

# NEED OF ARTIFICIAL INTELLIGENCE IN PRESENT ERA

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## Abstract

Machine ethics and robot rights are quickly becoming hot topics in artificial intelligence and robotics communities. We will argue that attempts to attribute moral agency and assign rights to all intelligent machines are misguided, whether applied to infrahuman or superhuman AIs, as are proposals to limit the negative effects of AIs by constraining their behavior. As an alternative, we propose a new science of safety engineering for intelligent artificial agents based on maximizing for what humans value. In particular, we challenge the scientific community to develop intelligent systems that have human-friendly values that they provably retain, even under recursive self-improvement.

## Introduction

In the wake of the on-going digital revolution, we will see a dramatic transformation of our economy and most of our societal institutions. While the benefits of this transformation can be massive, there are also tremendous risks to our society. After the automation of many production processes and the creation of self-driving vehicles, the automation of society is next. This is moving us to a tipping point and to a crossroads: we must decide between a society in which the actions are determined in a top-down way and then implemented by coercion or manipulative technologies (such as personalized ads and nudging) or a society, in which decisions are taken in a free and participatory way and mutually coordinated. Modern information and communication systems (ICT) enable both, but the latter has economic and strategic benefits. The fundamentals of human dignity, autonomous decision-making, and democracies are shaking, but I believe that they need to be vigorously defended, as they are not only core principles of livable societies, but also the basis of greater efficiency and success.

*“Those who surrender freedom for security (I would add “efficiency” or “performance” here as well) will not have, nor do they deserve, either one...”* **Benjamin Franklin**

You have probably heard that artificial intelligence could be used to do lots of impressive tasks and jobs. AI can help designers and artists make quick tweaks to visuals. AI can also help researchers identify “fake” images or connect touch and sense. AI is being used to program websites and apps by combining symbolic reasoning and deep learning. Basically, artificial intelligence goes beyond deep learning. Here are five reasons why AI is important to you. It is no news that AI will replace “repetitive jobs.” It literally means that these kinds of jobs will be automated, like what robots are currently doing in a myriad of factories. Robots are rendering the humans that are supposed to do those tasks practically jobless. And it goes further than that – many “white collar” tasks in the fields of law, hospitality, marketing, healthcare, accounting, and others are adversely affected. The situation seems scary because scientists are just

scratching the surface as extensive research and development of AI. AI is advancing rapidly (and it is more accessible to everybody).

Some believe that AI can create even more new jobs than ever before. According to this school of thought, AI will be the most significant job engine the world has ever seen. Artificial intelligence will eliminate low-skilled jobs and effectively create massive high-skilled job opportunities that will span all sectors of the economy.

For example, if AI becomes fully adapt to language translation, it will create a considerable demand for high-skilled human translators. If the costs of essential translations drop to nearly zero, this will encourage 'More Companies' that need this particular service to expand their business operations abroad.

To those who speak different languages than the community in which they reside, this help will inevitably create more work for high-skilled translators, boost more economic activities. As a result of this, and more people will be employed in these companies due to the increased workload.

Boosting international trade it one of the most significant benefits of our "global" times. So yes, AI will eliminate some jobs, but it will create many, many more.

#### **Artificial Intelligence will improved healthcare.**

AI can be used extensively in the healthcare industry. It is applicable in automated operations, predictive diagnostics, preventive interventions, precision surgery, and a host of other clinical operations. Some individuals predict that AI will completely reshape the healthcare landscape for the better.

#### **Artificial Intelligence will revolutionize agriculture.**

AI is also used in the agriculture industry extensively. Robots can be used to plant seeds, fertilized crops and administer pesticides, among a lot of other uses. Farmers can use a drone to monitor the cultivation of crops and also collect data for analysis.

The value-add data will be used to increase the final output. How? The data collected is analyzed by AI on such variables as crop health and soil conditions, boosting final production, and it can also be used in harvesting, especially for crops that are difficult to gather.

#### **Artificial Intelligence will eliminate the need for you to perform tedious tasks.**

AI is changing the workplace, and there are plenty of reasons to be optimistic. It is used to do lots of tedious and lengthy tasks, especially the low-skilled types of jobs that are labor-intensive. It means that employees will be retasked away from boring jobs and bring significant and positive change in the workplace.

For instance, artificial intelligence is used in the automotive industry to do repetitive tasks such as performing a routine operation in the assembly line, for example. Allowing a robot to care for well, robotic-tasks, has created a shift in the workforce.

#### **AI is used to increase auto safety and decrease traffic complications.**

Auto accidents are one of the most popular types of accidents that happen in America. It kills thousands of people annually. A whopping 95 percent of these accidents are caused by human error, meaning accidents are avoidable.

The number of accident cases will reduce as artificial intelligence is being introduced into the industry by the use of self-driving cars. On-going research in the auto industry is looking at ways AI can be used to improve traffic conditions.

Smart systems are currently in place in many cities that are used to analyze traffic lights at the intersections. Avoiding congestion leads to safer movements of vehicles, bicycles, and pedestrians.

## AI is revolutionizing how the health sector works by reducing spending and improve patient outcomes.

And here are some of the applications of artificial intelligence in healthcare:

- Doing repetitive jobs.
- Managing medical records and other data.
- Digital consultation.
- Treatment design.
- Medical management.
- Virtual nurses.
- Precision medicine.
- Drug creation, and a myriad of other uses of AI.

### Artificial Intelligence Pros and Cons

Everything in excess is dangerous and so is the case with Artificial Intelligence. It is the science and engineering of making intelligent machines, that makes it significant. With the simulation of human intelligence, processes by machines that are especially computer systems include learning the acquisition of information and rules for using it. The reasoning uses rules to reach approximate or definite conclusions and self-correction.

- *Email Filters to Smart Replies*
- *LinkedIn, Pinterest, Chatbots to Facebook Proactive Detection*
- *Google Predictive Searches to Google's Algorithm*
- *Product Recommendations, Music Recommendations to Maps and Directions*
- *Mobile Banking, Ride-sharing Apps to Financial Institutions Fraud Prevention everything is functioning smoothly because of AI.*

There is no doubt in saying that technology is an essential part of the development and growth of humans. A thin line or mistake leads to disruption or destruction.

Artificial Intelligence P

### Advantages of Artificial Intelligence

**Less Errors:** As decisions are taken on previously gathered information and certain algorithms, without the interference of humans, so errors are reduced and the chance of reaching accuracy with a greater degree of precision is a possibility.

**Faster Decisions:** Using Artificial intelligence, decisions can be taken very fast. For example, we all have played Chess game in Windows. It is nearly impossible to beat CPU in hard mode because of the A.I. behind that game. Because it took the best possible step in very short time according the algorithms used behind it.

**Daily Applications:** In today's era, A.I. is used in many applications just like Apple's Siri, Window's Cortana, Google's OK Google. Using these type of applications we can communicate with our device using our voice. Which makes our work easy. For example, in recent android phones if we want to search for a location then all we have to do is say "OK Google where is Agra". It will show you Agra's location on google map and best path between you and Agra.

**No Emotions:** The complete absence of emotions makes machines to think logically and take right decision where in humans emotions are associated with moods that can affect human efficiency. Complete absence of emotions make machines to take right decisions.

**Digital Assistants:** Some of highly advanced organizations uses digital assistants to interact with users which saves need of human resource. Digital assistant also used in many websites to provide things that user want. We can chat with them about what we are looking for. Some chat bots are designed in such a way that its become hard to determine that we're chatting with a chat bot or a human being.

Example, Mitsuku.

**No Breaks:** Unlike humans, machines can work 24\*7 without any break. Humans need a break after work to regain their speed and freshness whereas machines can work for long hours without getting bored or distracted.

**Medical Applications:** Increasing the integration of A.I. tools in every day medical applications could improve the efficiency of treatments and avoid cost by minimizing the risk of false diagnosis. AI has begun transforming the field of surgical robotics wherein it has enabled the advent of robots that perform semi-automated surgical tasks with increasing efficiency. A.I is not going to replace Doctors, it will help them by providing the relevant data need to take care of patient (such as history of aortic aneurism, high blood pressure, coronary blockages, history of smoking, prior pulmonary embolism, cancer, implantable devices or deep vein thrombosis). Otherwise this information would take long time to collect.

**Taking risks on behalf of humans:** In various situations, Robots can be used instead of Humans to avoid the risks. Such as Robots can be programmed to explore Space because metal body can suffer in different situations but the human body can not. In Military forces Robots can be programmed to defuse a bomb, so the error will be reduced and can save human lives. Complex machines can be used for exploring the ocean floor and hence overcoming the human limitations.

**Public Utilities:** Self-Driving cars, which would greatly reduce the number of car crashes. Facial recognition can be used for security. Natural language processing to communicate with humans in their language.

There were some pros or benefits of artificial intelligence. Lets talk about some of its cons.

### **Disadvantages of Artificial Intelligence**

**High Costs:** The hardware and software need to get updated with time to meet the latest requirements. Machines need repairing and maintenance which need plenty of cost.

**Unemployment:** The increasing number of machines leading to unemployment and job security issues. As machines are replacing human resources, the rate of people losing their jobs will increase. Because machines can work 24\*7 with no break, which is more beneficial of industries instead of working with people who needs break and refreshment. Machines do their work as they programmed to do without any error while error can be occurred from humans.

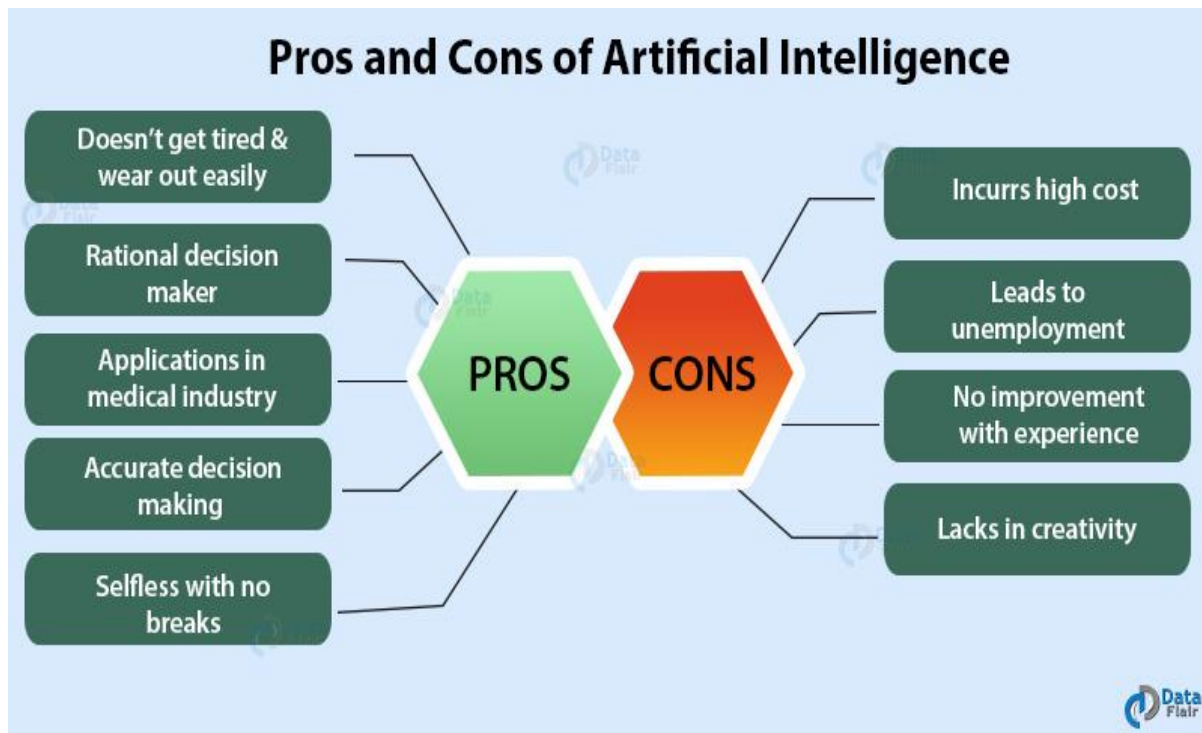
**Can't think out of box:** Robots can only do the work that they are programmed to do. They cannot act any different outside of whatever algorithm or programming is stored in their internal circuits. And when it comes to a creative mind, nothing can beat a human mind. A computer can't think differently while making or drawing something. The thoughts comes from the emotions and experience which machine's cannot. So machine can't think out of box whereas thousands of new thoughts and ideas come into a human mind.

**Can't feel Compassion and Sympathy:** There is no doubt that machines are much better when it comes to working efficiently but they cannot replace the human connection that makes the team. Machines cannot develop a bond with humans.

**Highly dependent on machines:** In today's generation, most of the people are highly dependent on Applications like Siri. With so much assistance from machine, if humans do not need their thinking abilities, these abilities will be gradually decrease. In future with the heavy use of application of artificial intelligence, human may become fully dependent on machines, losing their mental capacities.

These are some advantages and disadvantages of Artificial Intelligence. Some people also say that Artificial intelligence can destroy human civilization if it goes into wrong hands. But still none of the A.I. application made at that scale that can destroy or enslave human (as shown in some movies like Megatron in Transformers and ultron in Marvel). So we should not consider this as disadvantage of Artificial intelligence.

The following Diagram illustrate briefly the Pros and Cons of Artificial Intelligence:



Artificial intelligence (AI) research has explored a variety of problems and approaches since its inception, but for the last 20 years or so has been focused on the problems surrounding the construction of intelligent agents — systems that perceive and act in some environment. In this context, "intelligence" is related to statistical and economic notions of rationality — colloquially, the ability to make good decisions, plans, or inferences. The adoption of probabilistic and decision-theoretic representations and statistical learning methods has led to a large degree of integration and cross-fertilization among AI, machine learning, statistics, control theory, neuroscience, and other fields. The establishment of shared theoretical frameworks, combined with the availability of data and processing power, has yielded remarkable successes in various component tasks such as speech recognition, image classification, autonomous vehicles, machine translation, legged locomotion, and question-answering systems. As capabilities in these areas and others cross the threshold from laboratory research to economically valuable technologies, a virtuous cycle takes hold whereby even small improvements in performance are worth large sums of money, prompting greater investments in research. There is now a broad consensus that AI research is progressing steadily, and that its impact on society is likely to increase. The potential benefits are huge, since everything that civilization has to offer is a product of human intelligence; we cannot predict what we might achieve when this intelligence is magnified by the tools AI may provide, but the eradication of disease and poverty are not unfathomable. Because of the great potential of AI, it is important to research how to reap its benefits while avoiding potential pitfalls. The progress in AI research makes it timely to focus research not only on making AI more capable, but also on maximizing the societal benefit of AI. Such considerations motivated the AAAI 2018–19 Presidential Panel on Long-Term AI Futures and other projects on AI impacts, and constitute a significant expansion of the field of AI itself, which up to now has focused largely on techniques that are neutral with respect to purpose. We recommend expanded research aimed at ensuring that increasingly capable AI systems are robust and beneficial: our AI systems must do what we want them to do. The attached research priorities document gives many examples of such research directions that can help maximize the societal benefit of AI.

### Conclusion

We believe that research on how to make AI systems robust and beneficial is both important and timely, and that there are concrete research directions that can be pursued today. Artificial intelligence is very useful in all industries as more research is being done to advance it. The advancements in this AI tech will be most useful if it is understood and trusted. An important part of it is that artificial intelligence and related technologies such as drones, robots, and autonomous vehicles can create around tens of millions of jobs over the next decade. Having more jobs created — not less — will be great news for everyone. More jobs will help boost the GDP of the economy. Advancement in AI and its impressive computational power has already led to the concept of supercomputers and beyond.

## References

- Abelson, H. and DiSessa, A. (1981). *Turtle Geometry: The Computer as a Medium for Exploring Mathematics*. MIT Press, Cambridge, MA.
- Agre, P.E. (1995). Computational research on interaction and agency. *Artificial Intelligence*, 72: 1-52.
- Antoniou, G. and van Harmelen, F. (2008). *A Semantic Web Primer*. MIT Press, Cambridge, MA, 2nd edition.
- Bellman, R. (1957). *Dynamic Programming*. Princeton University Press, Princeton, NJ.
- Bertelè, U. and Brioschi, F. (1972). *Nonserial dynamic programming*, volume 91 of *Mathematics in Science and Engineering*. Academic Press.
- Bishop, C.M. (1995). *Neural Networks for Pattern Recognition*. Oxford University Press, Oxford, England.
- Bishop, C.M. (2008). *Pattern Recognition and Machine Learning*. Springer-Verlag, New York.
- Blum, A. and Furst, M. (1997). Fast planning through planning graph analysis. *Artificial Intelligence*, 90: 281-300.
- Castillo, E., Gutiérrez, J.M., and Hadi, A.S. (1996). *Expert Systems and Probabilistic Network Models*. Springer Verlag, New York.
- Chapman, D. (1987). Planning for conjunctive goals. *Artificial Intelligence*, 32(3): 333-377.
- Cheeseman, P. (1990). On finding the most probable model. In J. Shragner and P. Langley (Eds.), *Computational Models of Scientific Discovery and Theory Formation*, chapter 3, pp. 73-95. Morgan Kaufmann, San Mateo, CA.
- Clark, K.L. (1978). Negation as failure. In H. Gallaire and J. Minker (Eds.), *Logic and Databases*, pp. 293-322. Plenum Press, New York.
- Darwiche, A. (2009). *Modeling and Reasoning with Bayesian Networks*. Cambridge University Press.
- Dasaradhi, K. Usage of Statistical Machine Translation in Textual Translation, Smart Moves Journal IJELLH, ISSN 2582-3574, Volume 6, Issue 7, July 2018, P. 1089 – 1100.
- Davis, M., Logemann, G., and Loveland, D. (1962). A machine program for theorem proving. *Communications of the ACM*, 5(7): 394-397.
- Edwards, P. (Ed.) (1967). *The Encyclopedia of Philosophy*. Macmillan, New York.
- Enderton, H.B. (1972). *A Mathematical Introduction to Logic*. Academic Press, Orlando, FL.
- Felner, A., Korf, R.E., and Hanan, S. (2004). Additive pattern database heuristics. *Journal of Artificial Intelligence Research (JAIR)*, 22: 279-318.
- Fikes, R.E. and Nilsson, N.J. (1971). STRIPS: A new approach to the application of theorem proving to problem solving. *Artificial Intelligence*, 2(3-4): 189-208.
- Gangemi, A., Guarino, N., Masolo, C., and Oltramari, A. (2003). Sweetening wordnet with dolce. *AI Magazine*, 24(3): 13-24.
- Hart, T.P. and Edwards, D.J. (1961). The tree prune (TP) algorithm. Memo 30, MIT Artificial Intelligence Project, Cambridge MA.

- Heckerman, D. (1999). A tutorial on learning with Bayesian networks. In M. Jordan (Ed.), *Learning in Graphical Models*. MIT press.
- Hendler, J., Berners-Lee, T., and Miller, E. (2002). Integrating applications on the semantic web. *Journal of the Institute of Electrical Engineers of Japan*, 122(10): 676-680.
- Jurafsky, D. and Martin, J.H. (2008). *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition*. Prentice Hall, second edition.
- Kaelbling, L.P., Littman, M.L., and Moore, A.W. (1996). Reinforcement learning: A survey. *Journal of Artificial Intelligence Research*, 4: 237-285.
- Kearns, M. and Vazirani, U. (1994). *An Introduction to Computational Learning Theory*. MIT Press, Cambridge, MA.
- Lawler, E.L. and Wood, D.E. (1966). Branch-and-bound methods: A survey. *Operations Research*, 14(4): 699-719.
- Lenat, D.B. and Feigenbaum, E.A. (1991). On the thresholds of knowledge. *Artificial Intelligence*, 47: 185-250.
- Mackworth, A.K. (1977). On reading sketch maps. In *Proc. Fifth International Joint Conf. on Artificial Intelligence*, pp. 598-606. MIT, Cambridge, MA.
- Mitchell, T.M. (1977). Version spaces: A candidate elimination approach to rule learning. In *Proc. 5th International Joint Conf. on Artificial Intelligence*, pp. 305-310. Cambridge, MA.
- Nilsson, N.J. (1971). *Problem-Solving Methods in Artificial Intelligence*. McGraw-Hill, New York.
- Ordeshook, P.C. (1986). *Game theory and political theory: An introduction*. Cambridge University Press, New York.
- Pearl, J. (2000). *Causality: Models, Reasoning and Inference*. Cambridge University Press.
- Reiter, R. (2001). *Knowledge in Action: Logical Foundations for Specifying and Implementing Dynamical Systems*. MIT Press.
- Schank, R.C. (1990). What is AI, anyway? In D. Partridge and Y. Wilks (Eds.), *The Foundations of Artificial Intelligence*, pp. 3-13. Cambridge University Press, Cambridge, England.
- Shanahan, M. (1997). *Solving the Frame Problem: A Mathematical Investigation of the Common Sense Law of Inertia*. MIT Press, Cambridge, MA.
- Thrun, S. (2006). Winning the darpa grand challenge. In *Innovative Applications of Artificial Intelligence Conference, (IAAI-06)*, pp. 16-20. Boston, MA.
- Tversky, A. and Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185: 1124-1131.
- Van Beek, P. and Chen, X. (1999). Cplan: A constraint programming approach to planning. In *AAAI-99*, pp. 585-590.
- Van Emden, M.H. and Kowalski, R.A. (1976). The semantics of predicate logic as a programming language. *Journal ACM*, 23(4): 733-742.
- Waldinger, R. (1977). Achieving several goals simultaneously. In E. Elcock and D. Michie (Eds.), *Machine Intelligence 8: Machine Representations of Knowledge*, pp. 94-136. Ellis Horwood, Chichester, England.

Walsh, T. (2007). Representing and reasoning with preferences. *AI Magazine*, 28(4): 59-69.

Winograd, T. (1972). *Understanding Natural Language*. Academic Press, New York.

Zhang, N.L. (2004). Hierarchical latent class models for cluster analysis. *Journal of Machine Learning Research*, 5(6): 697-723.

Zilberstein, S. (1996). Using anytime algorithms in intelligent systems. *AI Magazine*, 17(3): 73-83.

