AI:10

GET INSIGHTS ON AI UNDER 10 MINUTES

HEADLINE NEWS IN A FLASH

- Google Assistant no longer requires wake word to stop talking
- Elon Musk says Tesla's priority this year is AI robots, not the Cybertruck
- AI Might Help Us Decode Whale Language
- Synthetic Voices Want to Take Over Audiobooks
- OpenAI says its making progress on "The Alignment Problem"
- Antarctica's Ice Sheets May Have 3,00,000 Undiscovered Meteorites, New Study Finds

WHAT'S HOT

ARK INVEST'S BIG IDEAS 2022

An Interview on

SOCIAL INNOVATION
*- Ayşe Kaşıkçı*

SECTOR FOCUS

USING PEOPLE ANALYTICS TO BUILD AN EQUITABLE WORKPLACE

ARK INVEST'S BIG IDEAS 2022

THE 14 TRANSFORMATIVE TECHNOLOGIES TO WATCH THIS YEAR

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ARK released their annual BIG IDEAS 2022 research report centered around the belief that five innovation platforms are evolving and converging at the same time: Artificial Intelligence, Robotics, Energy Storage, DNA Sequencing, and Blockchain Technology. ARK has identified 14 transformative technologies that are approaching tipping points as costs drop, unleashing demand across sectors and geographies, and spawning more innovation.
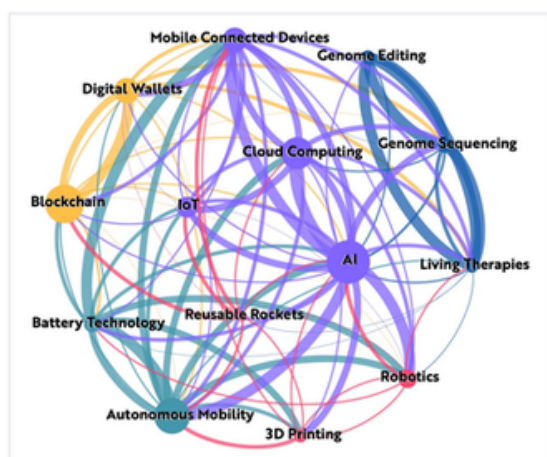
Convergence across technologies could amplify their potential. For example, the convergence of robotics, battery technologies, and artificial intelligence is likely to collapse the cost structure of transportation, impacting the economics of auto, rail, and airline activities.

Here are the 14 transformative technologies that are approaching tipping points in the ARK 2022 Big Ideas Report:

1. Artificial Intelligence
2. Digital Consumer
3. Digital Wallets
4. Public Blockchains
5. Bitcoin
6. Ethereum and DeFi
7. Web3
8. Gene Editing
9. Multi-Omics
10. Electric Vehicles
11. Autonomous Ride-Hail
12. Autonomous Logistics
13. Printing and Robotics
14. Orbital Aerospace

ARK research forecasts that disruptive innovation technologies will grow from a $14 trillion market in 2020 to a $210 trillion market by 2030. ARK research forecast of market capitalizations by 2030:

- AI innovation could increase nearly 10-fold to more than $100 trillion in equity market capitalization by 2030. The research points to AI ($85T) as well as mobile-connected devices ($8T), the internet of things ($4.6T), and cloud computing ($10T) as drivers of AI adoption.

- Battery technology could enable autonomous mobility, generating more than $30 trillion in market capitalization by 2030.

- Robotics advances could generate more than $10 trillion in equity capitalizations by 2030. Technologies like 3D printing ($1.1T), Robotics ($8.6T), and reusable rockets ($500B) contribute to the projections.

- Genomics technologies could drive more than $3 trillion in equity market capitalization by 2030, including gene sequencing ($1.6T), live therapies ($1T), and gene editing ($1T).

- Cryptoassets ($40T) and digital wallets ($9T) to command nearly $50 trillion in equity market capitalization by 2030./

Source: ARK
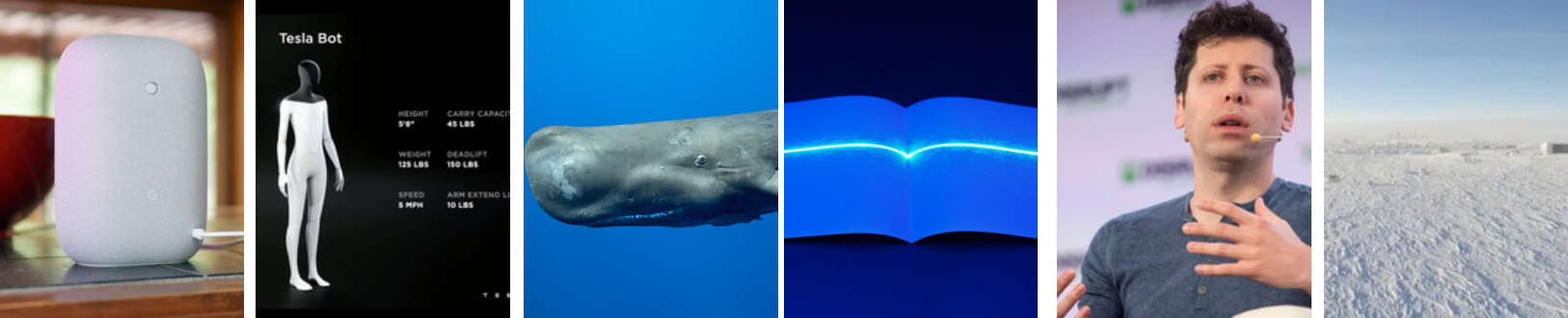
HEADLINE NEWS IN A FLASH

GOOGLE ASSISTANT NO LONGER REQUIRES WAKE WORD TO STOP TALKING

Google has announced a small but highly convenient Google Assistant tweak: the AI will now silence itself when you tell it to "stop." This change eliminates the need to use the "Hey Google" wake word before telling Assistant to cancel a response, which is awkward when the AI is rambling about something you don't want to hear. The change is now live. This feature may be particularly useful for households with young kids who like to ask the AI random questions./

Source: slashgear

ELON MUSK SAYS TESLA'S PRIORITY THIS YEAR IS AI ROBOTS, NOT THE CYBERTRUCK

Tesla Technoking Elon Musk has decided the company will prioritize development of its humanoid robot over vehicle innovation in 2022, because everything's made up and the points don't matter. Musk tossed this bomb of an announcement in with his Q4 2021 earnings report, Electrek reports. "In terms of priority of products, I think actually the most important product development we're doing this year is the Optimus humanoid robot," Musk said during the call. As of now, Optimus (also known as the Tesla Bot) is little more than a moonshot. Musk's initial presentation of the bot — in which a person in a white bodysuit danced on-stage, for some reason — revealed almost nothing about the bipedal AI machine. He claimed at the time that Tesla would be ready to show off a working prototype at some point in 2022./

Source: inputmag

AI MIGHT HELP US DECODE WHALE LANGUAGE

Scientists are wielding algorithms in hopes of understanding how the mighty mammals communicate. Last April, an interdisciplinary group of scientists and experts embarked on a five-year effort, dubbed Project CETI (Cetacean Translation Initiative), that aims to tap these technological advances and decode the language of one of the world's largest predators: the sperm whale. Sperm whales are incredibly intelligent and highly socially aware creatures. Bronstein, who specializes in natural language processing (NLP), a subfield of AI that uses algorithms to interpret written and spoken speech, was convinced that sperm whale vocalizations might be suitable for this sort of analysis due to their morselike structure that could be easily translated into ones and zeros.   Identifying patterns in whale talk, estimated Andreas, will take "roughly one billion clicks, or 100 to 200 million codas." Gero's Dominica Sperm Whale Project database currently contains around 100,000 entries./

Source: discovermagazine

SYNTHETIC VOICES WANT TO TAKE OVER AUDIOBOOKS

Publishers hope computer-generated voices can help them tap surging demand, but some fans—and Amazon—are resisting the robots. Google is testing its own "auto-narration" service that publishers can use to generate English audiobooks for free, using more than 20 different synthetic voices. Audiobooks published through the program include an academic history of theater and a novelist's exploration of cultural attitudes to sex. Some publishers see synthetic voices as a way to tap the growing demand for audiobooks, a segment healthier than other parts of the book business. Total US book publisher revenue declined slightly between 2015 and 2020 and ebook revenue shrank, but audiobook revenue surged by 157 percent, according to the Association of American Publishers./

Source: wired

OPENAI SAYS ITS MAKING PROGRESS ON "THE ALIGNMENT PROBLEM"

The term refers to the difficulty of making sure that an A.I. system does what humans want it to do. With A.I., alignment is harder. While humans might specify the goal, the software itself now learns how best to achieve it. OpenAI now says that it has made progress towards solving these alignment problems by creating a new version of GPT, which it calls InstructGPT. InstructGPT starts out a bit like GPT-3 in basic design and training. It too initially learns about language by ingesting a giant amount of text scrapped from the Internet and books. But InstructGPT is a much smaller piece of software, only handling some 1.5 billion different variables at a time, rather than the 175 billion that GPT-3 uses. That is important because it makes InstructGPT easier and less expensive to train./

Source: fortune

ANTARCTICA'S ICE SHEETS MAY HAVE 3,00,000 UNDISCOVERED METEORITES, NEW STUDY FINDS

A new artificial intelligence (AI) program has suggested that there are over 600 locations in Antarctica that might have a treasure trove of undiscovered meteorites. A study published in the journal Science Advances revealed that scientists have developed an AI which has found 600 potentially meteorite-rich locations in the continent. Over the years, Antarctica has been a hot spot of meteorite discovery as nearly two-thirds of all meteorites discovered to date have emerged in this area. Lead study author Veronica Tollenaar, a glaciologist at the Free University of Brussels in Belgium, told Space.com, "We found some unexplored areas with a great potential to find meteorites"./

Source: republicworld

SOCIAL INNOVATION

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SUSTAINABLE DEVELOPMENT GOALS

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AYŞE KAŞIKÇI

Honorary Advisor, Centre for AI Innovation; Independent Investment and Co-Benefit Consultant; Mentor at World Petroleum Council

01 *Your thoughts and views on the disadvantaged groups on employability issues and what can be done to help them.*

"A structure should be created in which disadvantaged groups can establish a work-private life balance in terms of employment. In the short term, it should be ensured that more people have a job, with a fair wage distribution, by bringing them to initial/intermediate positions. In the medium term, they should be supported by sectoral and institutional trainings, and they should be given the opportunity to have competence and seniority. Also in the long term , as support to disadvantaged people other than themselves; they should be turn this cycle into social development culture and behavior."

04 *What do you think will be the key success factors of using AI for this purpose?*

"Ensuring positive developments in more people's lives, quality of life; I think it will be the main / key success factor."

02 *The types of schemes that could be considered and formulated by policy makers to help address employment and education issues.*

"Policy makers, while making arrangements on various issues, over the parameters that affect the life of the society; should act in a way that will meet the expectations of the society and protect the social order. In order to address employment and education issues, policy makers should be with accurate information; It would be appropriate to do it by leaders who will consider social values, cultural approach and the common benefit."

05 *What type of human-machine engagement model needs to be done ? How do you maintain the balance between machines and humans for this type of beneficiary evaluation and social impact assessment?*

03 *The role of technology like AI to help institutions perform their tasks to manage the disadvantaged groups across the value chain (upstream / downstream).*

"Human-machine engagement; which is in the nature of humans; it should be structured and balanced in a way that does not lose basic needs such as nutrition-movement-communication."/

"Technologies such as artificial intelligence; it will enable disadvantaged groups to be more productive when the right parameters are determined in all processes along the value chain of institutions (upstream/downstream). If the technology used is structured to provide fair processes that protect universal values; with the gaining of the trust of the groups, the targets will be reached in a healthier way."

USING PEOPLE ANALYTICS TO BUILD AN EQUITABLE WORKPLACE

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By automating the collection and analysis of large datasets, AI and other analytics tools offer the promise of improving every phase of the HR pipeline, from recruitment and compensation to promotion, training, and evaluation.

Now, algorithms are being used to help managers measure productivity and make important decisions in hiring, compensation, promotion, and training opportunities — all of which may be life-changing for employees. Firms are using this technology to identify and close pay gaps across gender, race, or other important demographic categories. HR professionals routinely use AI-based tools to screen resumes to save time, improve accuracy, and uncover hidden patterns in qualifications that are associated with better (or worse) future performance. AI-based models can even be used to suggest which employees might quit in the near future.

And yet, for all the promise of people analytics tools, they may also lead managers seriously astray.

Amazon had to throw away a resume screening tool built by its engineers because it was biased against women. Or consider LinkedIn, which is used all over the world by professionals to network and search for jobs and by HR professionals to recruit. The platform's auto-complete feature for its search bar was found to be suggesting that female names such as "Stephanie" be replaced with male names like "Stephen." Finally, on the recruiting side, a social media ad for Science, Technology, Engineering and Math (STEM) field opportunities that had been carefully designed to be gender neutral was shown disproportionately to men by an algorithm designed to maximize value for recruiters' ad budgets, because women are generally more responsive to advertisements and thus ads shown to them are more expensive.

In each of these examples, a breakdown in the analytical process arose and produced an unintended — and at times severe — bias against a particular group. Yet, these breakdowns can and must be prevented. To realize the potential of AI-based people analytics, companies must understand the root causes of algorithmic bias and how they play out in common people analytics tools.

THE ANALYTICAL PROCESS

Data isn't neutral. People analytics tools are generally built off an employer's historical data on the recruiting, retention, promotion, and compensation of its employees. Such data will always reflect the decisions and attitudes of the past. Therefore, as we attempt to build the workplace of tomorrow, we need to be mindful of how our retrospective data may reflect both old and existing biases and may not fully capture the complexities of people management in an increasingly diverse workforce.

Data can have explicit bias baked directly into it — for example, performance evaluations at your firm may have been historically biased against a particular group. Over the years, you have corrected that problem, but if the biased evaluations are used to train an AI tool, the algorithm will inherit and propagate the biases forward.

There are also subtler sources of bias. For example, undergraduate GPA might be used as a proxy for intelligence, or occupational licenses or certificates may be a measure of skills. However, these measures are incomplete and often contain biases and distortions. Understanding potential mismatches between what you want to measure (e.g., intelligence or ability to learn) and what you actually measure (e.g., performance on scholastic tests) is important in building any people analytics tool, especially when the goal is to build a more diverse workplace.

How a people analytics tool performs is a product of both the data it's fed and the algorithm it uses. Here, we offer three takeaways that you should bear in mind when managing your people.

First, a model that maximizes the overall quality of the prediction — the most common approach — is likely to perform best with regard to individuals in majority demographic groups but worse with less well represented groups.

This is because the algorithms are typically maximizing overall accuracy, and therefore the performance for the majority population has more weight than the performance for the minority population in determining the algorithm's parameters. An example might be an algorithm used on a workforce comprising mostly people who are either married or single and childless; the algorithm may determine that a sudden increase in the use of personal days indicates a high likelihood of quitting, but this conclusion may not apply to single parents who need to take off from time to time because their child is ill.

Second, there is no such thing as a truly "race-blind" or "gender-blind" model. Indeed, omitting race or gender explicitly from a model can even make things worse.

Consider this example: Imagine that your AI-based people analytics tool, to which you have carefully avoided giving information on gender, develops a strong track record of predicting which employees are likely to quit shortly after being hired. You aren't sure exactly what the algorithm has latched onto — AI frequently functions like a black box to users — but you avoid hiring people that the algorithm tags as high risk and see a nice drop in the numbers of new hires who quit shortly after joining. After some years, however, you are hit with a lawsuit for discriminating against women in your hiring process. It turns out that the algorithm was disproportionately screening out women from a particular zip code that lacks a daycare facility, creating a burden for single mothers. Had you only known, you might have solved the problem by offering daycare near work, not only avoiding the lawsuit but even giving yourself a competitive advantage in recruiting women from this area.

Third, if the demographic categories like gender and race are disproportionately distributed in your organization, as is typical — for example, if most managers in the past have been male while most workers female — even carefully built models will not lead to equal outcomes across groups. That's because, in this example, a model that identifies future managers is more likely to misclassify women as unsuitable for management but misclassify men as suitable for management, even if gender is not part of the model's criteria. The reason, in a word, is that the model's selection criteria are likely to be correlated with both gender and managerial aptitude, so the model will tend to be "wrong" in different ways for women and men.

HOW TO GET IT RIGHT

For the above reasons (and others), we need to be especially aware of the limitations of AI-based models and monitor their application across demographic groups. This is especially important for HR, because, in stark contrast to general AI applications, that data that organizations use to train AI tools will very likely reflect imbalances that HR is currently working to correct. As such, firms should pay close attention to who is represented in the data when creating and monitoring AI applications. More pointedly, they should look at how the makeup of training data may be warping the AI's recommendation in one direction or another.

One tool that can be helpful in that respect is a bias dashboard that separately analyzes how a people analytics tool performs across different groups (e.g. race), allowing early detection of possible bias. This dashboard highlights, across different groups, both the statistical performance as well as the impact. As an example, for an application supporting hiring, the dashboard may summarize the accuracy and the type of mistakes the model makes, as well as the fraction from each group that got an interview and was eventually hired.

In addition to monitoring performance metrics, managers can explicitly test for bias. One way to do this is to exclude a particular demographic variable (e.g., gender) in training the AI-based tool but then explicitly include that variable in a subsequent analysis of outcomes. If gender is highly correlated with outcomes — for example, if one gender is disproportionately likely to be recommended for a raise — that is a sign that the AI tool might be implicitly incorporating gender in an undesirable way. It may be that the tool disproportionately identified women as candidates for raises because women tend to be underpaid in your organization. If so, the AI-tool is helping you solve an important problem. But it could also be that the AI tool is reinforcing an existing bias. Further investigation will be required to determine the underlying cause.

It's important to remember that no model is complete. For instance, an employee's personality likely affects their success at your firm without necessarily showing up in your HR data on that employee. HR professionals need to be alert to these possibilities and document them to the extent possible. While algorithms can help interpret past data and identify patterns, people analytics is still a human-centered field, and in many cases, especially the difficult ones, the final decisions are still going to be made by humans, as reflected in the current popular phrase "human-in-the-loop-analytics."

To be effective, these humans need to be aware of machine learning bias and the limitations of the model, monitor the models' deployment in real-time and be prepared to take necessary corrective action. A bias-aware process incorporates human judgement into each analytical step, including awareness of how AI tools can amplify biases through feedback loops. A concrete example is when hiring decisions are based on "cultural fit," and each hiring cycle brings more similar employees to the organization, which in turn makes the cultural fit even narrower, potentially working against diversity goals. In this case broadening the hiring criteria may be called for in addition to refining the AI tool.

People analytics, especially based on AI, is an incredibly powerful tool that has become indispensable in modern HR. But quantitative models are intended to assist, not replace, human judgment. To get the most out of AI and other people analytics tools, you will need to consistently monitor how the application is working in real time, what explicit and implicit criteria are being used to make decisions and train the tool, and whether outcomes are affecting different groups differently in unintended ways. By asking the right questions of the data, the model, the decisions, and the software vendors, managers can successfully harness the power of People Analytics to build the high-achieving, equitable workplaces of tomorrow./

Source: Harvard Business Review

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CONTACT US

MALAYSIA

MyFinB (M) Sdn. Bhd.

Level 13A, Menara Tokio Marine 189 Jalan Tun Razak, Hampshire Park, 50450 Kuala Lumpur, Malaysia.

Tel: +60 327 173 418

SINGAPORE

MyFinB Holdings Pte. Ltd.

One Marina Boulevard, Level 20, Singapore 018989

Tel: +65 6932 2658

UNITED STATES

Global Chamber, LLC.

4400 N Scottsdale Road, Suite 9-852, Scottsdale, AZ 85251 USA

Tel: +1 (855) 476-9845