AI:10

GET INSIGHTS ON AI UNDER 10 MINUTES

WHAT'S HOT

THE 8 BEST PROGRAMMING LANGUAGES FOR AI DEVELOPMENT

HEADLINE NEWS IN A FLASH

- Human learning can be duplicated in solid matter.
- Artificial intelligence may be set to reveal climate-change tipping points.
- Google AI Introduces Pathdreamer: A World Model For Indoor Navigation.
- This Computer Predicted The World Will End In 2040. Here's Why.
- UK's AI strategy is 'ambitious' but needs funding to match, says Faculty's Marc Warner.
- A team of computer scientists and musicologists have finally completed Beethoven's unfinished 10th Symphony.

SECTOR FOCUS

HOW TECH IS TRANSFORMING THE INSURANCE INDUSTRY

THE 8 BEST PROGRAMMING LANGUAGES FOR AI DEVELOPMENT

1. PYTHON

It's Python's user-friendliness more than anything else that makes it the most popular choice among AI developers. That said, it's also a high-performing and widely used programming language, capable of complicated processes for all kinds of tasks and platforms. Another advantage to consider is the boundless support from libraries and forums alike. If you can create desktop apps in Python with the Tkinter GUI library, imagine what you can build with the help of machine learning libraries like NumPy and SciPy.

2. JAVA

Here's another programming language winning over AI programmers with its flexibility, ease of use, and ample support. Java isn't as fast as other coding tools, but it's powerful and works well with AI applications. One key feature is its compatibility across platforms, so you don't have to rewrite code every time you use a different system. Java also produces good visuals. You don't need to worry so much about the quality of your AI graphics.

3. JAVASCRIPT

The pros and cons are similar to Java's, except that JavaScript is used more for dynamic and secure websites. Programmers who don't mind coding will choose it over Python. Its AI capabilities mainly involve interactivity that works smoothly with other source codes, like CSS and HTML. It can manage front and backend functions, from buttons and multimedia to data storage. JavaScript is also blessed with loads of support from programmers and whole communities. Check out libraries like React.js, jQuery, and Underscore.js for ideas.

4. SCALA

Scala took the Java Virtual Machine (JVM) environment and developed a better solution for programming intelligent software. It's compatible with Java and JavaScript, while making the coding process easier, faster, and more productive. Thanks to Scala's powerful features, like high-performing functions, flexible interfaces, pattern matching, and browser tools, its efforts to impress programmers are paying off. It's now one of the best languages to use for AI development. Another perk to keep in mind is the Scaladex, an index containing any available Scala libraries and their resources.

5. LISP

Developed in the 1960s, Lisp is the oldest programming language for AI development. It's very smart and adaptable, especially good for solving problems, writing code that modifies itself, creating dynamic objects, and rapid prototyping. There are downsides, though. Lisp's syntax is unusual compared to modern computer languages, making it harder to interpret. Relevant libraries are also limited, not to mention programmers to advise you. Despite its flaws, Lisp is still in use and worth looking into for what it can offer your AI projects. Grammarly, DART, and Routinic are some of its success stories.

6. R

If you're working with AI that involves analyzing and representing data, R is your go-to programming language. It's an open-source tool that can process data, automatically apply it however you want, report patterns and changes, help with predictions, and more. Apart from mainly serving statistical functions, R is a tricky language to learn and should be paired with other reliable tools to produce well-rounded software and a productive workflow for your business. But, what R lacks in range it makes up for with high compatibility and great style when creating visuals like graphs and charts, no matter how detailed.

7. PROLOG

For a more logical way of programming your AI system, take a look at Prolog. Software using it follow a basic set of facts, rules, goals, and queries instead of sequences of coded instructions. Prolog can understand and match patterns, find and structure data logically, and automatically backtrack a process to find a better path. All-in-all, the best way to use this language in AI is for problem-solving, where Prolog searches for a solution—or several. Hence its use in chatbots and virtual assistants like IBM's Watson. Think of how simple but helpful these forms of smart communication are. Prolog might not be as versatile or easy to use as Python or Java, but it can provide an invaluable service.

8. JULIA

Julia is another high-end product that just hasn't achieved the status or community support it deserves. Even so, its features don't disappoint. This programming language is useful for general tasks but works best with numbers and data analysis. It offers several tools for creating a dynamic interface and impressive graphics to visualize your data, for example. There's also memory management, metaprogramming, and debugging for efficiency. In terms of AI capabilities, Julia is great for any machine learning project. Whether you want premade models, help with algorithms, or to play with probabilistic programming, a range of packages await, including MLJ.jl, Flux.jl, Turing.jl, and Metalhead.

Source: Make Use Of
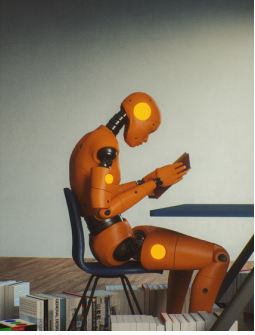
HEADLINE NEWS IN A FLASH

HUMAN LEARNING CAN BE DUPLICATED IN SOLID MATTER

Rutgers researchers and their collaborators have found that learning -- a universal feature of intelligence in living beings -- can be mimicked in synthetic matter, a discovery that in turn could inspire new algorithms for artificial intelligence (AI). Researchers from Rutgers, Purdue and other institutions studied how the electrical conductivity of nickel oxide, a special type of insulating material, responded when its environment was changed repeatedly over various time intervals. "The growing field of AI requires hardware that can host adaptive memory properties beyond what is used in today's computers," he added. "We find that nickel oxide insulators, which historically have been restricted to academic pursuits, might be interesting candidates to be tested in future for brain-inspired computers and robotics."

Source: Science Daily

ARTIFICIAL INTELLIGENCE MAY BE SET TO REVEAL CLIMATE-CHANGE TIPPING POINTS

Researchers are developing artificial intelligence that could assess climate change tipping points. The deep learning algorithm could act as an early warning system against runaway climate change. Chris Bauch, a professor of applied mathematics at the University of Waterloo said "We found that the new algorithm was able to not only predict the tipping points more accurately than existing approaches but also provide information about what type of state lies beyond the tipping point. Some tipping points that are often associated with run-away climate change include melting Arctic permafrost, which could release mass amounts of methane and spur further rapid heating; breakdown of oceanic current systems, which could lead to almost immediate changes in weather patterns; or ice sheet disintegration, which could lead to rapid sea-level change.

Source: Science Daily

GOOGLE AI INTRODUCES PATHDREAMER: A WORLD MODEL FOR INDOOR NAVIGATION

Google AI recently introduced a new world model called Pathdreamer that generates high-resolution 360o visual observations of sections of a building (unseen by an agent) using only a few seed observations and a suggested navigation trajectory. It can create an immersive scene from a single point of view, forecasting what an agent would see if it travelled to a different point of view or even to a previously unseen area, such as around a corner. This solution also can help autonomous agents navigate the actual world by codifying knowledge about human settings.

Source: Marktechpost

THIS COMPUTER PREDICTED THE WORLD WILL END IN 2040. HERE'S WHY

The 45-year-old computer simulation World3 Model from MIT researchers found that humanity falls prey to global population and economic collapse around 2040 no matter how scientists finagled with the simulation's data and parameters, showing that we cannot sustain our current growth for too long. The research led to the creation of the best-selling book "Limits to Growth," which was criticized by economists but may prove that the World3 simulations hold value. According to Medium, the simulations from the 1970s predicted that the first signs of civilization's collapse would start appearing in 2020. Pollution would become severe enough to be lethal, whittling down the global population to levels before the 20th century until civilized life vanishes by the 2040s.

Source: grunge.com

UK'S AI STRATEGY IS 'AMBITIOUS' BUT NEEDS FUNDING TO MATCH, SAYS FACULTY'S MARC WARNER
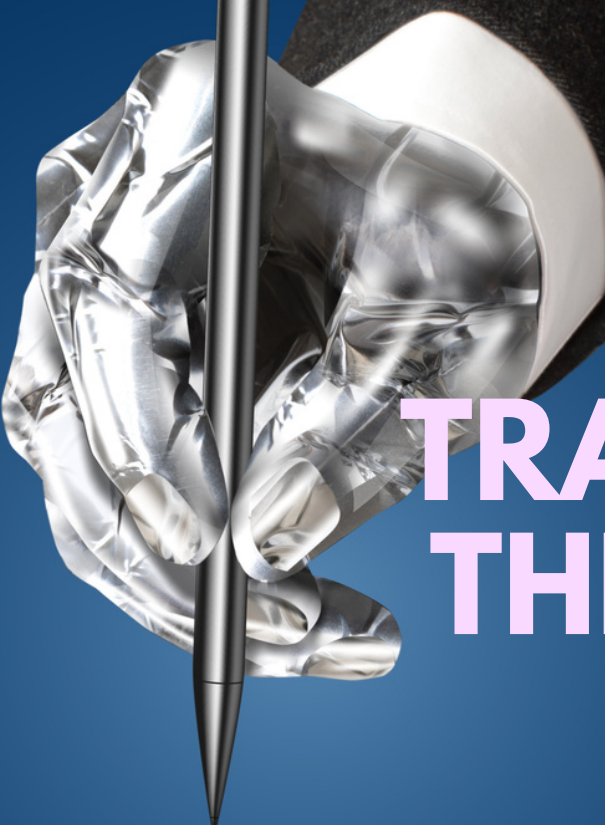
The U.K. published its first-ever national AI strategy this week. The decade-long commitment by the government to levelling up domestic artificial intelligence capabilities — by directing resource and attention toward skills, talent, compute power and data access — has been broadly welcomed by the country's tech ecosystem, as you'd expect. But there is a question mark over how serious government is about turning the U.K. into a "global AI superpower" given the lack of a funding announcement to accompany the publication. Marc Warner, CEO of U.K. AI startup Faculty, said government needs to show it's serious about providing long-term support to develop the U.K.'s capabilities and global competitiveness with an appropriate level of funding — while welcoming the "genuine ambition" he believes the government is showing to support AI.

Source: Techcrunch

A TEAM OF COMPUTER SCIENTISTS AND MUSICOLOGISTS HAVE FINALLY COMPLETED BEETHOVEN'S UNFINISHED 10TH SYMPHONY

Due to deteriorating health, all Beethoven left behind for his final symphony were some musical sketches. A group of scientists at the creative AI startup Playform AI taught a machine both Beethoven's entire body of work and his creative process. Over the ensuing 18 months, they constructed and orchestrated two entire movements of more than 20 minutes apiece. A full recording of Beethoven's 10th Symphony is set to be released on Oct. 9, 2021, the same day as the world premiere performance scheduled to take place in Bonn, Germany – the culmination of a two-year-plus effort./

Source: Bigthink.com

HOW TECH IS TRANSFORMING THE INSURANCE INDUSTRY

With the new wave of deep learning techniques, such as convolutional neural networks, artificial intelligence (AI) has the potential to live up to its promise of mimicking the perception, reasoning, learning, and problem solving of the human mind. In this evolution, insurance will shift from its current state of "detect and repair" to "predict and prevent," transforming every aspect of the industry in the process. The pace of change will also accelerate as brokers, consumers, financial intermediaries, insurers, and suppliers become more adept at using advanced technologies to enhance decision making and productivity, lower costs, and optimize the customer experience.

POLICY CHANGE

This is not your grandparents' insurance industry. Today, insurance is on the verge of a seismic, tech-driven shift as AI and its related technologies lay claim (pun intended) to everything from distribution to underwriting. Advanced technologies and data are already affecting policies—in close to real time—as they are priced, purchased, and bound.

ADJUSTMENTS ON THE FLY

In McKinsey's Insurance 2030 report, the authors imagined a customer in that not-too-distant year whose drive to a meeting across town starts with a digital personal assistant mapping a potential route and sharing it with his mobility insurer. The insurer comes back with another route that has a much lower likelihood of accidents, along with a calculated adjustment to his monthly premium. This digital assistant also alerts him to changes to his life insurance policy, which is now priced on a "pay as you live" basis.

> " In this evolution, insurance will shift from its current state of "detect and repair" to "predict and prevent," transforming every aspect of the industry in the process.

'PREDICT AND PREVENT.'

Such integrated user stories may sound far-fetched, but they will emerge across all lines of insurance with increasing frequency over the next decade. In fact, all the technologies required already exist, and many are available to consumers. In this evolution, insurance will shift from its current state of "detect and repair" to "predict and prevent," transforming every aspect of the industry in the process. The pace of change will accelerate as brokers, consumers, financial intermediaries, insurers, and suppliers become more adept at using advanced technologies to enhance decision making and productivity, lower costs, and optimize the customer experience.

SHIFTING TECH

As AI becomes more deeply integrated in the industry, carriers must position themselves to respond to the changing business landscape. Insurance executives must understand the factors that will contribute to this change and how AI will reshape claims, distribution, and underwriting and pricing. With this understanding, they can start to build the skills and talent, embrace the emerging technologies, and create the culture needed to be successful players in the insurance industry of the future

FOUR AI-RELATED TRENDS SHAPING INSURANCE
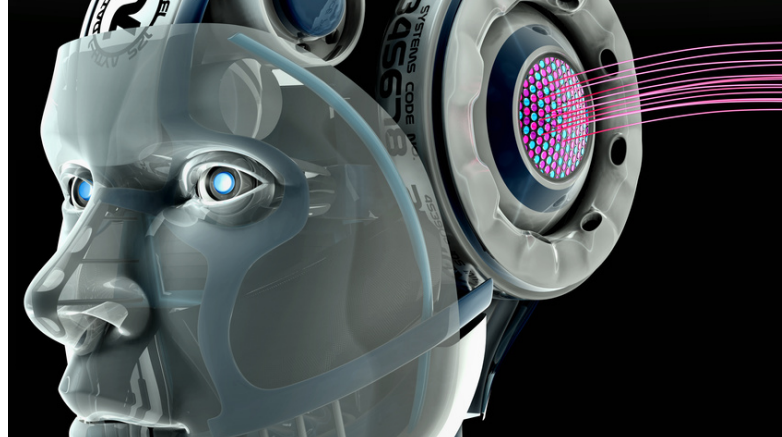
EXPLOSION OF DATA FROM CONNECTED DEVICES

In industrial settings, equipment with sensors have been omnipresent for some time, but the coming years will see a huge increase in the number of connected consumer devices. The penetration of existing devices (such as cars, fitness trackers, home assistants, smartphones, and smart watches) will continue to increase rapidly, joined by new, growing categories such as clothing, eyewear, home appliances, medical devices, and shoes. Experts estimate there will be up to one trillion connected devices by 2025. The resulting avalanche of new data created by these devices will allow carriers to understand their clients more deeply, resulting in new product categories, more personalized pricing, and increasingly real-time service delivery.

INCREASED PREVALENCE OF PHYSICAL ROBOTICS

The field of robotics has seen many exciting achievements recently, and this innovation will continue to change how humans interact with the world around them. Additive manufacturing, also known as 3-D printing, will radically reshape manufacturing and the commercial insurance products of the future. By 2025, 3-D-printed buildings will be common, and carriers will need to assess how this development changes risk assessments. In addition, programmable, autonomous drones; autonomous farming equipment; and enhanced surgical robots will all be commercially viable in the next decade. By 2030, a much larger proportion of standard vehicles will have autonomous features, such as self-driving capabilities. Carriers will need to understand how the increasing presence of robotics in everyday life and across industries will shift risk pools, change customer expectations, and enable new products and channels.

OPEN-SOURCE AND DATA ECOSYSTEMS

As data becomes ubiquitous, open-source protocols will emerge to ensure data can be shared and used across industries. Various public and private entities will come together to create ecosystems in order to share data for multiple use cases under a common regulatory and cybersecurity framework. For example, wearable data could be ported directly to insurance carriers, and connected-home and auto data could be made available through Amazon, Apple, Google, and a variety of consumer device manufacturers.

ADVANCES IN COGNITIVE TECHNOLOGIES

Convolutional neural networks and other deep learning technologies currently used primarily for image, voice, and unstructured text processing will evolve to be applied in a wide variety of applications. These cognitive technologies, which are loosely based on the human brain's ability to learn through decomposition and inference, will become the standard approach for processing the incredibly large and complex data streams that will be generated by "active" insurance products tied to an individual's behavior and activities. With the increased commercialization of these types of technologies, carriers will have access to models that are constantly learning and adapting to the world around them—enabling new product categories and engagement techniques while responding to shifts in underlying risks or behaviors in real time./

Rapid advances in technologies in the next decade will lead to disruptive changes in the insurance industry. The winners in AI-based insurance will be carriers that use new technologies to create innovative products, harness cognitive learning insights from new data sources, streamline processes and lower costs, and exceed customer expectations for individualization and dynamic adaptation. Most important, carriers that adopt a mindset focused on creating opportunities from disruptive technologies—instead of viewing them as a threat to their current business—will thrive in the insurance industry in 2030./

> **The winners in AI-based insurance will be carriers that use new technologies to create innovative products, harness cognitive learning insights from new data sources, streamline processes and lower costs, and exceed customer expectations for individualization and dynamic adaptation.**

Source: McKinsey

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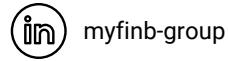
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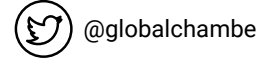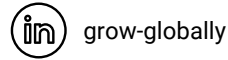
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