparable to the one in which humans operate. On the other hand, algorithms can perform certain well defined cognitive tasks - like playing a computer game or recognizing the race of a dog in an image - on (super-)human level.

The AI community distinguishes between Narrow AI and Strong AI. We can define Narrow AI as an agent's ability to achieve goals in a (very) limited range of environments. A Strong AI – also called General AI or Artificial General Intelligence (AGI) – would be a system which fits Legg and Hutter definition above, i.e., it would achieve goals in a wide range of environments.

Consequences of Strong AI

The current wave of AI is driven by Narrow AI and the impact is already significant. The realization of Strong AI, however, would likely lead to the most dramatic changes to society and economy in human history. The precise nature of these changes cannot be foreseen as of today and it is beyond the scope of this paper to present any of the many different conceivable scenarios.

Feasibility of Strong AI

As a serious objection, one can point out that computing power alone (as measured in additions or multiplications per second) is not enough to replicate human intelligence, but that it is rather a question of having the right algorithm. As of today, the “algorithms” running in the brain that lead to intelligent behavior are only poorly understood, and it is much harder to predict the speed of progress on the algorithmic side than to extrapolate future hardware improvements. Nevertheless, it seems to have become a mainstream opinion that Strong AI will be possible during this century

Common Sense Knowledge, Crucial for the Success of AI Systems

Common sense is the knowledge that all humans have. Such knowledge is unspoken and unwritten – we take it for granted. We acquire it

imperceptibly from the day we are born. This common-sense knowledge is something that we learn through experience and curiosity without even being aware of it. We also acquire a great deal of it in our lifetimes.

AI systems do not have common sense knowledge and acquiring it has been seen as important since their beginning. Furthermore, from all the efforts made over many years, it's become evident that building common sense reasoning systems is a work-intensive and sometimes costly task. In this paper, I show why common sense reasoning is so important, and describe some approaches that have been used to build these systems. These approaches have enabled common sense reasoning tasks to be used as add-ons to AI client programs – such as Chatbots.

Why is Common Sense knowledge so important for AI systems ?

One of the founding fathers of AI, John McCarthy, was amongst the first to realize its importance. He wrote a paper that was the first to propose common sense reasoning through a hypothetical program called Advice Taker in 1959. This paper only described a specification for what a common-sense program should do. However, it soon became apparent that there was a need for working common sense knowledge

programs to assist decision making in AI expert systems. These systems represented the first commercial boom period for AI, so common sense knowledge became seen as an essential adjunct for their success.

Risks of Artificial Intelligence

1. Automation-spurred job loss
2. Privacy violations
3. 'Deep Fakes'
4. Algorithmic bias caused by bad data
5. Socioeconomic inequality
6. Weapons automatization

How Artificial Intelligence is Changing the Global Economy

Artificial intelligence (AI) and machine learning (ML) are being embraced by greater numbers of individuals, businesses, and governments as rising efficiency and productivity are permitting exponential growth in certain sectors of the global economy. However, the gap in efficiency and productivity between those sectors and businesses benefitting from AI and ML versus those that have not is also growing exponentially. This risks leaving those at the bottom further and further behind with less and less chance of catching up with the leaders.

The others must contemplate a future in which technological, economic, and military supremacy becomes the domain of those few countries with the deepest pockets, the best AI-oriented talent, and a magnitude of state resources that can be directed toward achieving AI supremacy.

The implications of having a small handful of countries controlling cutting edge AI in the future are profound. On one hand, these technologically advanced countries could become the de facto guardians of AI, ensuring that significant resources are devoted to its development on a long-term basis. It is also certain that leading companies in these countries will achieve and maintain an even more noteworthy lead in the global economic arena, granting them a substantial competitive advantage. The militaries of these countries would also almost certainly become primary beneficiaries of the AI technologies of the future, spurring a global race for superior autonomous weaponry and propelling the world toward dangerous new means of waging war

Conclusion: In a future where benefits and risks are ‘incalculable’, it will be how humans choose to use the technology that decides whether it’s good or bad. To harness the power and benefits of machine learning we need to decide what we want machines to ‘learn’ and/or do, and what questions we want them to answer. It is clearly important that controls and goals for AI are set, and that a lot more empirical work needs to be done to gain a better understanding of how goal systems (in AI) should be built, and what values the machines should have. Once this is done, it will provide an idea of what sort of things should be put in a regulatory framework, assess the risks, and share this knowledge to benefit the future working world.

References

[1] <https://www.google.com>