Artificial Intelligence
The End of the World or the Dawn of Limitless Possibility
By Dr. Jessica Santos
These days it seems like everyone is talking about artificial intelligence (AI). However, the substance of those conversations is only getting stronger as we step deeper into the future. AI has moved from being simply a top “buzz word” to a conduit for an increasing stream of technological advancement. While news of AI’s new “abilities” dominates the media, AI is becoming firmly entrenched in our daily lives through Alexa-like devices and rapidly expanding automation, including driverless cars that not so long ago seemed entirely futuristic. What’s more, in healthcare, AI is helping to discover new medicines, designing its own clinical trials, and delivering a host of patient-centered technologies - such biometric monitors, remote physician consultations and adherence assistance applications. It seems that AI can do anything humans can do, and sometimes better, and that the possibilities for continued innovation are limitless.
AI: THREAT OR SAVIOR?

For decades, hype outstripped facts in terms of AI and machine learning. However, as machines become increasingly “intelligent” and better than humans at designing even smarter machines, progress towards and passed once perceived machines could accelerate. The key question is what would this mean for us? Could we ensure a safe and worthwhile coexistence with such machines?

Human opinions toward AI advancement couldn’t be more diverse - from “dooms day” Terminator predictions, to AI achievements deemed as “astonishing feats”, to anything and everything in between. From a society perspective, perhaps the biggest fear of all is that AI will take over our jobs and then destroy the whole of humanity. While that extreme view may be fantasy, AI enthusiasts are promoting the convenience and fun that AI can deliver to us. AI is already useful and profitable for many things, and super AI might be expected to be super useful and super profitable. Surely, any technology revolution will bring changes, as new jobs appear while old functions are replaced - just like an ecosystem.

In short, machines will perform the tasks that we, as humans, are uninterested in doing: particularly the mundane jobs, the dangerous jobs and the time-consuming jobs. And, they’ll perform the tasks we aren’t mentally capable of – those involving too much data for a human to process, or where the machine is simply faster, better and cheaper.

WHAT ARE WE AFRAID OF?

We are curious but at the same time fearful of unknowns, such as the mystery that comes with space exploration. Outer-space is fascinating, as we long to answer the question of “Are we alone?”, yet popular culture often depicts aliens as unfriendly with a sole mission to destroy our Earth.

With the fear that AI will takes over our jobs, what will be our new purpose? If humans are relegated to surviving without working or thinking, surely this will be the end of creativity and motivation. Would we become expendable?

While much has been written about the jobs that will be at risk in the future, this idea is nothing new, as since the industrial age these questions have surfaced every time there’s been a major shift in the global economy. Moving forward, some machines will again assume the tasks that humans currently carry out, but other machines will help humans do what they currently cannot – providing enhanced cognitive assistance or replacing lost functions such as memory, hearing or sight. While these functions will capitalize on inherently human qualities, others will relate to jobs that we can’t even conceive of yet – memory augmentation practitioners, data creators, data bias correctors, and so on.
WHO IS ACCOUNTABLE?

The inability to explain decisions made by AI programs is a major problem. This inability to understand how AI does what it does also stops AI from being further deployed in areas such as law, healthcare and within enterprises that handle sensitive customer data. Understanding how data is handled, how AI has reached a certain decision, and ultimately who is accountable are major unsolved challenges. Similar questions are also pertinent in driverless car technology, as for example, who is responsible in the event of an accident? The person seated in the car? The AI programmer? The car manufacturer? Or, the AI itself?

Furthermore, AI trained on wrong or unfiltered data can certainly make bad decisions. However, worse than that, current deep learning systems can sometimes give us confidently wrong answers, and provide limited insight into why they have come to specific decisions. This is what concerns me most as a researcher. It's okay to be wrong, but it's not okay to be confidently wrong. The key to solving this dilemma is how we deal with uncertainty – the uncertainty of messy and missing data, and the uncertainty of predicting what might happen next. Uncertainty is not a good thing, as it's something we debate endlessly and can't fight by ignoring it. The entity who ultimately makes the decision on uncertainty will be held most accountable, but who will that be?

AI AND ETHICS

The infamous Google photo app case of 2015 in which the image of an African American woman was tagged as a gorilla, as well as the 2016 racist and sexist tweets by Microsoft’s Chatbot, established that AI is bound by the same prejudices and preconceptions as they have been to date. However, what’s alarming here is that if AI continues to learn our prejudices, then the future looks just as bleak as the past, with continued repetition and consolidation of discrimination and inequality.

To address this, we must determine who is telling AI its narratives? Whose stories, and which stories, will inform how AI interacts with the world? Which novels are being chosen to “teach” AI morality? What kind of writers are being enlisted to script AI–human interaction? If we can create more diverse literary and cinematic AI narratives, this can enhance the research and improve the language and data that feeds into actual AI systems. By paying closer attention to what stories are doing and how they are doing it, it doesn’t destroy the power they have – it helps us understand and appreciate that power even more.

For example, imagine if we want AI to handle resource allocation decisions in our health system. It might accomplish this more fairly and efficiently than humans, with immense benefits for patients and taxpayers. However, to be successful we’d need to specify its goals correctly, e.g. to avoid discriminatory practices. We’d also need to consider that we’d be depriving some humans, e.g. senior doctors, of some of the discretion they presently enjoy and use to make better decisions. So in this situation we’d already face a getting started and destination problem – and these dilemmas are only going to get harder.
GOOD AND SENSIBLE LEARNING

The biggest promise of AI is self-learning. But how can we be sure that AI will learn good and sensibly ONLY? That’s because self learning also means learning bias, selfish demands, unending desires, and lack of happiness.

There is no arbitrary limit on any trait that makes us human: intelligence, creativity, insight, love, discovery, curiosity, invention, and spiritual experiences of every kind. But humans are not perfect, as we lie, deny, exhibit self-doubt, are short-sighted, are easily manipulated, and have self-indulgent injustices and false beliefs, just to name a few. Every day we are driven by unconscious impulses and desires, and unexamined processes go on beneath the surface of the mind that lead to anxiety, depression, low self-esteem, self-destructive behavior, and every kind of pointless discord, from household tensions to war. A society driven by consumerism, celebrity worship, video games and social media gossip, and with indifference to massive social problems, creates human bias that contaminates AI systems. How do we ensure that AI learns only the good from us instead of everything? Since we are debating endlessly the boundary between good and evil, right versus wrong, we can’t possibly expect AI created by us to be morally perfect and cognitively superhuman. Can we?

There are two big problems with this utopian vision. One, is how do we get the machines started on this journey? And two, what would it mean to reach this destination? The “getting started” problem is that we need to tell the machines what they’re looking for with sufficient clarity and precision that we can be confident that they will find it — whatever “it” actually turns out to be. This is a daunting challenge, given that we are confused and conflicted about the ideals ourselves, and different communities might have different views. The “destination” problem is that, in putting ourselves in the hands of these moral guides and gatekeepers, we might be sacrificing our own autonomy — an important part of what makes us human.

Maybe what we are wishing for is privacy, security, safety, transparency, reliability and ultimately trust in the AI development, as well as the convenience and better quality of life that it can bring to us. If we are to give general intelligence to machines, we’ll need to give them moral authority too. That means a radical end to human exceptionalism.
REGULATING AI

Like any fast-growing new technology, guidelines on AI are limited, but both AI critics and enthusiasts welcome regulating this space. For example, Kent Walker, Google’s chief legal officer, said, “We’re fans of regulation when it’s smart regulation. Regulation that starts out with a really crisp definition of what’s the problem you’re trying to solve? That is then narrowly tailored to solve that problem and minimize blowback and side effects.” Microsoft’s president, Brad Smith, echoed, “We think democratically elected governments should be in the business of regulating technology companies — not the other way around.” Even Facebook’s Mark Zuckerberg, who is infamously known for pushing every boundary of law and preferring to operate within an unlegislated environment, is now on record, through an op-ed published in the Washington Post, calling for Internet regulations in four key areas: harmful content, election integrity, privacy, and data portability. Perhaps the better position of being an outlaw is to be a law influencer.

Furthermore, the European Commission issued “Draft Ethics guidelines for trustworthy AI”, under its Digital Single Market program on 18 Dec 2018. This working document constitutes a draft of the AI Ethics Guidelines presented by the European Commission’s High-Level Expert Group on Artificial Intelligence (AI HLEG). The consultation ended on 1 Feb 2019 with over 500 comments received. These comments are currently being analyzed and considered by the AI HLEG for the preparation of a revised version of the Ethics Guidelines that will be delivered to the European Commission by the beginning of April 2019.

On the occasion of Data Protection Day on 28 Jan 2019, the Consultative Committee of the Council of Europe Convention for the Protection of Individuals with regard to the Processing of Personal Data (Convention 108) published “Guidelines on Artificial Intelligence and Data Protection”. The guidelines aim to assist policy makers, AI developers, manufacturers and service providers in ensuring that AI applications do not undermine the right to data protection.

They also address the new challenges induced by the development of AI that need to be faced. As the Convention’s committee stated in a report prepared by Alessandro Mantelero, “personal data have increasingly become both the source and the target of AI applications”. Furthermore, the latters are “largely unregulated and often not grounded on fundamental rights”. The adoption of a legal framework by the Council of Europe aims thus “to favor the development of technology grounded on these rights” and which are “not merely driven by market forces or high-tech companies”.
The Convention’s committee underlines that the protection of human rights, including the right to protection of personal data, should be an essential pre-requisite when developing or adopting AI applications, in particular when they are used in decision-making processes, and be based on the principles of the updated data protection convention, Convention 108+, opened for signature in October 2018.

In addition, any innovation in the field of AI should pay close attention to avoiding and mitigating the potential risks of the processing of personal data, and should allow meaningful control by data subjects over the data processing and its effects.

These AI guidelines refer to important issues previously identified in the Guidelines on the Protection of Individuals with regard to the Processing of Personal Data in a World of Big Data and to the necessity “to secure the protection of personal autonomy based on a person’s right to control his or her personal data and the processing of such data, the nature of this right to control should be carefully addressed” in this context.

General Data Protection Regulation (GDPR) Recital 71 Article (2) has stated that data subjects have the “right to rectify automated profiling” or the “right for an explanation”, and heavily penalizes companies that cannot provide an explanation and record as to how a decision has been reached, whether by a human or computer.

UK Information Commission’s Office’s (ICO) publication on “Big Data, artificial intelligence, machine learning and data protection” covers topics on fairness, transparency, purpose limitation, data minimization, accuracy, rights of individuals, security, accountability and governance. Implications are not barriers. It is not a case of Big Data “or” data protection, or Big Data “versus” data protection. That would be the wrong conversation. Privacy is not an end in itself, it is an enabling right. Embedding privacy and data protection into Big Data analytics enables, not only societal benefits such as dignity, personality and community, but also organizational benefits such as creativity, innovation and trust. In short, it enables AI to do all the good things it can do. Yet, that’s not to say someone shouldn’t be there to hold accountable. In this world of Big Data, AI and machine learning, privacy regulation is more relevant than ever. We demand legislation that are fair, accurate and non-discriminatory regarding the use of personal data; legislation that also gives us the power to conduct audits, order corrective action and issue monetary penalties.

CONCLUSION

Like it or not, AI will continue to become more advanced and play a central role in shaping our future. Free of many of the physical constraints on human intelligence, machines ideally will replace tasks and not jobs. In this regard, AI will augment human performance – helping humans cooperate with humans and enabling humans to concentrate on the areas where humans are intrinsically better than machines, such as devising strategy and expressing creativity and empathy – instead of replacing or dominating humans completely.

The direction in which AI progresses will depends on us. So many stakeholders caution us to be careful of what we wish for, as we could lose control of our fate with disastrous consequences. Perhaps we are living in the most exciting and dangerous time in the history of humanity. To maximize opportunities and minimize risk, we need to continue to learn, engage, educate and influence regulators to be relevant, effective and forward thinking. Action must be taken now, before it’s too late!
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