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AI:10

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WHAT'S HOT

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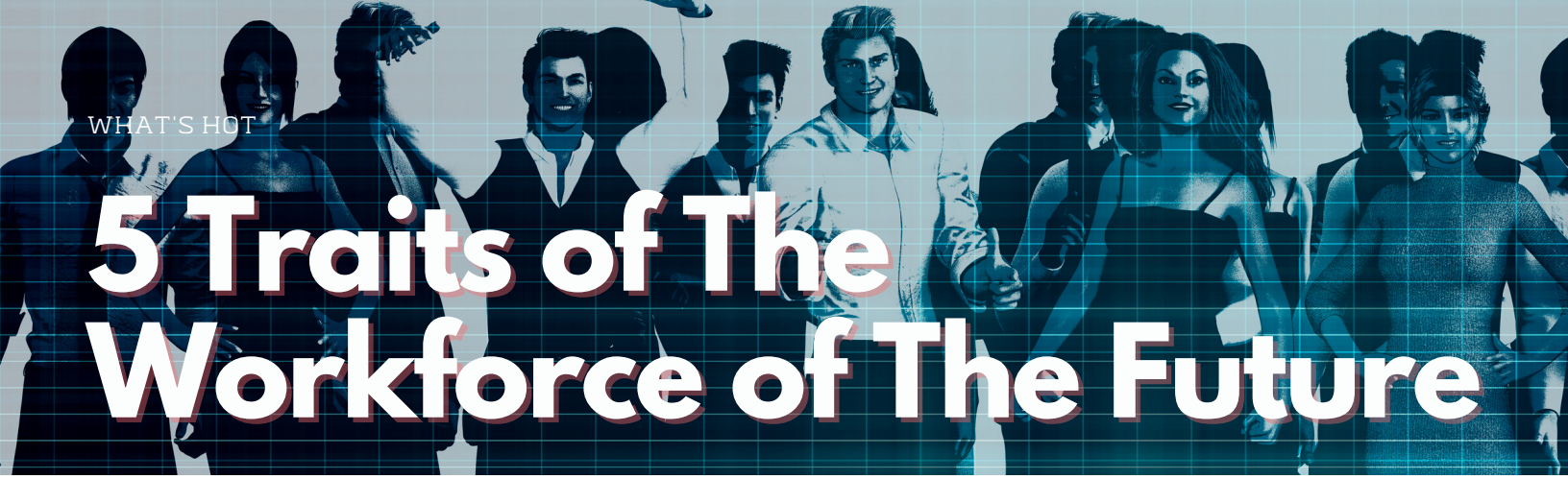
INDUSTRY FOCUS

FROM THE FIELD TO THE DINNER TABLE, AI IN AGRICULTURE CAN CREATE A RESILIENT FOOD SYSTEM



5 Traits of The Workforce of The Future

What do managers need to know as they build a future-ready workforce? MIT Sloan experts weigh in on five traits of emerging employees.

1. They're data-literate.

Data-driven companies enjoy increased revenue, improved customer service, best-in-class operating efficiencies, and improved profitability. "In a world of more data, the companies with more data-literate people are the ones that are going to win," said MIT Sloan senior lecturer Miro Kazakoff, who teaches courses on communicating and persuading with data. This requires data democratization, the idea that data should be in the hands of every employee.

At the enterprise level, data should be viewed as an organizational asset, not the property of individual departments that created or collected the data, said Michelle K. Lee, '88, SM '89, a former director of the U.S. Patent and Trademark Office who spoke at the EmTech Digital conference earlier this year. The most successful firms have data and analytics embedded inside every business unit, with some degree of centralization.

2. They're comfortable working with artificial intelligence, machine learning, and robots.

Most experts agree the future of artificial intelligence is the future of work. And robotic technology is expected to keep expanding, with the global robotics market worth $260 billion by 2030, according to one estimate.

It's no guarantee that growth will be all good. MIT economist Daron Acemoglu found that for every robot added per 1,000 workers in the U.S., wages decline by 0.42%, and the employment-to-population ratio goes down by 0.2 percentage points. If we don't focus on the right type of AI, Acemoglu said, there are "potentially disastrous consequences for income inequality and social cohesion."

While there have been concerns over AI replacing humans in factories and warehouses, savvy employers will deploy artificial intelligence where it can complement humans instead of replacing them — in areas like education, health care, and training. In manufacturing, collaborative robots, or cobots, are poised to augment human labor. With cobots, human workers can offload easier tasks to robots and focus on more ambiguous, challenging work, thereby improving productivity and worker well-being, according to MIT professor and roboticist Julie Shah.

In all cases, employers should deploy intelligent technologies with care, keeping in mind there may be friction between tech-savvy junior employees and senior staff that upsets traditional power hierarchies. One way to address this challenge is to create a peer-training program that rotates both senior and junior employees through the role of trainer, suggested MIT Sloan work and organization studies professorKate Kellogg.

3. They're empowered.

According to research by MIT Sloan professorThomas Kochan,director of the MIT Institute for Work and Employment Research, workers report experiencing a sizable "voice gap" at work — that is, a gap between how much say or influence they feel they ought to have and how much they actually have — on topics such as wages, working conditions, and fair treatment.

This won't last: Nationwide, low-wage workers are finding their voice and finding purpose, and employers ignore them at their own risk, said MIT Sloan professor of human resources and managementPaul Osterman.

"The high levels of anger we're seeing, and the political instability that flows from it, likely has to do with the size of economic inequality today. … I would argue the business community has a self-interest in worrying about these issues," Osterman said.

Kochan urges employers and employees to engage in a new social contract that delivers strong return rates for investors while supporting high-quality careers. Tenets of such a contract include:

- Careful selection of employees with strong technical and behavioral skills.
- Continuous investment in staff training and development.
- Respect for worker rights.
- Opportunities for workers to adapt to changing technologies and work requirements.
- Fair and transparent compensation systems that ensure employee incomes rise with enterprise and overall economic performance.
- A voice for workers in the critical business decisions that will shape their future.

4. They respect, expect, and understand the value of "good jobs."

Today's employees have standards: This means good pay and benefits, a stable and predictable schedule, a career path, security and safety, and a fair and equitable work environment. As such, employers need to go beyond offering job training or higher wages for low-wage jobs. It's also important for firms to improve the quality of the jobs they provide, an issue that affects roughly one-quarter of American adults, Osterman said.

If not? Underinvestment in people leads to operational and customer service problems, which lead to lower sales, which lead to shrinking budgets, said Zeynep Ton, an operations management professor at MIT Sloan. "This vicious cycle is costly for investors. It hurts customers. It is downright brutal on workers, from their wages to their schedules to their treatment and dignity. Everyone loses," she said.

MIT Sloan professor Erin Kelly and University of Minnesota sociology professor Phyllis Moen call for a dual-agenda work redesign, an action plan that links employees' well-being and experience with a company's priorities and goals. The pair studied a company that had undertaken a work redesign initiative which included options such as working from home or implementing a hybrid schedule. They found that employees who went through the work redesign had a 40% lower turnover rate during a three-year period.

5. They're committed to advances in equity and the environment.

To close the tech gap, it's essential to cultivate diversity in the workforce, according toMalia Lazu,a former Berkshire Bank executive vice president and current MIT Sloan lecturer who focuses on inclusion in the innovation economy. Actions include exposing all kids to STEM at an early age; making higher education more affordable and more equitable; hiring based on skill set rather than degree; and assessing and diversifying professional networks.

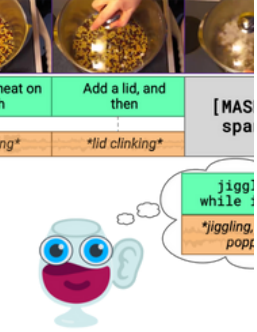
Equity extends beyond the hiring process, according to MIT Sloan management professor Emilio Castilla,who recommends that organizations approach promotions and raises through an unbiased, data-driven lens.

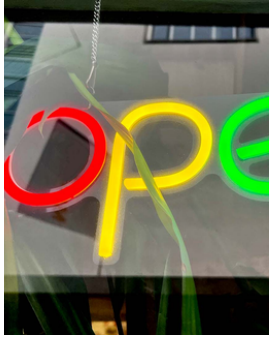
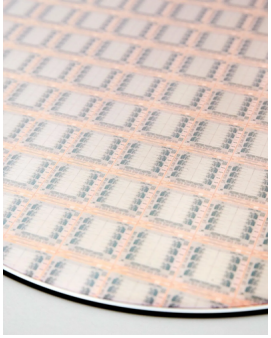
More broadly, research by assistant professor of work and organization studies Jackson Lu has found that leaders with multicultural experiences are better communicators and are particularly effective when leading multinational teams. For younger employees in particular, the idea of equity extends to governance and environmental issues equally. The Cone Communications Millennial Employee Study found that 64% of millennials won't take a job if it doesn't have a strong corporate social responsibility policy, and 83% would be more loyal to a company that helps them contribute to social and environmental issues.

In the last 15 or 20 years, a shift from reactionary to proactive environmental practices became the norm, with a company's sustainability performance now tied to its success, said Bethany Patten, lecturer and senior associate director of the Sustainability Initiative at MIT Sloan. "The tides have changed in terms of organizational design," Patten said.

In setting environmental priorities, many companies are taking an "inside-out" approach, which accommodates input from employees, among other stakeholders, said senior lecturer Jason Jay, co-director of the Sustainability Initiative. The approach requires convening those who define the culture of a company — board members, the C-suite, and employees — and discussing what the company exists for and the mark it wants to leave on the world.

Source: MIT Sloan




HEALDLINE NEWS IN A FLASH

META AI ANNOUNCES LONG-TERM STUDY ON HUMAN BRAIN AND LANGUAGE PROCESSING

The research arm of Facebook's parent company today announced a long-term study to better understand how the human brain processes language. Researchers are looking at how the brain and AI language models respond to the same spoken or written sentences. "We're trying to compare AI systems to the brain, quite literally," said Jean-Rémi King, senior research scientist at Meta AI. Spoken language, he noted, makes humans wholly unique and understanding how the brain works is still a challenge and an ongoing process. The underlying question is: "What makes humans so much more powerful or so much more efficient than these machines? We want to identify not just the similarities, but pinpoint the remaining differences."

Source: venturebeat

ON1 RESIZE AI 2022 IS OFFICIALLY LAUNCHED.

ON1 Resize AI 2022 takes a different approach to image resizing. It doesn't just attempt to upscale images while retaining sharp edges, it uses the power of AI to work out what fuzzy details should actually look like. It's not magically 'revealing' new details, it's using the existing details to predict what those areas would look like if captured at a higher resolution. To date, image resizing software has concentrated on keeping object edges sharp and not blurred by interpolation processes. Finely textured detail (or missing detail) has been a much tougher nut to crack. So far, Topaz Labs Gigapixel AI is the only other tool that we know of that has attempted to fill in missing details with the power of deep learning and artificial intelligence.

Source: digitalcameraworld

IBM'S NEW TELUM CHIP REBOOTS THE MAINFRAME

IBM recently launched its new line of mainframe computers, named IBM z16, although the event was not exactly front-page news, a few outbursts of media celebration aside. Yet the mainframe's diminishing significance in the tech landscape today does not mean it's dwindling away either. Consider IBM's touting of the z16's real-time AI processing of transactions for fraud. (IBM also dubs z16 the "industry's first quantum-safe system.") These aggressive claims could arguably put the z16 on a path to reviving the mainframe platform as a whole. And at the core of all these capabilities is its silicon. The z16's foundation, in fact, is IBM's Telum chip, which itself was launched just last summer. The architecture of this chip makes possible the AI-enabled mainframes that IBM is pushing toward today. And at the heart of Telum's allure is its novel approach to cache design.

Source: spectrum

ROBOTS NOW UNDERSTAND OBJECTS CAN BE HIDDEN BEHIND OTHER OBJECTS

Researchers from Cornell University have announced a state-of-the-art breakthrough in visual machine learning that allows robots to understand objects that are obscured by other objects. Until now, robots have been able to understand the world around them based on visual information but aren't able to perceive a great deal when it comes to understanding context. The researchers state that although previous works achieved encouraging results, they were limited to segmenting the only visible regions of unseen objects. "For robotic manipulation in a cluttered scene, amodal perception is required to handle the occluded objects behind others," the researchers say. The team proposed a what they call a Hierarchical Occlusion Modeling (HOM) scheme that they say is designed to reason about the hidden objects by "assigning a hierarchy to a feature fusion and prediction order."

Source: petapixel

FAST AND EFFICIENT PLASTIC-DEGRADING ENZYME DEVELOPED USING AI

Plastic waste build-up in the environment is an enormous ecological challenge. Enzymes that break down PET, PET hydrolases, have been previously developed but suffer from practical limitations with slow reaction rates and specific pH and temperature ranges. Now, researchers have used a structure-based, machine learning algorithm to engineer a robust and active PET hydrolase. The enzyme, FAST-PETase (functional, active, stable, and tolerant PETase), can break down environment-throttling plastics that typically take centuries to degrade in just a matter of hours and days. This discovery could help solve one of the world's most pressing environmental problems: what to do with the billions of tons of plastic waste piling up in landfills and polluting our natural lands and water.

Source: genengnews

SINGAPOREAN WINS $100K PRIZE IN CHALLENGE TO BUILD AI MODELS THAT DETECT DEEPFAKES

A one-man team comprising Singaporean research scientist Wang Weimin beat 469 other teams from around the world in a five-month-long challenge to develop the best artificial intelligence (AI) model for detecting deepfakes, or digitally altered video clips. Mr Wang's model was 98.53 per cent accurate at telling apart genuine clips from those that featured digitally manipulated faces, voices or both. On Friday (April 29), the National University of Singapore graduate was awarded first place and a cash prize of $100,000 in the Trusted Media Challenge organised by AI Singapore, a national AI programme office under the National Research Foundation.

Source: straitstimes

FROM THE FIELD TO THE DINNER TABLE, AI IN AGRICULTURE CAN CREATE A RESILIENT FOOD SYSTEM

The Fourth Industrial Revolution has inundated every industry with new technologies — and agriculture is no exception. Growers have always been tech savvy, but autonomous tractors, robots tending to crops, and drones precisely dispersing inputs are a big leap forward from 20th-century farms. While these innovations create public excitement about tech's potential on the farm, they only scratch the surface of how technology can help to tackle pressing challenges, like climate change and food supply constraints.

With AgriTech investments at an all-time high, startups and major players alike must thoughtfully apply innovations like AI across the entire agricultural value chain. These emerging applications could shape the future of agriculture.

Beneath the soil

AI can improve the earliest phase of the agricultural lifecycle: creating better crop inputs before seeds are in the ground.

For example, gene editing technology CRISPR — another innovation developed in a different industry — could help to design more resilient, high-yield seeds. Companies are applying AI to improve its speed and efficacy. Because many crops are so genetically complex — corn has 32,000 genes compared to 20,000 in humans — AI is invaluable in helping researchers understand the effects of editing multiple genes.

Companies like Inari and Cibus are using these technologies to bump up crop yields while requiring less water and other inputs. Increasing yields of staple crops like corn, soy and wheat is critical as the global population grows and natural disasters like droughts, exacerbated by climate change, make farming more difficult.

Drought not only threatens crops directly, but also creates a welcoming environment for weeds like Palmer Amaranth — known as "the king of weeds." To tackle this, researchers are using AI to unearth crop protection that is safer and more effective than what's available on the market today. For example, Enko is combining DNA-encoded libraries and machine learning models to make our experiments smarter and identify new solutions faster to combat pest resistance.

These innovations could help to stabilize the global food supply when geopolitical events disrupt trade. We're seeing this play out now: Russia and Ukraine provide more than a quarter of the global wheat supply, and the war in Ukraine is pushing up the cost of wheat and other crops. Tailored, resilient seeds and crop protection for the evolving growing needs of each region can create a more stable web of staple crops.

In the field

As climate change effects worsen, growers need detailed real-time data to determine exactly how and when to treat their crops. Over time, the goal is for AI models that capture this data to learn from it and become continuously smarter.

AI-driven field mapping technologies predict potential yields of different crops throughout the growing season, continuously incorporating new information like weather trends and pest pressure. Yield maps can also help growers assess land values for purchase or lease, or give them solid information to make decisions about growing a different crop.

Sensors are another valuable on-the-ground tool. They gather data pinpointing threats to a crop, like dehydration or disease, in a specific area – allowing a grower to apply crop protection, water or nutrients only in that area. Depending on farmers' unique circumstances and needs, they can select other technologies to pair sensors with.

Connecting sensors with virtual reality, like CropX has done, can create crops' "digital twins." Growers can use these to access their fields from anywhere and make informed decisions based on rich, real-time data. And using sensor data to inform precision spraying of safe, effective crop protection can produce higher yields of healthier crops.

These kinds of tools are becoming more crucial for growers like those in the western U.S., which is facing its worst drought in 1,200 years. Luckily, the declining cost of sensors means more farmers can access them and learn from the data they gather.

On the table

During the COVID-19 pandemic, consumers have become more aware of food supply chain complexities. The agriculture industry can use that as an opportunity to apply new technologies to tackle those complexities and communicate more transparently about how food is grown and reaches the dining table.

For instance, consumer demand for plant-based meat alternatives has taken off during the pandemic – fueled in part by COVID-19's disruption to meat supply chains. Companies are getting creative about how to meet this new demand, with some using AI to find new flavour combinations that imitate meat.

AI can also give suppliers and consumers the information they need to make more thoughtful decisions about food. Food waste startups, some of which use AI to gauge consumer demand for specific items with the goal of leaving less leftovers on grocery shelves, have recently received a fresh injection of capital. And AI can be paired with cutting-edge technologies like blockchain to track information that consumers care about through the value chain, like where food was grown and how far it traveled to reach them.

The future of agriculture

The agriculture industry and farmers have long applied technology from other industries to improve farming practices and provide safe, healthy and affordable food to a growing global population. Despite of the global population doubling over the last 50 years and a finite supply of agricultural land, the proportion of people without access to sufficient healthy food has dropped in that same period.

But the challenge is not over: millions of people still lack food access, the threats that climate change pose to farming are intensifying, and two billion more people will be on the planet by 2050. This is a critical moment for the agriculture industry to draw on emerging technologies to solve real-world problems — namely building a durable, resilient global food supply.

SOURCE: WEFORUM

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