Artificial Intelligence : Is Human Greed a Bigger Threat than Machines?

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Abstract

Artificial Intelligence (AI) is identified with computers and technology. It is closely related to psychology as it is compared to human intelligence and cognitive processes. Machines are being designed to learn, and the highest goal of AI is to attain machine consciousness, analogous to human consciousness. With almost the entire focus on technological development and psychological modelling, the role of money matters is understated, as it is seen only as a tool in business processes that can provide better, cheaper, and faster services. However, the business model, driven by the 'invisible hand', could soon consume everything else. The envisaged threats of AI getting out of control are not as real as humans controlling the AI based business models abusing them. This paper exploresthe potential abuse of AI driven by human greed for power and resources.

Introduction

Back in 1997, the super computer Deep Blue created history when it defeated world chess champion Gary Kasparov. However, on February 11, 2019, the super computer Debater lost to Harish Natarajan in an open online debate. While Natarajan was credited with making more persuasive arguments, 58% of the audience said Project Debater "better enriched their knowledge about the topic at hand, compared to Harish's 20%" (D'Monte, 2019). The comparison, or competition, between humans and artificial intelligence could have just begun.

Use of the term intelligence in general parlance is no longer restricted to humans. In fact, the term "Humint" is now used for specific reference to human intelligence, a need unforeseen by psychologists of yesteryears. Ditto with learning, where human learning is differentiated from machine learning. Psychologists like Thorndike and Woodworth did see the relationship between intelligence and learning very early, butlittle would they have realised that the same would apply to machines a century later.

While computer programmers and domain experts have borrowed these psychological terms to define machine "behaviour", it would be worthwhile to check the applicability or validity of such usage. One of the most popular definitions of intelligence is proposed by David Wechsler, who defines it as "the capacity of the individual to think rationally, act purposefully, and deal effectively with unique and changing circumstances". Putting it to test with machines, we find that machines do "think rationally" - their computing is rational, uninfluenced by prejudices, superstitions, emotions, or personal motives. They "act purposefully" - purpose is inbuilt in their 'acts' as every program or code is written to achieve specific goals. Now coming to the last part of "dealing effectively", machines lacked this ability till recently, as they could only compute, operate and make decisions based on preprogramed set of rules. Yes, there were programmes that could lead to the best possible scenario or help make most economic decisions, maximising profits and

reducing losses, which were not necessarily monitory in nature. Popular computer games are an example of this. However, machines did lack in applying these skills in unique and changing circumstances as the output was predefined. However, now decisions are taken by machines based on prior 'experiences' and changing circumstances. This makes them more adaptable as they deal effectively with input data. So yes, the term intelligence does fit aptly to machines.

This brings us to the other related behavioural domain'learning', popularly defined as "a relatively permanent change in behaviour as a result of practice or experience." In human parlance, a person's response to a stimulus (or set of stimuli) changes and consolidates with repeated attempts or at times even by a single exposure to a situation. A sportsperson betters her game with practice, while a child learns not to touch a hot cup of coffee with a single experience (hopefully). But these responses are neither rigid nor lifelong. For instance, the game can still be improved, might deteriorate, or change with a change in rules. When we look at machine learning, this is exactly what machines are being programmed, or maybe self-programming, to do. Machines analyse each response and evaluate its outcome. This itself forms an input for deciding if the output is appropriate or the response needs to be changed. This refinement of responses, with feedback and evaluation for every output, is quite remarkably close to human learning. Rather for good or bad, might even be surpassing human learning abilities. Ever had a "conversation" with Alexa? Or tapped on one of the three auto-generated responses to an email using Gmail on your phone? Or taken instructions from Google Maps to reach a destination? Every response you give is also evaluated by the programme to refine its next response.

Beginning of AI and the road ahead

During the Second World War, renowned Cambridge mathematician Allan Turing worked on decoding the German naval codes called Enigma and achieved commendable success in it. His work on Enigma and subsequent contributions are said to be the beginning of artificial intelligence. The famous Turing Test, named after him, involves the ability of a computer to reply to human questioning such that the questioner would not be able to tell if it was a machine that is actually responding and not a human. It was around 1956, two years after Turing's untimely death, that John McCarthy, used the term Artificial Intelligence for the first time. Popularly known as the father of artificial intelligence, McCarthy saw AI as the "science and engineering of making intelligent machines."

The decades of 1970 and 80 are often called the "autumn years" in AI, as both interest and research in the field faded. One reason is said to be the lack of a clear purpose and application of AI in those days.But with the proliferation of personal computers, the Internet, and the now ubiquitous smart phones, huge data came to be generated every day that promised to be of great commercial use. According to a report by IBM (Loechner, 2016), about 90% of all available data in the world were generated in the past two to three years, and that was four years back. With exponential rise in data generation, we can only expect the distribution to get more and more skewed. As we move into the second decade of the twenty first century, tests are already underway for 5G networks, and Internet of Things (IoT) is knocking on our doors. This has led to renewed interest in AI and it is seen as one of the most happening fields in science today.

We are said to be in the Second Machine Age, the first being the Industrial Revolution in the late 1700s. Artificial intelligence, machine learning, and deep learning are the 'nuts and bolts' of this age. The entire impetus of AI and machine learning is on its closeness to human thought and behaviour, which aligns the technological advancements directly with psychology. Hence the natural questions to follow will be:Will AI have emotions? Will it be compassionate? Can it see larger social good all by its own? Will it understand human values? Will it have sense of humour? Above all, will there be machine consciousness? These and many more such questions are inevitable as machines not only participate in, but also dominate human life, and direct human-machine interface looks round the corner. For psychologists and other social scientists, the question is whether machines will mimic human behaviour, or will humans become more mechanical in future? Going by contemporary evidence, it is not a difficult guess to make.

Like every scientific advancement, AI is fraught with legal and ethical challenges too. There are social, political, and psychological aspects involved, but the most overriding is the economic perspective. And as has happened in human history, mostly to our peril, economic factors overrule everything else. As has been with every research, the delivery system will be developed by science while the payload will be economic. And again, as usual, the payload will be controlled by a select, rich, privileged few. Like every other technological advancement that we have seen over the centuries, AI will have its own good, bad, and ugly moments.

The Good

There is no doubt that AI is a wonderful technology that could be of great help. To begin with, it can manage our mundane tasks and leave us time for more productive work. It can promote business, line up appointments, expedite processes, and generate feedback, thereby improving the overall process cyclically. This reduces fatigue and improves efficiency. It can help identify and locate people and services of interest, make new friends, and help in sustainingexisting relationships. It helps navigate, book tickets, make hotel bookings, and drive cars. AI programs can help us better understand our emotional states based on our physiological status, body rhythms, and other parameters that would be monitored continuously. The field of medicine and personal care, especially for the elderly and disabled, is likely to undergo a sea change due to AI in years to come.Education, especially in rural areas, is a big beneficiary of AI. There is hardly any filed that would not be helped by AI to better human lives.

The Bad

As every system is, AI is also susceptible to manipulation. It can provide us with selective information and suppress facts. That would seriously impair decision making. "Outsourcing" of decision making can prove costly in the long run. Bots on social media can actually generate information and float it around. This creates mistrust and social disharmony. The attempts to manipulate democratic elections using AI is well known. Cambridge Analytica Ltd., the British political consulting firm, was found guilty of manipulating elections in many countries including the US and to some extent in India too. Invasion of privacy is another major concern with the use of AI.China has recently made registration of facial recognition scans mandatory for all mobile phone users. Others countries could follow suit. This would make a citizen vulnerable to snooping by the state at every step, literally. Citizens could be subjected to social grading, much similar to the CRISIL scores that we find in the

banking and finance sector. Like your loan depends on the CRISIL score today, your prospective employer could check your social grading tomorrow before hiring you.

The Ugly

Sophia is a humanoid robot that was granted citizenship by Saudi Arabia in 2017, becoming the first of its kind to get this honour. Sophia's creator, David Hanson of Hanson Robotics, asked Sophia during a live demonstration at the SXSW festival, “Do you want to destroy humans?” With a blank expression, Sophia responded, "OK. I will destroy humans." (Weller, 2017).While this may be passed off as a joke, which it was, the concerns are not surreal. Driverless cars are not looked upon with a degree of mistrust only because of lack of confidence in their technology to manoeuvre; some are actually programmed to self-destroy under certain conditions.AI is being used for developing autonomous weapons that can be pre-programmed with a facial recognition software to kill the target. No need for snipers and contract killers, just send a programmed drone with a weapon which would be humanly impossible to dodge. Two back-to-back incidents in 2015 rocked the industry and the academic world alike. A worker at a Volkswagen factory in Germany died after a robot grabbed him and crushed him against a metal plate (Gander, 2015). Barely a month later another worker was killed by a robot at Maruti’s car factory in Manesar, Haryana (Singh, R & Yadav, S, 2015). Both incidents occurred after the workers stepped into the cages that the robots were restrained in. Although it sounds cynical to evoke imagery straight out of Hollywood films of a human-machine conflict, some of the happenings are unnerving indeed.

AI and Psychology

That the very term “intelligence” is borrowed from psychology is reason enough to seek a deeper connection between AI and human behaviour. Intelligence as applied to humans is applicable to machines was discussed earlier. However, the scope of comparing AI with a vast expanse of human behaviours would be limited. For instance, consciousness is one human disposition that researchers are finding hard to replicate as machine consciousness.Considered the highest level of machine intelligence,is still far away. Although machines can identify and analyse human emotions, they cannot experience it. Given this limitation, it leaves them incapable of empathy, which is an important component in human decision making. Hence, while on the one hand, machines and robotic pets can make for undemanding, untiring, and uncomplaining partners, their lack of empathy makes the relationship desiccated.

However, the connection between AI and humans is not limited to comparing one with the other. That there are human behaviours that can be manipulated by AI is a cause of greater concern. One alarming human weakness that can be, or rather is being manipulated by AI is our penchant for pleasure that guides most behaviours. Freudian psychoanalysis explains idistic impulses and the libido at length. However, modern science has reduced it to a chemical reaction in the brain that compels a person to seek more of it. One may call it a conditioned response where a stimulus that evokes pleasure (reward) is likely to be sought again. Variable schedules of reinforcement resist extinction of response. This very principle is applied by AI as people get addicted to social media. Every time a person gets a “like”, dopamine gets down to work in the brain. Dopamine plays an important role in reward, and hence conditioning. According to Sean Parker (Solon, 2017), a founding president of Facebook, “Whenever someone likes or comments on a post or photograph, we give

you a little dopamine hit". Having fallen out with Facebook, he was critical of the very idea behind it. "The thought process at FB was: 'How do we consume as much of your time and conscious attention as possible?'" he explains. David Brooks, a renowned columnist with New York Times, has written in one of his articles that "Tech companies understand what causes dopamine surges in the brain and they lace their products with 'hijacking techniques' that lure us in and create 'compulsion loops'." Not sure when this hit will come, we keep checking compulsively. Most social media sites create irregularly timed rewards, Brooks wrote, a technique long employed by the makers of slot machines, based on the work of the American psychologist BF Skinner (Brooks, 2017). Professor Natasha Schullat New York University contends that "When a gambler feels favoured by luck, dopamine is released. This is the secret to Facebook's era-defining success: we compulsively check the site because we never know when the delicious ting of social affirmation may sound"(Parkin, 2018).

While the present danger stems from biologically non-intrusive methods, it is definitely leading to addiction. In a study on the prevalence of addiction to the Internet among individuals with a history of drug abuse, Razjouyan et al (2018) found 88.3% concurrence. In a study on 846 students of various faculties from a Deemed University in India, the total prevalence of internet addiction was 19.85%. Internet addiction was associated with gender, computer ownership, preferred time of internet use, login status, and mode of internet access ($P < 0.05$). It was also associated with anxiety, depression, loss of emotional/behavioral control, emotional ties, life satisfaction, psychological distress, and lower psychological well-being (Gedam et al, 2017). Psychologists around the world are taking Internet addiction seriously. Instances of suicides and extreme violence among juveniles and youngsters over reprimand for using too much of Internet and cell phones are routinely recorded.

While this is the beginning, what lies ahead could be worse. As and when AI gets intrusive, its own desire and ability to control humans, or that manipulated by humans, would be a cause of great concern. James Olds and Peter Milner (1954) conducted an experiment on rats typical of the Skinner Box experiments. The difference was that instead of traditional food and electric shocks, electrodes were implanted in the brains of rats that would lead to mild electric stimulation by pressing the lever. When this brain stimulation was targeted at certain areas of the brain in the region of the septum and nucleus accumbens, the rats would repeatedly press the lever, even up to 2000 times per hour. Such was the pleasure seeking drive that the rats refused food when hungry, water when thirsty, ignored a female in heat, crossed foot-shock delivering floor grids, and female rats even ignored nursing newbornpups. Over twenty days, rats were pressing the lever so frantically that theyrecordedover 8,50,000 presses each. While the work of Olds and Milner is expansive and beyond the scope of this paper, what stands out is the urge in rats to forgo all other motives and seek pleasure by cortical stimulation.

While pleasure can be defined and inferred in more ways than one, the role of chemical messengers and brain centres in pleasure are proven beyond doubt. While Freud talked of the pleasure principle guiding the id, Aristotle proposed a hedonistic approach. According to Aristotle, happiness has two components, hedonia (pleasure) and eudaimonia (a life well-lived) (Kringelbach&Berridge, 2010). Positive psychologists have added another meaning-related component of engagement involving feelings of commitment and participation in life (Seligman et al., 2005). As

humans have consistently shown a propensity to revert to primordial behaviours, it would not come as a surprise if hedonistic pleasures overruled conscious behaviours, especially if they could be accrued in a short time in a socially acceptable way. And this is where AI comes in. Assume a situation were to arise in future when, ostensibly for thepurpose of medical interventions, AI gained access to the human brain, and got to place electrodes in the brain. If an electrode is placed such that it gives a feeling of the 'pinnacle of pleasure', how would humans react? Would we not get hooked to it? Addicted, the same way we have got addicted to tobacco, alcohol, cannabis, and a host of other drugs? What would prevent us from getting this pleasure? Would legislation prevent it? Smoking and consuming alcohol are legal above a certain age, and so is cannabis in many countries including the United States despite knowledge of the fact that these substances are addictive. Why did governments allow such practices to begin with? Well, many substances and drugs have been invented for medical purposes but have been abused. Similarly AI interventions will begin as therapy for patients suffering from excruciating pain or severe depression. After a benign beginning, eventually we could have 'pleasure parlours' that would lead to addiction and human 'enslavement'. And this could well be presented as a business model like pubs, bars, cannabis joints,and video game parlours, all permitted and seemingly regulated by the government.

The economic model

Every effective technology has been exploited by industry for profit. AI is no different. In fact the autumn years in AI are testament to the fact that investment and support to AI shrunk as no explicit use could be envisaged in the then near future. But with data becoming the new oil, AI has become much sought after. Any instrument that can aggregate power and wealth, which can be safely assumed to mean the same in business, isprone to manipulation and abuse. Whether financial markets, property, bullion, or the stock market, manipulation is a common thread evident from the numerous scams that have been unearthed over the years. It can take various hues from price rigging to cartelization, and hoarding to false claims. If AI has the potential to cheat, it will be abused to cheat. The greatest threat about AI is that it is controlled by a very few and is not open to scrutiny. Who really understands the codes and their implications? Add to it the ability of machines to learn and write new codes by themselves. How would one fix accountability?

Human nature is such that it has an almost unsatiating hunger for power and resources that have led to wars and crimes over millennia. We live in paradoxical times where on the one hand democratic values and equality are purported, and on the other hand income disparity is rising at alarming rates. According to a report by Oxfam (Elliot, 2019),the wealth of more than 2,200 billionaires across the globe had increased by $900 billion in 2018 – or $2.5 billion a day. The 12% increase in the wealth of the very richest contrasted with a fall of 11% in the wealth of the poorest half of the world's population.As a result, the report concluded, the number of billionaires owning as much wealth as half the world's population fell from 43 in 2017 to 26 last year. In 2016 the number was 61.Just imagine 26 citizens owning the same wealth as that owned by 3.85 billion other citizens in this world!

Once AI gets to influence and control business, there is little reason to believe that the rich would empathise with the poor and strive for more equal distribution of wealth by getting codes written for a noble cause. Rather, going by what has been happening in the past, the rich would get more manipulative and control markets and resources

more vehemently, thereby creating wider divides in society. AI would have an inbuilt bias that would be heavily skewed to favour a few. Ina world where humans are unmoved by the plight of their own kind despite emotions built into their culture and character, to expect machines to empathize is akin to living in a fool's paradise. History, it is said, inevitably repeats itself unless we learn lessons from it.

Historical Abuse passed off as Profit-makingEconomic Models

A peep into human history will tell us that almost every technology, invention, or discovery has been abused by a select few for amassing wealth at the expense of the poor and vulnerable. For instance, slavery, or slave trade, and the industrial revolution went hand-in-hand. The African slave trade boosted European shipping, gun making, and manufacturing, and vice-versa. Most of the raw material for the industries, like cotton, was produced by slave labour. American capitalism flourished on slave trade and slave labour. So pivotal was the role of slavery in the economic model that large American insurance firms like New York Life and AIG sold policies that insured slave owners against injury or death of slaves. While commodities gained in valuation, human life got devalued. Slaves were not insured for health or injury even as they worked in inhuman conditions, rather their owners were insured for the possible economic loss created by the death or injury of slaves. Some of the biggest business houses were openly involved in the slave trade including the predecessors of Citibank and JP Morgan (Thomas, 2019). While the slave trade fuelled the industrial revolution, imperialism and colonization driven by the same ships and guns pushed finished goods in captive markets ruining local crafts and trades, rendering local artisans desolate. It would not be an exaggeration to say that shipping, navigation, and the industrial revolution were driven by the slave trade and colonization. Despite of the fact that human life was being degraded, capitalists kept exploiting ships and guns to make profit.

In 1907 Leo Baekeland invented Bakelite, the first fully synthetic plastic, meaning it contained no molecules found in nature (Knight, 2014). In the coming decades polyester (in 1930), PVC,polythene (in 1933), and nylon (in 1935) were invented. Mass production of plastics began around six decades ago and plastics entered our daily lives. According to a report by the National Geographic (Parkar, 2018) the first global analysis of plastic ever made has revealed that 8.3 billion metric tonnes of plastic had been generated till date, of which 6.3 billion metric tons became plastic waste. One million plastic bottles are purchased every minute around the world, and 5 trillion disposable plastic bags are used every year. With only a fraction of plastics being recycled, most of it ends up as garbage polluting our land and sea. Scientists and manufacturers knew well beforehand that plastics would take centuries to bio-degrade. Still these materials found their way into manufacturing of consumer products, leaving the world grappling with a severe pollution crisis half a century later.

Louis Pasteur could well be said to be one of the pioneers of medical microbiology. Along with Claude Bernard he developed the technique of pasteurization of liquids. He produced the first laboratory-developed vaccine, which was against chicken cholera in 1879. Three years later he prevented rabies in a 9 year old boy using post-exposure vaccination. Soon other inventions and discoveries followed and modern medicine as we know it today, took formal shape. During the same period, the pharmaceuticals industry was delineating from the chemical industry and establishing itself as a separate entity. GlaxoSmithKline Beecham started producing patented

medicine (1842), Pfizer was set up in the US (1849), and Eli Lilly, an ex-military officer and an archetypal American industrialist set up a pharmaceutical business (1876), he being the earliest to focuson both R&D and manufacturing. Doctors came to be revered as next only to God, even as the pharmaceutical industry started booming. Alexander Fleming's discovery of penicillin (1928) was another major breakthrough in modern medicine and Merk, Pfizer, and Squibb, supported by the government, worked on mass production of the drug during World War Two, saving thousands of lives (Wang, 2009). But what began as a noble cause soon got embroiled in a diabolic nexus between doctors, hospitals, and pharmaceutical companies.

Today, Nine out of ten pharmaceutical companies reportedly spend more on marketing than on R&D. In the United States alone the pharmaceutical industry spends an estimated US$ 42 billion on promotional activities that target doctors annually, which is equal to US$ 61,000 per doctor on average (Olson, 2015). According to aWorld Health Organization report (2016), substandard, spurious, falsely labelled, falsified and counterfeit (SSFFC) medicines are designed to appear identical to genuine medicines but will fail to treat the disease or condition for which they were intended.

It is not just fringe elements that are part of theseunscrupulous practices. Mainstream companies are in fact leading from the front. In 2011 Johnson & Johnson paid US$70 million to settle claims it bribed doctors in Greece, Poland and Romania to prescribe its medicines (SEC Report, 2011). In 2012, GlaxoSmithKline was accused of unlawful promotion of the drug Paxil. The company pleaded guilty and paid US$3 billion, the largest healthcare settlement in US history (Cha, 2015). The American subsidiary of the Indian pharma giant Ranbaxy was embroiled in charges relating to the manufacture and distribution of adulterated medicines in 2013. Pleading guilty, the company paid around US$500 million in fines and settlement claims. This is only the tip of the iceberg. Blatant over-pricing and over-prescription has plagued the industry, even as governments grapple with regulations. Doctors – the demigods once – are having a field day in the evil machinations.

Will AI be abused?

It is amply evident that it not the tools that are guilty of crime, rather the human hand that wields them is abusive. Ships and guns did not commit themselves to slave trade. Plastics did not mould themselves into bags and bottles and set out to pollute our environments. Chemical formulations did not force doctors to prescribe them. All these were the handiwork of greedy men who knew the adverse consequences very well, but still unleashed the monster of profiteering that went on to debase human life. Why would we deal with AI any differently? The technology is controlled by a few extremely powerful individuals who will manipulate it for profit at any cost. Greater the power of the product, more it is prone to abuse.

The question is not 'will AI overpower humans?'This debate is misguided, perhaps intentionally, so that while we keep barking up the wrong tree, the damage is already done. The entire debate surrounding AI seems inspired from sci-fi movie scripts where AI goes out of control and ends up enslaving humans.Naysayers conjure visions of AI having a mind of its own, a Frankenstein monster, that will devour civilization. The bigger and real problem is with humans who would control it. What has changed in human thought or behaviour over the past decade or century that we should expect our race to have become benevolent now? Rather the lust for profit and

the abuse of plants, animals, and the environment has increased exponentially.AI will only expand the reach and scope of exploitation. It will bring ina lot of good no doubt, but that will be outweighed by the evils.

Some of the biggest investors in AI today are venture capitalists (VCs). According to a report by the international firm Price Waterhouse Coopers (PwC), in 2018 alone venture capitalists poured a record US$ 9.3 billion in artificial intelligence (Moneytree Report, 2018). Venture capitalistsare individuals or companies that are looking to make high profits through high risk investmentsthan through traditional means. They invest in startups before the world understands what it is all about, and have made money by the time commoners even know how the idea works. This business model is very different from the traditional listing of companies on the stock market where a host of information is available about the company, its assets, promoters, and products. It does not require particularly vivid imagination to see how investments would be made in startup ideas that promise quick profits using AI. By the time the risks would be understood, the damage would already have been done.

It is not that democratic governments do not foresee the dangers of unrestrained AI. The European Commission is planning legislation for an ethical and legal framework for the development of AI that will make citizens' rights a priority. Alarmed by the imminent legislation, SundarPichai, the global head of Google and Alphabet promised an internal regulatory mechanism to protect citizen's interests. All major governments are preparing draft frameworks of regulating AI. However, government regulations often arrive too late, are mostly toothless, and full of loopholes that are blatantly exploited. Corporate and industry lobbies work overtime to bend laws in their favour. 36,000 Americans are killed by gun violence each year, at an average of 100 per day, many of whom are school children. Still gun control laws remain unchanged. President Barrack Obama won a Nobel peace prize for his contribution to world peace but could not alter gun laws in his own country. The National Rifle Association in the US spends between US$ 3 million and US$ 5 million per year in lobbying to influence the gun policy (America's Gun Culture Report, 2019).Guns, tobacco, alcohol, or cannabis, it is the young generation that is mostly vulnerable to the ill effects. Can the very societies that leave their future generations open to abuse and violence, all for profit, be trusted with other potentially abusive instruments?

On a parting note, it is imperative to note that heroin was developed by the same team of scientists who introduced aspirin (Sneader, 1998). Heroin, a derivative of morphine, was considered a wonder drug for treating respiratory diseases. The Bayer Company, a renowned pharmaceutical company even today, started the production of heroin in 1898 on a commercial scale. Soon it was found that repeated administration led to tolerance and the patients became heroin addicts. By the time strict regulations were introduced, the cat was already out of the bag. And we have not been able to put it back in even a century later. AI is no cat, it is a tiger we are readying to unleash.

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