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Artificial Intelligence through Human Resource – A Descriptive Study

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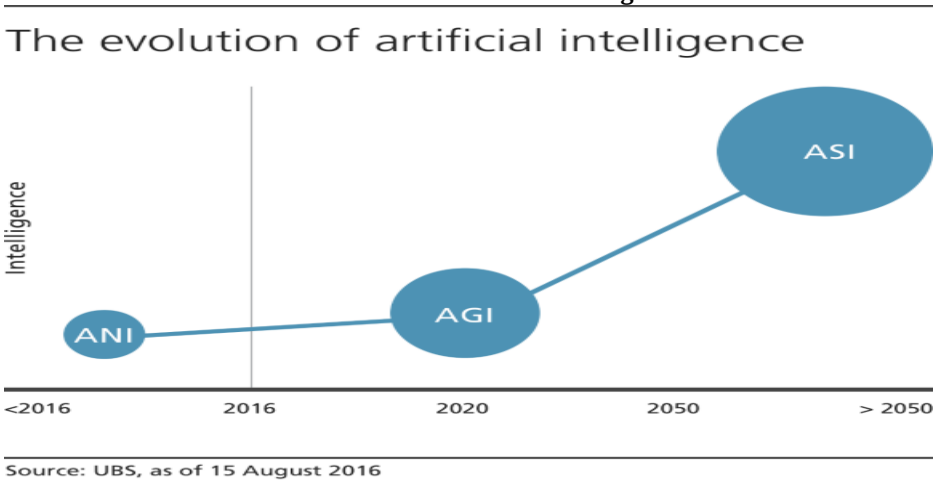
I. Introduction

Many human mental activities such as developing computer programs, working out mathematics, engaging in common sense reasoning, understanding languages and interpreting it, even driving an automobile are said to demand "intelligence". Several computer systems have been built that can perform tasks such as these. Also there are specially developed computers systems that can diagnose disease, solve quadratic equations, and understand human speech and natural language text. We can say that all such systems possess certain degree of artificial intelligence. The central point of all such activities and systems is that "How to think" or rather "How to make system think". The process of thinking has various steps like perceive, understand, predict and manipulate a world that is made up of tiny complex things or situations.

Artificial intelligence may be defined as the branch of computer science that is concerned with the automation of intelligent behaviour. [Luger – 1993]

The automation of activities that we associate with human thinking, activities such as decision making, problem solving, learning …"[Bellman – 1978]

The Evolution of Artificial Intelligence:



AI is divided broadly into three stages: artificial narrow intelligence (ANI), artificial general intelligence (AGI) and artificial super intelligence (ASI).

The first stage, ANI, as the name suggests, is limited in scope with intelligence restricted to only one functional area. ANI is, for example, on par with an infant. The second stage, AGI, is at an advanced level: it covers more than one field like power of reasoning, problem solving and abstract thinking, which is mostly on par with adults. ASI is the final stage of the intelligence explosion, in which AI surpasses human intelligence across all fields.

The transition from the first to the second stage has taken a long time (see chart), but we believe we are currently on the cusp of completing the transition to the second stage - AGI, in which the intelligence of

machines can equal humans. This is by no means a small achievement.AI will become a massive sector that unleashes a torrent of financial opportunities.

Although still embryonic in its full lifespan, AI's potential has captivated the minds of not just scientists and philosophers but also politicians and business leaders. The reason is simple: AI will become a massive sector that unleashes a torrent of financial opportunities and will provide industry captains, both governments and corporates, with unparalleled technological power.

Whatever form AI takes, its journey will be fraught with ethical idiosyncrasies and met, often simultaneously, with fear and celebration. Some will worry about job redundancies, privacy and control, while others will herald the next step in human greatness. Regardless of your stance, AI will undoubtedly change us and our world in many ways; so it's paramount to be prepared for the world ahead.

How Artificial Intelligence change the future:

AI has the potential to greatly improve things like healthcare, education, poverty and security. AI machines can do some very beneficial things already today that humans will simply never be able to. If we leverage that to augment what humans do well, AI could positively impact society, business, and culture on the order of magnitude of the internet itself.

Even with today's primitive forms of AI, there is enough technology out there to start doing exactly this. The examples below draw from a variety of industries to illustrate the magnitude of social impact possible when we couple AI with human skill and ingenuity.

1. Precision Medicine

AI is driving the adoption and implementation of precision medicine: an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person. Think of it as a type of medical personalisation. For example, around 25,000 people in the US are diagnosed with brain tumours every year. Traditionally, they might all be given the same course of treatment to see what might work in a one-size-fits-all approach. Precision medicine will allow doctors and researchers to predict more accurately which treatment and prevention strategies for a particular disease will work in which groups of people.

2. Cybersecurity

There were around 707 million cybersecurity breaches in 2015, and 554 million in just the first half of 2016. The impact of just a few of these attacks, such as foreign governments potentially biasing US presidential elections, is truly scary.Security teams struggle today to work through the increasing number of alerts generated by traditional tools. The self-learning and automation capabilities enabled by AI can increase effectiveness and reduce costs, keeping us much safer from terrorism or even smaller scale identity theft.AI-based solutions already in the market can be more proactive and can pre-empt attacks in the pre-execution state by identifying patterns and anomalies associated with malicious content. Secure works uses the predictive capabilities of AI for advanced threat detection on a global scale. Sift Science, Clancy, and Deep Instinct are using it for fraud preventions and for endpoint security, like smartphones and laptops. These technologies will dramatically expand the scope and scale of security professionals and allow them to detect threats hopefully well before they actually attack.

3. Precision Farming

The world's population is expected to increase significantly over the next three decades, but our capacity for food production will struggle to keep pace. AI is driving efficiency in our current farming methods to increase production and reduce wastage without adversely affecting the environment.Systems such as John Deere's AutoTrac enable huge machines to plant crops in a far more uniform and accurate way and can reduce overlap in agricultural processes such as tilling, planting and fertilising, which in turn reduces the use of chemicals and increases productivity.Cainthus, a machine vision company, has another approach. Using deep learning, it has created a facial recognition system than can identify individual cows by their facial features in just six seconds, enabling huge herds to be monitored with minimal human involvement. Soon, they will be able to detect early signs of lameness in a cow based on its body shape, and alert the farmer accordingly.As sensors proliferate on farms and drones capture real-time images of the condition of vast amounts of farmland, AI machines will be able to help farmers foresee what their crops and farms are going to need potentially over a year in advance, giving them more time to react to adverse conditions.AI can be applied to many more problems and markets. In fact, it should be thought of as a fundamentally new approach to every problem. Those decisions will be made by humans who want to change and improve the world, and who now can scale their minds to address ever-expanding frontiers.

The Ways Artificial Intelligence Reinventing Human Resource:

Organizational leaders and human resources executives have faith that merging artificial intelligence (AI) into HR functions like on boarding and administration of benefits can and will improve the overall employee experience. According to IBM's 2017 survey of 6,000 executives, "Extending expertise: How cognitive computing is transforming HR and the employee experience," 66 percent of CEOs believe cognitive computing can drive significant value in HR. Half of HR executives back that up, saying they recognize that cognitive computing has the power to transform key dimensions of HR. And 54 percent of HR executives believe that cognitive computing will affect key roles in the HR organization. It's not all rosy, though. The Human Resources Professional Association (HRPA) reported in a 2017 survey that 52 percent of respondents indicated their businesses were unlikely to adopt AI in their HR departments in the next five years. About 36 percent believe their organization was too small to do so, while 28 percent said their senior leadership did not see the need for such technology. "To AI or not to AI" may still be the question for many organizations, but some are already on the band wagon. We've found some examples of how companies are investing into AI and cognitive computing for their HR workflows.

Personalized Employee Experiences

IBM officials in their study discussed how AI can effectively be woven into an employee's onboarding program. New employees who typically want to meet people and acquire information typically may not know where to go. They may ask their desk neighbor. But what if she works in a different department? "What if Joe had been welcomed with new hire information on his mobile device that was tailored to his first assignment?" IBM officials wrote in the report on transforming HR with AI.

IBM is looking to create a system that will answer a new employee's most pressing or job critical questions to help get them up to speed fast. An AI, for example, could provide training suggestions or provide the names, locations and contact info for people he/she should look to connect with on his first day or so. That same employee could also be advised by AI engines that a new hire webpage contains a lot of useful information.

Cognitive-Supporting Decision-Making

IBM officials, who naturally are promoting their own AI capabilities through IBM Watson, also demonstrated ways cognitive engines could help employees arrive at key day-to-day decisions in the workplace. Usually, HR team members would have to handle these tasks.

Vacation requests - Employees that want to put in for vacation days are informed that it is unlikely to be approved as many others have already booked vacation in that time frame.

Determining your mood - An employee takes a client call. After the call, the employee receives feedback that he seems anxious and should take a break before his meeting.

Team training - When an organization wants to take a more systematic approach to employee training, team managers are provided a list of training opportunities for team members.

Hiring processes - A hiring manager is presented with information that the company's recruitment approach falls short because it interviews too few candidates. Cognitive solutions can help organizations tap into multiple data sources and reveal new insights to help companies develop candidate profiles, among other things.

Automation of 'Repetitive, Low-Value Add Tasks'

Kate Guarino, director of human resources operations for Pegasystems, said AI presents an opportunity for HR to automate "repetitive, low-value add tasks" and increase the focus on more strategic work. She cited the example of HR spending time processing the steps of onboarding a new employee (allocating space, provisioning a laptop, etc.). Saving time in those arenas can help HR teams pivot to making sure they focus on "value-add work like mentoring and continuous feedback."

Rob May, the CEO and co-founder of Talla, said as AI tools automate away common HR tasks like benefits management and triaging common questions and requests, HR teams will be "free to do more of the creative and strategic work that has a bigger impact on the success of their companies."

AI Recruiters

Applicants and employees expect custom experiences tailored to their unique needs as they apply for a new job, choose the right benefits or explore development opportunities. Guarino said companies have implemented "AI recruiters" to automate scheduling interviews, provide ongoing feedback to candidates and answer their questions in real time. "This allows," Guarino said, "the human recruiters to spend more time converting candidates to hires."

Smarter People Analytics

For years, companies have been collecting data on their customers to gain insights to predict future behaviour, Guarino added. She said HR teams have a lot of catching up to do in leveraging these people analytics. "Determining what data to track, analyze, manage and protect will enable AI to play a larger role within HR," Guarino said. "In the never-ending war for talent, companies will look to find innovative ways to attract top talent. Technologies that enhance the candidate experience and meet the candidate's digital expectations will help distinguish companies from one another."

Removing Biases

In the survey by the Human Resources Professional Association, researchers found that even when employers strive to be inclusive, they may subconsciously lean toward candidates who are most like them, or what they call "unconscious bias." Another bias, language bias, has been discovered by a psychological tool called the Implicit Association Test (IAT) that shows that people's subconscious word associations indicate bias. "These biases find their way into job descriptions, as well as resume selections. Now, thanks to AI, algorithms can be designed to help employers identify and remove these bias patterns in language they use to improve their hiring communications and welcome diverse applicants," HRPA researchers noted.

AI could also present managers with candidates who may have been screened out due to human tendency to favor candidates with similar traits or competencies.

Tom Marsden, CEO of Saberr, told HRPA researchers algorithms are free of those tendencies, which allows managers to go beyond gut feelings and rely on data-driven assessments instead.

Identifying Employees On the Way Out

Veriato's AI platforms are designed to single out employees that may be heading for the exit door. It tracks employee computer activity — emails, keystrokes, internet browsing, etc. — and stores it for one month and implements an AI system that analyzes the data to determine a baseline of normal activity patterns in the organization. "Based on that knowledge," HRPA researchers noted, "it flags outliers and reports them to the employer and also detects changes in the overall tone of employees' communications to predict when employees might be thinking of leaving."

II. Conclusion

As much as the HR technology landscape continues to be disrupted by AI, Guarino noted HR teams need to balance these cognitive tech advancements with transparency. "HR leaders and practitioners need to have a clear understanding of how decisions are being made to mitigate unknowingly injecting bias into their programs," she said. "This transparency will be essential in making sure that employees trust the new technology."

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