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AI:10

GET INSIGHTS ON AI UNDER 10 MINUTES

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WHAT'S HOT

DREAMING UP NEW PROTEINS, AI CHURNS OUT POSSIBLE MEDICINES AND VACCINES

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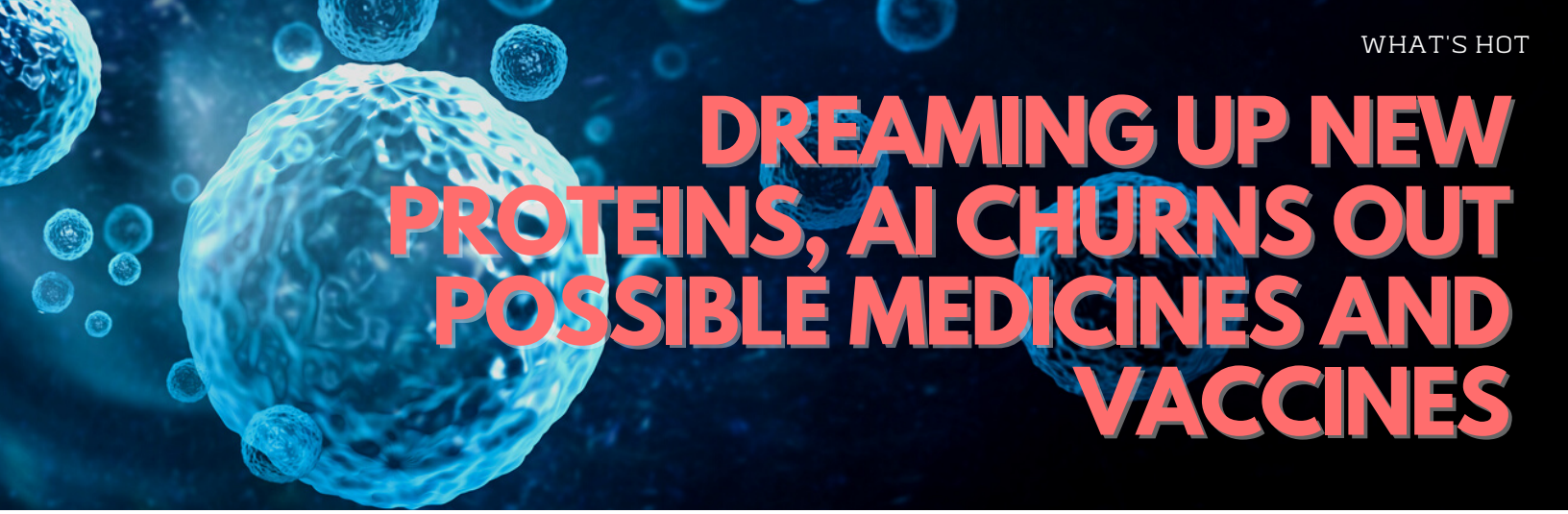
INDUSTRY FOCUS

3 WAYS ARTIFICIAL INTELLIGENCE CAN HELP UNITE REMOTE TEAMS



DREAMING UP NEW PROTEINS, AI CHURNS OUT POSSIBLE MEDICINES AND VACCINES

Instead of predicting the shapes of naturally occurring molecules, software designs original ones

Computational biologist Jue Wang was already striving to develop an artificial intelligence (AI) to churn out candidate medicines when he had to rush his 2-year-old son to the hospital with a potentially lethal respiratory infection. After seeing his son quickly recover from respiratory syncytial virus (RSV), Wang, a postdoctoral assistant at the University of Washington (UW), Seattle, and his colleagues redoubled their efforts and yesterday they unveiled in Science a new AI software that can "paint" or "hallucinate" structures for proteins that don't yet exist in nature. The software has already created original compounds for potential use in industrial reactions, cancer treatment, and even a vaccine candidate aimed at preventing RSV infections.

"It's the perfect use of AI," says Yang Zhang, a protein designer at the University of Michigan, Ann Arbor, who was not involved with the work. Though researchers have used computers and other means to design novel proteins for decades, AI approaches such as this are likely to increase the successes, Zhang says.

The AI developed by Wang and his colleagues builds on a string of recent advances in using computers to predict the 3D structure of natural proteins from their basic sequence of amino acids. Last year, an AI program called AlphaFold developed by DeepMind, a sister company of Google, whipped out predicted structures for hundreds of thousands of human proteins. AlphaFold and a similar AI software package called RoseTTAFold also offered thousands of likely structures of various proteins, each bound to a partner that it pairs with inside cells. Last year, such feats earned protein structure prediction software Science's 2021 Breakthrough of the Year.

It's one thing to predict how natural proteins might fold; it's another to design new ones from scratch. In 2017, for example, researchers led by Wang's boss, David Baker, a protein designer at UW, showed they could use an earlier AI-free protein structure prediction software program they had developed, called simply Rosetta, to design potential protein-based drugs that bind to and inactivate molecular targets on the influenza virus and a bacterial toxin. The team members started by feeding the software an already known piece of what they wanted—a small bit of protein structure, called the binding motif, that is able to bind to their target. They then had Rosetta scan a database of protein structures they had previously designed and find an existing scaffold that could possibly hold the active site in the correct shape. The software then put the two pieces together and tweaked the combination to make needed refinements.

The problem is the approach only worked when Rosetta identified an adequate scaffold. "You had to hope there was a good match," Baker says. Not anymore. Wang, Baker, and colleagues have now adapted their AI-driven RoseTTAfold to dream up its own proteins from scratch using two different strategies. The first, called inpainting, starts like the previous effort, giving the AI a starting point, such as an active site or another key feature of a desired protein. Much as a word processor's autocomplete function tries to complete a word after you've typed a few characters, the AI then draws on its understanding of how proteins fold to fill in additional parts of the protein around the central feature.

The second approach, known as constrained hallucination, is more wide open. It gives the software a goal for a protein, such as binding to a metal. The program then generates a virtual protein composed of a random sequence of amino acids, and mutates the sequence over and over, evaluating the impact of each change on the protein's likely shape and, thus, function. The AI keeps pieces it deems effective and mutates the rest, steadily evolving toward the goal.

In both cases, the final predicted proteins can then be made in the lab and tested. And both strategies worked. Baker and his colleagues made novel proteins able to bind to receptors on cancer cells, grab metals in solution, and bind carbon dioxide for possible use in pulling it out of the atmosphere. Finally, to identify potential RSV vaccines, the team's AI hallucinated 37 proteins aiming to present a key bit of the virus, called F protein site V to the immune system. Three of the 37 were found to bind to a known RSV neutralizing antibody, indicating their likely effectiveness.

The results aren't always perfect. In several cases the activity of the new proteins, such as those designed to bind metals, didn't initially match natural versions, notes Joe Watson, a postdoc in Baker's lab. But by dreaming up different proteins, the software comes up with structures that have not been seen so far in nature. Researchers can then use those as starting points for other proven techniques for evolving improved proteins in the lab, Watson says. "This gives us a lot of new starting points."

Source: Science.org






HEALDLINE NEWS IN A FLASH

RESEARCHERS AT STANFORD HAVE DEVELOPED AN ARTIFICIAL INTELLIGENCE (AI) MODEL,' STOCKBOT', WHICH USES LSTMS TO PREDICT STOCK PRICES WITH GAINS HIGHER THAN THE MOST AGGRESSIVE ETFS

StockBot, a new approach proposed by researchers from Stanford University, was introduced to help investors make a daily decision: sell or buy. It is a generalizable price predicting model based on stacked LSTM aiming to predict stock prices for new stocks that do not have sufficient historical data. Generally, LSTM-based prediction models are trained on the price of a single stock and can perform only the inference using the parameters learned on the same stock. Therefore, the authors proposed to train the network specifically to an industry type such as "energy" or "finance." Concretely, past and future prices from multiple tickers in the same industry are combined to create a mixed training and/or test set. In this way, the model can operate in two modes.

Source: Marktechpost

THE FUTURE OF CREATIVITY, BROUGHT TO YOU BY ARTIFICIAL INTELLIGENCE

The world has been wowed by the newest displays of text-to-image technology by DALL-E 2 from OpenAI and Imagen from Google. Beautiful, amazingly creative compilations all generated by artificial intelligence (AI) systems. Imagine that with this AI technology, users no longer have to scroll through tons of image results to find the best content for their needs. In contrast with image search, people create something totally new, something that has never existed, something that perfectly suits their desires, whims or content direction. All they have to do is type in what they want, and the AI will draw images and construct photos as described in the given text. If AI can draw images or design, human designers' roles could evolve. Having brilliant and inspiring ideas would become more important, and the ability to discriminate the best output from the worst will be crucial as drawing skills might be replaced by AI.

Source: VentureBeat

MAKING ALGEBRA AS EASY AS 1, 2, 3: WPI RESEARCHER USING AI TO AID MIDDLE SCHOOL TEACHERS

Worcester Polytechnic Institute researcher Erin Ottmar hopes that when she is finished with her project, middle school teachers may be able to better understand how their students think of math and solve math problems. After receiving a $700,000 grant from the National Science Foundation, Ottmar will spend the next five years designing and developing real-time artificial intelligence tools that will allow teachers to better help their students in algebra by using data collected from digital math programs. "My research generally is really focused on perceptual learning and understanding how students solve strategies," Ottmar said.

Source: Telegram.com

HUMAN-LIKE FEATURES IN ROBOT BEHAVIOR: RESPONSE TIME VARIABILITY CAN BE PERCEIVED AS HUMAN-LIKE

Humans behave and act in a way that other humans can recognize as human-like. If humanness has specific features, is it possible to replicate these features on a machine like a robot? Researchers at IIT-Istituto Italiano di Tecnologia (Italian Institute of Technology) tried to answer that question by implementing a non-verbal Turing test in a human-robot interaction task. They involved human participants and the humanoid robot iCub in a joint action experiment. What they found is that specific features of human behavior, namely response timing, can be translated into the robot in a way that humans cannot distinguish whether they are interacting with a person or a machine.The study has been published in Science Robotics journal.

Source: Biopharmadive

THE ROLE OF ARTIFICIAL INTELLIGENCE IN INFLUENCER MARKETING

Nowadays, influencer marketing has entered the entire advertising industry. Every day more brands and businesses are making investments in influencer marketing efforts. One of the biggest hurdles for marketers is finding the right influencers. A company should be able to evaluate data and facts to determine whether or not a campaign will be effective. Therefore, artificial intelligence (AI), machine learning (ML), and natural language processing (NLP) come into play and transform how brands use influencer marketing. AI can help influencer marketing in the following ways: 1) Look for the appropriate influencers, 2) Offer logical and helpful processes, 3) Find pertinent information and trends. AI in influencer marketing can also anticipate and calculate campaign ROI, identify fraudulent influencers and phony engagement, and even select the ideal content for each influencer campaign.

Source: Analytics Insights

A DIGITAL HUMAN COULD BE YOUR NEXT FAVORITE CELEBRITY—OR FINANCIAL ADVISOR

Deloitte defines digital humans as AI-powered virtual beings that can produce a whole range of human body language. In recent years, businesses focused on providing round-the-clock services, as well as the media and entertainment industry, are increasingly adopting this nascent technology, aiming to capture a growing market. And as digital humans increasingly populate other sectors like retail, health care, and finance, Emergen Research forecasts that the global market for digital humans will jump to about $530 billion in 2030, from $10 billion in 2020 "Rising demand is driving the boom of digital humans," says Shiyan Li, head of the digital human and robotics business at Baidu, which created the digital model-actor, Gong. "In China alone, there are over 400 million ACGN (animation, comics, games, and novel) fans, and an enterprise market worth hundreds of billions of dollars centered on digital humans."

Source: Technology Review

3 WAYS ARTIFICIAL INTELLIGENCE CAN HELP UNITE REMOTE TEAMS

Artificial intelligence (AI) tools are taking off across all industries. Here are three examples of how it can benefit the hybrid workforce

In the last decade, artificial intelligence has matured from a novel, fast-emerging technology to one embraced by every industry around the globe. And in the last few years, workplaces have increasingly become remote or hybrid, accelerating the amount of data being created, consumed, and scrutinized daily.

But remote work has made quick in-person communication more challenging, causing many traditional organizational practices to fumble. Workers increasingly rely on a growing amount of data accessed, processed, and organized across networks.

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These trends have prompted companies to rely on technologies like AI to bring workers together and help managers lead them more effectively.

As the CEO and co-founder of Katana Graph – and having spent decades in academia before that – I've seen how AI has flourished, thanks largely to the vast amounts of data being accumulated worldwide. Most of this data is unstructured, providing a clear need – and opportunity – to better understand the relationships between the entities in these data troves and to analyze them quickly for tangible and actionable insights. Here are three examples of how organizations can reap the benefits of AI technology.

1. Making remote work more seamless

In a survey of 1,000 employees a few years ago, 49 percent had difficulty finding documents. Further, IDC found that employees spend five hours a week searching for documents on average. Unfortunately, with the increase in remote and hybrid workplaces, some argue the problem has worsened. How can AI help? AI can analyze workflows and collaboration tools to provide more streamlined and efficient processes. A recent piece on modernizing work through digital collaboration discussed remote employees' desire for improved connectivity with their colleagues. Here are just a few ways companies can use AI to improve workflow and collaboration:

- Enterprise-grade digital assistants with conversational AI help make meetings a zero-touch experience
- Distributed collaboration for colleagues with greater contextual insight than in-person meetings, such as surfacing background material online without performing searches.
- Embedded cross-product AI functionality to identify details of the last conversation in a meeting. Alternatively, AI can transcribe meetings and distribute a voice-searchable version to those not in attendance.

2. Funneling data to improve workplace training

Strong leaders and remote workers realize the importance of skills and training in today's competitive job market. Training is one of the best ways to manage remote workforces. In my experience, AI can help significantly in this area, particularly when leaders harness the power of machine learning. Some organizations are already incorporating the power of

Source: Cointelegraph

AI into skills training and other employee development initiatives. For example, they're using no-code software platforms to contextually guide new employees on how to use systems, minimizing the need for workshop-styling training. The shift to remote and hybrid work has increased the use of tools that help employees complete training more independently, with fewer meetings or workshops.

To be effective, AI must use information that will produce the best results. Human-in-the-loop systems are a critical part of any competitive advantage and are necessary for any socially responsible artificial intelligence/machine learning system. Human ingenuity must be deeply embedded into intelligent systems.

3. Ensuring quality service

A third area to harness the power of AI is with your customers. AI can help unite your workers toward a common goal: to uphold customer satisfaction through quality business performance and improved customer insights. Ultimately, this is a key element of how AI can support business growth.

Is AI becoming the new customer service agent? It is certainly helping organizations of all sizes improve customer satisfaction. Companies can use AI to provide employees with insights from customer service data that enable them to improve their processes.

AI's data analysis is also useful in the financial sector, where it helps safeguard customers' assets and improve customer service. By monitoring a checkpoint system that verifies transactions, AI can flag fraud in real-time, protecting customers' funds and boosting satisfaction. Furthermore, the transaction data can help institutions better understand their customers.

AI can help organizations unite workers around common goals and improve operational efficiencies. By focusing on key areas for remote workers, AI systems can analyze huge amounts of data and provide actionable insights that help employees succeed – no matter where they physically work.

Source: Venture Beat

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MyFinB is an award-winning tech company that specializes in artificial intelligence. The company developed its own natural language platform with predictive and prescriptive narrative capabilities - a niche area that differentiates itself from any others.

MyFinB helps people understand and communicate what is most important in their data. By transforming data into insightful, human-like language, the company's natural language technology enables people to be data-driven and make better decisions, focus talent on higher-value opportunities, and create differentiated products.

The Centre for AI Innovation (CEAI) forms part of MyFinB Venture's portfolio of innovative, disruptive projects to guide and support the digital transformation initiatives by organisations and business innovators.

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