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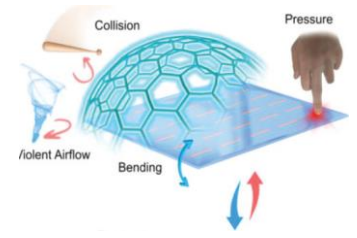
Dear Readers,

Welcome to **NewsEffect** –
February 2024

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Electronic skin



- [Revolutionizing Prosthetics and Robotics: The Promise of 3D-Printed Electronic Skin](#) A groundbreaking development in the field of prosthetics and robotics has been made by researchers at Texas A&M University. They have successfully developed a 3D-printed electronic skin (E-skin) that is designed to replicate the flexibility, sensitivity, and even the stretchability of human skin. This innovative technology presents promising possibilities for healthcare, wearable technology, and human-machine interfaces, among many other potential applications. This development signifies a substantial advancement in the creation of artificial skin and sensory systems..
- [‘Artificial skin’ prototype developed by scientists in Austria.](#) Scientists at TU Graz in Austria, have developed a prototype for artificial skin. Sometimes in winter, it gets so cold in Graz that you can hardly feel your fingertips. Just like wearables, this prototype gets really close to the human skin. Last year, Dr. Anna Maria Coclite and her team of researchers from the Institute of Solid State Physics at Graz University of Technology (TU Graz) presented the results of their research to the European Research Council, to land Proof of Concept funding for their project ‘SmartCore’. Dr. Coclite and her team had succeeded in developing a three-in-one “smart skin” hybrid material, which closely resembles human skin by simultaneously sensing pressure, moisture and temperature and converting them into electronic signals. With 2,000 individual sensors per square millimetre, the hybrid material is more sensitive than a human fingertip, giving it its reputation, and, at 0.006 millimeters thick, many times thinner than human skin. The team argued that by reacting to these three human sensory impressions, the smart skin prototype surpasses all electronic skin materials on the market to date which only react to pressure and temperature.
- [Flexible sensor uniquely mimics complex touch and perception of human skin](#) Our skin endows us with a profoundly multifaceted sensory awareness unmatched in machines. Human touch conveys intricate patterns of pressure, thermal flow and subsurface textures. It simultaneously maps moisture, contours and minute disturbances in the air. This combination enables astounding environmental comprehension through the body’s flexible, bidirectional sensor grid. Electronic skins (e-skins) that mimic somatosensation have long tantalized engineers. Now, a research team led by Professor Jian-Wei Liu reports a “stretchable biomimetic multimodal receptor” (SBMR). Their design elegantly mimics the feather control capabilities of hummingbirds to switch an e-skin receptor unit between 2D and 3D modes on demand.
- [NTU develops thinner-than-hair stretchable tech to mind-control robots.](#) Researchers at the Nanyang Technical University (NTU) in Singapore are leading the way in the development of soft electronics and have now set up a high-tech laboratory where they can rapidly prototype new devices with ultrathin and stretchable electronics. Researchers at NTU have devised various formulations for softer materials, such as hydrogels and biocompatible plastics, that can teamed up with electronics to make softer electronics. Rigid electronic circuits risk breaking if they have to undergo repeated movements. The researchers printed the circuits on softer substrates to avoid this, facilitating repeated movements. One such printing pattern is the ribbon form, which is thinner than human hair and can stretch without breaking.

Disruptive Technology Leads



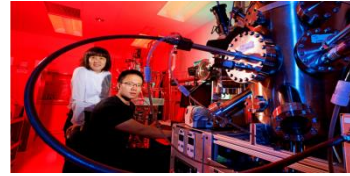
- [Disruptive Innovation in Digital Health: The Role of AI, AGI, LLMs, and GenAI in Shaping Healthcare Technology](#) The emergence of disruptive innovation in the field of digital health and technology is redefining the landscape of the healthcare sector. This wave of transformation is driven by cutting-edge technologies such as Artificial Intelligence (AI), Artificial General Intelligence (AGI), Legal Language Models (LLMs), and Generative AI (GenAI). These technologies hold the potential to revolutionize healthcare systems, offering significant advancements and improvements in patient care.
- [Neuralink- Birth of a novel disruptive technology](#) Neuralink can be considered a disruptive technology. It can bring significant and transformative changes in various fields, challenging existing paradigms and opening new possibilities. Neuralink has the potential to revolutionise the treatment of neurological disorders and injuries. By directly interfacing with the brain, it could provide more effective and targeted therapies, disrupting traditional approaches to conditions such as Parkinson's disease and spinal cord injuries. The technology could disrupt conventional cognitive enhancement methods by offering a direct interface to the brain. This has implications for memory enhancement, accelerated learning, and even potential applications in augmenting human intelligence.
- [Capgemini partners with mistral ai to spearhead the adoption of new frontier generative ai models.](#) Capgemini today announced a new alliance partnership agreement with one of the world's most innovative and dynamic new players in artificial intelligence, Mistral AI. Together, Capgemini and Mistral AI will focus on accelerating the evolution towards more accessible, versatile, and cost-effective generative AI implementation at scale. Capgemini aims to help its extensive portfolio of global clients derive greater long-term value and accelerate their generative AI use cases by embedding Mistral AI's highly efficient foundational models into their broader generative AI architecture.
- [Taiwan's Science and Technology agency plans major disruptions to biomedicine, agriculture](#) The combination of Generative AI and chip technology can enhance efficiency, facilitating the application of semiconductor technology across various industries. Generative AI and chip technology can be applied to address the testing needs for emerging or major diseases, such as detecting DNA fragments, single-antibody strains, and more. The National Science and Technology Council (NSTC) recently announced the implementation of a Multiple Precision Detection Chip initiative to achieve technological breakthroughs in several areas.
- [The inventive QuantLase Lab: From optical imaging to photonic computing.](#) Today's innovators have pushed technological progress to the very limits of computational technology. Even modern algorithms and supercomputers often can't keep up with the demands of real-world solutions in areas like finance, pharmaceuticals, and cryptography. Machine learning and large-scale, algorithmic network technologies must contend with the limits of computing hardware. Because of this, it is increasingly important to innovate and, if needed, invent new ways of computing. Dr. Pramod Kumar Director of research and innovation and principal scientist of the laser technology and quantum photonics division at the QuantLase Laboratory is working on just that.
- [The quantum race: Quantum Day 2025 has ignited a global race, reshaping computing and cybersecurity](#) Quantum computing's impact on employment and entrepreneurship will be both disruptive and transformative. As quantum technologies mature, a surge in demand for skilled professionals versed in quantum algorithms, quantum programming, and quantum security is anticipated. India's youth, with its innate proclivity for technology, can seize this opportunity to lead the global quantum workforce.

Disruptive Technology Leads (Contd.)



- [KGMU to acquire latest tech to treat diabetic retinopathy](#) King George's medical university, Lucknow, is set to endeavor to fight against preventable blindness due to diabetic retinopathy and has been allocated 2 crore rupees by the state government. Retinopathy is a condition caused due to damage to the blood vessels in the retina due to poor blood sugar levels. With facilities like green laser photocoagulation machine, digital vitrectomy, high end microscope, and optical coherence topography, the institution aims to provide latest tech support to large number of patients.
- [Wearable face sensors, an evolution to technology to understand humans](#) Researchers at Korea's Ulsan National Institute of Science and Technology (UNIST) have developed a revolutionary stretchable wearable facial system aimed at enhancing emotional intelligence in technology. This system utilizes skin friction and vibration monitoring to evaluate human emotions while being entirely self-powered through a piezoelectric principle, allowing for extended wear without recharging. It represents the first fully independent wearable emotion-recognition system and can decode emotions based on facial strain patterns and voice vibrations. The integration of this technology into VR environments opens up possibilities for immersive experiences tailored to users' emotions. This advancement reflects a broader trend in technology towards increased sensitivity to human emotions, with potential applications ranging from medical companion robots to aiding children in sensitive discussions. Emotion-reading technology could also have implications in lie detection and human-machine interaction. The UNIST study underscores the importance of incorporating emotions into next-generation wearable systems for more effective human-machine interaction.
- [Latest technology enhancement on Ferrari S24](#) The Ferrari SF-24 car marks a departure from previous models, particularly in its aerodynamic design, with a shift towards a more conventional undercut style. Changes include Red Bull-like lower lips ahead of radiator inlets to manage airflow and modifications to the nose and chassis length to optimize aerodynamic performance. These adjustments aim to enhance airflow along the floor edges and into the gap around the diffuser, crucial for maximizing performance. The emphasis is on improving driver confidence by addressing previous issues with aero grip, ensuring stability at high speeds and various driving conditions. This shift in design philosophy prioritizes engineering solutions based on driver feedback, aiming to deliver a competitive racing car capable of performing consistently on the track.
- [Google upgrades AI product for advertisers with Gemini models](#) Google announced the integration of its Gemini artificial intelligence models into its advertising product, aiming to extend advanced AI capabilities to more customers. This move reflects Google's ongoing initiative to incorporate generative AI into various services, enhancing conversational text and realistic image generation. Gemini, now part of the Performance Max product, enables brands to create longer headlines and realistic images for ads. Enhanced safety measures prevent the creation of misleading content or deepfakes, marking AI-generated images with watermarks. This integration underscores the growing significance of AI in advertising, offering brands innovative tools to engage consumers effectively while addressing concerns about authenticity and integrity in content creation.

Disruptive Technology Leads (Contd.)



- [High-Performance Modular Robotic Arm](#) On February 13, Expedition 70 astronauts aboard the International Space Station (ISS) focused on equipment installs and station maintenance, preparing for the arrival of the Progress 87 cargo craft. Notably, ESA Commander Andreas Mogensen installed the Nanoracks-GITAI S2 modular robotic arm, a key advancement in extravehicular robotics for in-space assembly and manufacturing. This tech demonstration aims to support future commercial lunar missions by showcasing the design, build, and operations of versatile robotic systems. The installation highlights ongoing efforts to enhance ISS capabilities through innovative scientific and engineering developments, paving the way for expanded exploration and utilization of space resources.

- [New AI-Enabled Spy Tech Gives Enemies 'Nowhere to Hide'](#) Chinese scientists have developed AI-enabled spy technology for the People's Liberation Army (PLA), claiming it leaves enemies "nowhere to hide" on the battlefield. The electronic warfare device promises seamless, wide bandwidth, and real-time monitoring of enemy assets, detecting signals with unprecedented speed, decoding their characteristics, and neutralizing them. Lead scientist Yang Kai stated the tech could analyze pulse signals emitted by US forces, even if they switch frequencies rapidly. This advancement overcomes traditional hardware limitations by extending the detection range to gigahertz frequencies and employing AI to differentiate between civilian and military signals. The compact, high-performance device could revolutionize battlefield tactics with its effectiveness, size, and low power consumption.

- [ZF discloses new seat belt tech with pressure sensors adapting more accurately](#) ZF has unveiled its latest innovation in seat belt technology: the 'Smart Seat Belt' system. Equipped with sensors, this system automatically adjusts tension based on the occupant's size and pressure during a collision, ensuring optimal safety. Unlike traditional seat belts, which offer uniform tension, ZF's solution aims to minimize injuries by providing a customized fit for each individual. This advancement highlights the importance of tailored safety measures in automobiles, potentially reducing the risk of injuries caused by improperly fitted seat belts.

- [New material design for transistors could downsize next-gen tech](#)

Xia Hong and her team at the University of Nebraska-Lincoln have developed a groundbreaking transistor design using a Mott insulator paired with ferroelectric material. This innovative approach enables precise control over the transition from insulator to metal, akin to the behavior of semiconductors, but with superior electric charge density. By adding an underlying layer beneath the Mott channel, they achieved a record-high on-off ratio of 385, addressing previous limitations. The ferroelectric component offers non-volatile memory capabilities and energy efficiency. This research represents a significant advancement in transistor technology, potentially paving the way for smaller, more efficient digital devices, challenging the dominance of conventional semiconductors, and offering promising applications in high-performance computing and memory technologies.

- [Sound-Based Anti-Drone System at Rs. 4 Lakh by IIT Jammu professor](#)

Dr. Karan Nathwani, a professor at IIT Jammu, has devised an innovative anti-drone system utilizing sound technology, a pioneering approach in the field. This cost-effective and user-friendly system operates by detecting the unique sound signatures emitted by drones, allowing for their swift identification without relying on cameras or radar. The system's versatility enables it to effectively address various challenges, making it suitable for diverse applications. With drones posing a significant challenge to security forces, particularly in regions like Jammu and Kashmir, this cutting-edge technology offers a promising solution to combat illicit activities such as smuggling arms, ammunition, and drugs.

Advancement in AI



- [New text-to-video AI model Sora will unleash creative potential but requires 'extreme accountability'](#) "While the rapid advancement of AI video generation is a remarkable technological breakthrough worthy of recognition, we must also acknowledge the profound challenges this innovation presents to the social media ecosystem and information environment as a whole," Jake Denton, Research Associate at the Heritage Foundation's Tech Policy Center, told Fox News Digital. OpenAI recently announced its new Sora text-to-video model, presenting a new and radical step forward for content creation. The company proudly touted the model's ability to "generate complex scenes with multiple characters, specific types of motion and accurate details of the subject and background."
- [The future of AI is multimodal](#) The future of multimodal AI is rich with possibilities, promising to transform how we interact with technology and understand the world. This evolution brings AI closer to a nuanced, human-like perception, opening doors to unprecedented applications and innovations. From revolutionizing user interfaces to creating more empathetic and efficient AI-driven services, the potential of multimodal AI is expansive. The integration of various sensory inputs like text, images, and sounds, is expected to lead to more intuitive and sophisticated AI systems. These advancements could significantly enhance areas such as personalized healthcare, advanced security systems, and more interactive educational tools.
- [Introducing V-JEPA: A Crucial Step Towards Advanced Machine Intelligence](#) V-JEPA marks a significant step towards Yann LeCun's vision for more human-like AI. By training the model on a range of videos, it has learned various aspects of how the world works, making it a more generalized and efficient approach compared to previous models.
- [MWC 2024: Gen AI and Pre-6G are the key developments to watch](#) AI, 5G, and 6G will be the overarching themes as leading suppliers of the telecom industry convene in Barcelona, Spain for the Mobile World Congress (MWC) Barcelona 2024. MediaTek, Huawei, and Qualcomm, in particular, zoom on Generative AI and pre-6G technologies for their MWC Barcelona 2024 demonstrations. At the event, Taiwan chip design giant MediaTek plans to showcase its first on-device Generative AI video diffusion powered by the company's flagship 5G mobile processor Dimensity 9300. According to MediaTek, Dimensity 9300 incorporates the world's first hardware-based Generative AI engine, and the chipmaker will showcase at MWC 2024 a text-to-image Stable Diffusion engine known as SDXL Turbo, video diffusion generation, and Low Rank Adaption (LoRA) Fusion incorporated into NeuroPilot AI platform.
- [How AI is Transforming Healthcare and Saving Lives](#) AI is an absolute game-changer for the healthcare industry, helping save countless lives through precision medicine, robotics-assisted surgery, and connected devices. It's also becoming increasingly valuable in identifying complex illnesses at an earlier stage. Over the next five years, the AI healthcare market is expected to grow at a compound annual growth rate (CAGR) of 48.1%, jumping from \$20.9 billion in 2024 to \$148.4 billion by 2029.
- [GPU cloud company Together AI to raise \\$100m](#) AI cloud firm Together AI is set to raise more than \$100 million in a new funding round, bringing the not-yet-two-year-old company's valuation to over \$1 billion. Together AI has raised a total of \$122.5 million across two previous funding rounds. The company is backed by 29 investors, including Kleiner Perkins, Lux Capital, Nvidia, and SV Angel.

IP News



[Navigating IPR In Mergers And Acquisitions - Insights From A Start-Up Standpoint](#)

Intellectual property (IP) is pivotal in shaping the core value and competitive strength of startups, serving as the foundation for innovation-driven enterprises. In the dynamic and fiercely competitive landscape, startups recognize that differentiation is key to success. Intellectual property rights (IPR), encompassing patents, trademarks, copyrights, and trade secrets, act as potent tools, enabling startups to fortify and monetize their unique ideas, products, or services.

[IIT-Madras researchers patent use of Indian spices to treat cancer, medicines likely to be available by 2028.](#)

The formulations show anti-cancer activity against lung, breast, colon, cervical, oral, and thyroid cell lines but were safe in normal cells, according to the researchers. "This cancer nanomedicine is being developed to reduce the cost and pain of cancer treatment and also to overcome the toxic side effects seen in the existing cancer treatments," Nirmala added.

[Hold metaverse operators liable for IPR infringement: Music Industry to TRAI](#)

IMI said that it wants metaverse operators and users to share accountability and responsibility in cases of intellectual property rights infringement. The Indian Music Industry (IMI), whose members include T-Series (Super Cassettes), Sony Music and others, wants metaverse operators to be held liable when intellectual property rights (IPR) of creators and users is infringed upon. In response to the Telecom Regulatory Authority of India (TRAI)'s consultation on Digital Transformation through 5G Ecosystem, which ended on January 22, the IMI said that it wants metaverse operators and users to share accountability and responsibility in cases of IP infringement.

[Netgear sues Huawei in US antitrust case over patent licensing.](#)

Computer networking company Netgear has sued Huawei in California federal court, claiming the Chinese tech giant broke U.S. antitrust law by refusing to license. The complaint, filed late on Tuesday, also accused Huawei of fraud, racketeering and other offenses for allegedly withholding patent licenses for technology that Netgear's routers require in order to comply with international Wi-Fi networking standards.

[Google settles lawsuit over computer chips that power AI.](#)

On January 24, 2024, Google LLC settled a patent infringement lawsuit over computer chips that power its artificial intelligence (AI) technology. The settlement comes the same day that closing arguments were scheduled to begin in a trial on the lawsuit by Singular Computing LLC. The 2019 lawsuit stated that Joseph Bates, the founder of Singular Computing, shared his inventions with Google between 2010 and 2014. It argued that Google's TPU copied Bates' technology and infringed two of its patents.

[Samsung Cleared by Jury in \\$4 Billion Chip-Making Patent Lawsuit](#)

Samsung Electronics Co. didn't infringe Demaray LLC's semiconductor patents by buying reactors for its semiconductor products at fabrication and research facilities, a Texas jury determined. The jury in the US District court for the Western District of Texas notified the court twice that it couldn't reach a unanimous decision before finally reaching a verdict late Friday. The jury didn't decide on the validity of the two patents at issue, US Patent Nos. 7,544,276 and 7,381,657.

IP News (Contd.)



[Ford files patents for new compact SUV in India rivalling Hyundai](#)

[Creta](#) Recently it was reported that Ford would return to India with the company recruiting for several roles at its Chennai-based manufacturing facility. The icing on the cake was the American carmaker filing design patents for the fourth generation Endeavour, internationally called Everest. The side profile is dominated by prominent creases and flared-up, circular wheel arches with black claddings filled up by multi-spoke alloy wheels. The flat roofline and tall pillars give the SUV a boxy silhouette. Other highlights include a trapezoidal secondary air-dam, a silver chin, and a contoured bonnet. Several visual attributes appear similar to the Ford Explorer available in China, however, it is noticeably smaller than the Explorer.

[PayPal files patent for new method to detect stolen cookies](#)

PayPal has filed a patent application for a novel method that can identify when "super-cookie" is stolen, which could improve the cookie-based authentication mechanism and limit account takeover attacks. The risk that PayPal wants to address is that of hackers stealing cookies containing authentication tokens to log into victim accounts without the need for valid credentials and bypassing two-factor authentication (2FA). PayPal's engineers have identified a method to calculate a fraud risk score in the cookie-based authentication mechanism to identify fraudulent login attempts on the electronic payments platform. Super-cookies are more difficult to detect and wipe because they are not stored in the browser's standard cookie storage location.

[Parascript® Inc. Adds a New Patent to Its Portfolio for Document](#)

[Forgery Detection](#) Parascript—a leading provider of innovative AI-powered solutions for document processing automation and fraud prevention applications, has filed a patent application for a cutting-edge method designed to revolutionize document forgery detection. This novel method leverages machine learning to analyze and verify handwriting with unparalleled accuracy, empowering organizations to combat fraud across diverse industries. This groundbreaking technology encompasses a multifaceted approach involving the extraction and comparison of handwritten segments within documents such as checks and contracts. The method employs advanced deep learning neural network models and other trainable models to analyze segments of handwritten text to facilitate an accurate assessment of the probability that they originate from the same writer. Parascript software, driven by data science and powered by machine learning, incorporates proprietary AI technologies to provide robust data capture solutions that bring the highest levels of accuracy when processing documents. This groundbreaking technology encompasses a multifaceted approach involving the extraction and comparison of handwritten segments within documents such as checks and contracts.

[Delhi High Court slaps ₹5 lakh penalty on Oppo in patent case; warns of ban on sale if it fails to deposit royalties](#)

The Delhi High Court recently expressed strong displeasure with mobile phone maker Oppo for causing delays in its ongoing patent dispute with InterDigital and directed the Chinese company to deposit all pending royalties as interim security with the High Court. InterDigital has sued Oppo for infringing its 3G, 4G and 5G as well as video coding technology. The High Court blamed Oppo for delaying the trial.

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GLOBAL LEGAL ASSOCIATION – 2024, DUBAI, UAE

The third edition of Global Legal Association & the first in 2024 was held on 14th&15th February, in Dubai, UAE, which brought together 300+ Law Firm Partners, Lawyers, In-House/Corporate Counsel, Investors, C Level Executives, Directors & Heads of Legal Departments, Policy Makers, stakeholders, Legal Service Providers & other Legal Professionals from all over the globe. The event operated under Effectual services was a resounding success and people were all praises on the quality of knowledge that was shared from the sessions.



NEXT EVENT – GLA 2024, BANGKOK

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