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ARE WE PREPARED TO HUG CHANGES AND CHALLENGES IN COMING YEARS?

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ABSTRACT
Amitabh Kant, CEO, NITI Ayog, Govt. of India, informed that Indian have used 150 cr GB data/month. This is more than the data being used by Chinese & American put together. This is topic of research, whether this is an achievement or addiction or something very constructive milestone for the future of our nation. In this editorial I will share few of the alarming situations where policy makers should ponder seriously. Without any more background I am coming to points. Are we ready to cope up with negatives of artificial intelligence (AI means science of making things smarter), machine learning (ML means making machines that learn to be smarter) & internet of things (IoT)? Are we ready to train lakhs of man power for these newer technologies? Are curriculum (extra & co) being changed by concerned government departments? How long same syllabi will be taught in academic institutions? Are the current diagnostic range and criterion (to ascertain/prove whether one is diabetic, hyperlipidemic or a victim of cardiovascular disorders or other disease) full proof across the globe? Is the time ripe to look into diagnostic range which converts a healthy person into patient? How many pharma companies, universities are working on prevention of diseases. This last question should initiate wide level of discussion/brainstorming by responsible think tanks. Millions of dollars, research hours are spending on finding more effective & optimum treatments for such disorders as diabetes, cardiac issues, nervous issues etc. In our country, when election will be fought on the issues of academic stuff, state of medical affairs, expenses born by crores of diabetic and cardiac patients? Are academic/research institutes (pharmaceutical sciences) producing data analyst, leaders or other non-classical job titles? I am talking about cross-functionality leaderships. Are teachers/experienced teachers undergoing unconventional training for newer technologies? How long dosage form based treatment will survive in India and rest of the world? Here I am now going to elaborate on artificial intelligence from general and drug discovery point of view. AI is showing its importance in fields ranging from healthcare, banking to agriculture and others.

KEYWORDS: Artificial intelligence, clinical trial, machine learning, internet of things.

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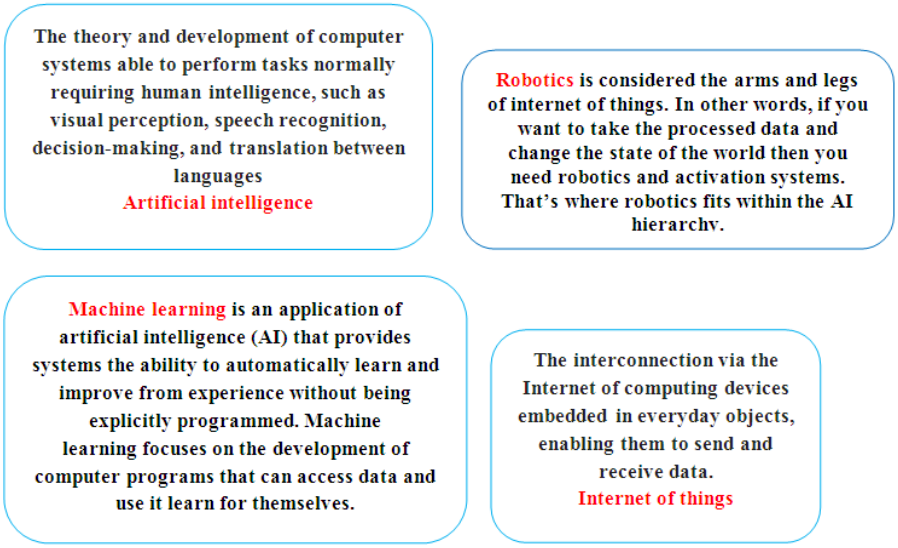
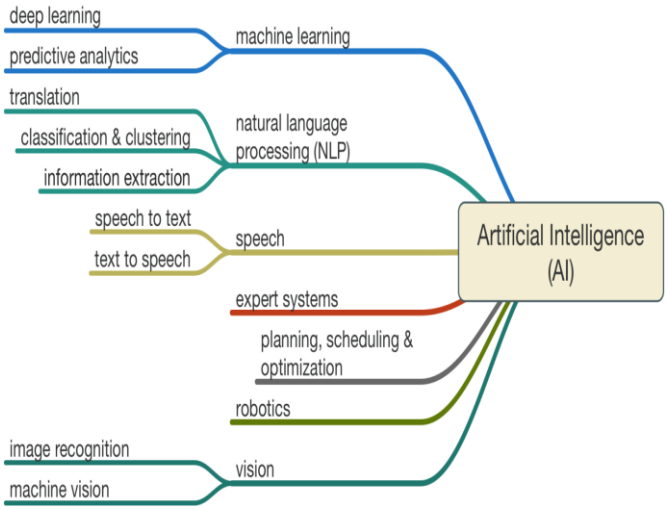


Artificial intelligence will wipe out lakhs of traditional jobs, but will generate lakhs of more jobs. Around 70% companies in country will incorporate AI in their organizations. These new jobs will be only for those who will be apt in a particular technology or ready to hone their skills and add on new skills; otherwise believe me survival will be difficult. In a broader sense, AI, it is a bigger concept which represents everything from taking & processing sensory data in a clever manner & adding on in order to do more complex things in an interesting & cognitive fashion. Within that there are subsets that deal with pure data streams and that is what/how pharmaceutical companies will tap the potential of AI. Main domains which will be affected by AI are banking, information technology & software. All those domains will witness radical changes which involves similar steps/operations/decisions again & again. It means such jobs which require similar physical tasks/work again & again. Data collection & processing will also be done by AI. On the other hands those jobs which lack similarities in operations; those domains where management, expertise and classical sales are involved will be perhaps least affected by onslaught of AI & ML.

In future some of the most challenging (at present) tasks managed by AI will be to make clinical trial faster and accurate (to minimize delay in launch of new molecules & avoiding frequency and number of post marketing surveillance case reporting). Rather I think within two decades in developed nations by top pharma giants clinical trial will be a non-human affair and AI & ML will completely take over entire process of clinical trial. Other most sought after application of AI may be to scan a whole plant without performing tedious and lengthy steps done by a phytochemist. This scanning will throw chemical and pharmacological data in minutes based on various predefined inputs like taxanomy of that plant and some other data. Random stochastic (having a random probability distribution or pattern that may be analyzed statistically but may not be predicted precisely.) nature of human failures will be diminished or taken away. Structure elucidation may be another front where AI & ML will do excellent as an non-human research assistant of human researcher. Am I wrong? Perhaps humans will assist AI guided robots.



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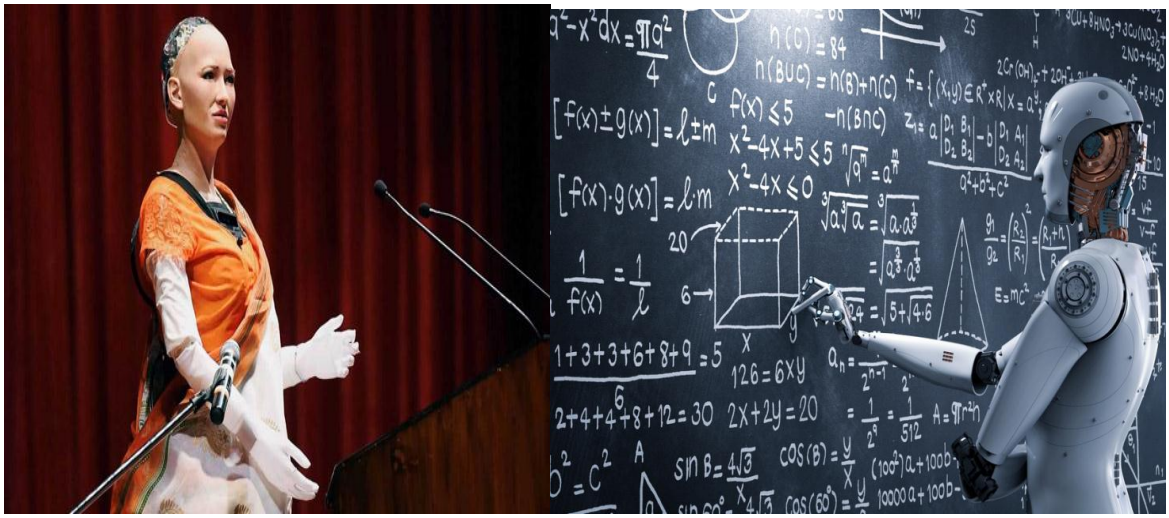

Here I am sharing recent news of Alpha Zero. This will further explain the meaning of AI with a beautiful and daily life example. Alpha Zero, an AI created by Google's subsidiary DeepMind beat Stockfish 8, the world's best chess-playing computer program, after having taught itself (Alpha Zero) how to play the game in under four hours. In a 100-game round, Alpha Zero won 28 games & drew 78. According to Deep Mind, their program achieved a superhuman level of play in chess, shogi, and Go. After understanding basic game rules input, Alpha Zero achieved within 24 hours a superhuman level of play in the games of chess and shogi as well as Go, and convincingly defeated a world-champion program in each case, as mentioned by Deep Mind founder Demis Hassabis (a chess prodigy). According to former Indian world champion Viswanathan Anand, "we have been playing this game for over 600 years, and all it takes for it is four hours," joked about Alpha Zero's win. "For over a thousand years, the game's creators – us, humans – were its greatest masters. Then, when we created computers, they took over from us. With the increase in power of their engines resulted a surge in their intelligence". Deep Blue supercomputer (IBM's computer program) defeated Garry Kasparov in May 1997. Since then it has become almost impracticable for humans to defeat computers in chess. Though these computers were designed & trained by humans only.

Sophia, the first humanoid robot to get citizenship (of Saudi Arabia) was in India (IIT-Bombay) recently. While responding to a question posed by interviewer, she said "robots should be used for the benefits of humanity; not to be concerned about robots replacing humans". She said robots of future (it may take 75 years or it may seven years) will do their own programming. Present time robots need human to programme them. Artificial intelligence will empower robots. Honda, Robo Tican etc are working on some of the finest robotic technology for various purposes.

According to Sethu Vijayakumar, a professor of robotics at Edinburgh University & director at Edinburgh Centre for Robotics "my belief is that as with any advanced technologies there is a risk for it being used in a way that is not originally planned for. You have to have a certain level of ethics and morals underlying the developments you are building into it. It's the responsibility of scientists to potentially understand the applications of the work and at the same time cooperate fully with agencies creating ethical guidelines. Regulations in robotics and AI have not caught up with speed of development. We have to get people who understand the law and folks who deliver technology together because they cannot work in isolation. He further says, "as machines/robots become more capable, there is this perception we would have to augment ourselves with artificial devices to catch up. Does that mean we are threatened? Who knows? It may mean we keep some safeguard in place to make sure we don't lose what we think is core humanity". As per Aspiring Minds, a firm engaged in analyzing employment situation, around 10 lakhs jobs will be generated (requiring 100 types of skills) with as many as 30 job titles. More and more wearable devices will be launched in coming years; which will further empower the users/patients. Dosage forms and doctors will witness biggest changes in coming years. These changes will decrease their impotence or direct role in addressing disease; as devices or technologist will take control of medical stuff. Similarly classical dosage form will lose their utility. Will advent of AI reduce the unbearable financial burden (An analysis by Times of India reveals that medicines, diagnostics & consumables like syringes, dressing, catheter etc typically constitute 30-50 % of the sum in a hospital bill) on patients and others? Wait & watch. AI will also play crucial roles in performing diagnostic tests (including compatibility test for blood and donors' organs), dialysis, precise and accurate chemotherapy. Problem of antibiotic resistance may also be addressed by AI. Around 23000 people lose their lives owing to antibiotic resistant infections in America.

REFERENCES

1. https://blogs.timesofindia.indiatimes.com/cash-flow/regulations-in-artificial-intelligence-have-not-caught-up-with-speed-of-development-make-sure-we-dont-lose-core-humanity.
2. Dainik Bhaskar Indore, 25/12/2017.
3. Naidunia Indore, 29/12/2017.
4. Dainik Bhaskar, 31/12/2017.
5. https://thefield.scroll.in/861219/scary-and-promising-anand-on-alpha-zero-the-ai-that-beat-the-worlds-best-chess-program).
6. Times of India, 31/12/2017.
7. Times of India, 29/12/2017.