

NEWSEFFECT

INNOVATION FRONTIER

CONTENTS

- AI ADVANCEMENTS
- DISRUPTIVE TECHNOLOGIES
- IP INSIGHTS
- IP NEWS
- TECHNOLOGY THEMES

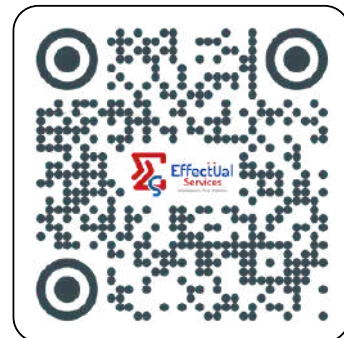
Our Company's Growth &

SUCCESS IN 2025

Our beloved leader - **Dr. Amit Goel** has been recognized & included in the renowned **WIPR - World IP Review** Leaders 2025 Directory, which is a testament to our expertise in the field of IP.



**Effectual
Services**
Intelligence That Matters

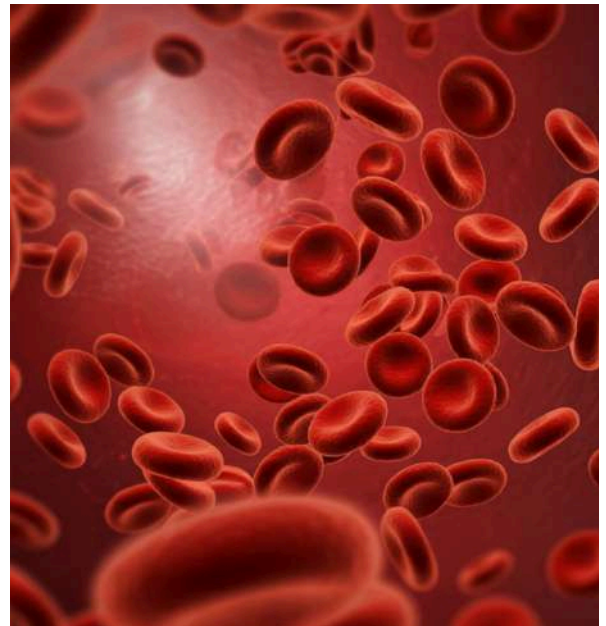




AI ADVANCEMENTS

GENERATIVE AI TOOL ENHANCES ACCURACY IN DETECTING ABNORMAL BLOOD CELLS

Researchers have created a system called CytoDiffusion that uses generative AI – the same type of technology behind image generators such as DALL-E – to study the shape and structure of blood cells. Unlike many AI models, which are trained to simply recognize patterns, the researchers – led by the University of Cambridge, University College London and Queen Mary University of London – showed that CytoDiffusion could accurately identify a wide range of normal blood cell appearances and spot unusual or rare cells that may indicate disease. Their results are reported in the journal Nature Machine Intelligence



CELLARITY'S AI MODEL PREDICTS DRUG INDUCED LIVER INJURY

- Cellarity published a Nature Communications paper on a new AI framework for predicting drug-induced liver injury (DILI).
- The AI model, ToxPredictor, uses toxicogenomics to assess dose-dependent DILI risk.
- It's powered by DILImap, the largest transcriptomics dataset for DILI, covering 300 compounds.
- The approach supports reducing reliance on animal testing in drug development.

AI ADVANCEMENTS

MERCK KGAA: THE SUPERCOMPUTER FOR AI AND DATA RESEARCH

- Merck KGaA launched a new Lenovo-built HPC platform hosted in an AI-ready Equinix data centre in Germany.
- The system uses liquid cooling and a hybrid-cloud design to support AI and data-heavy modelling.
- It will accelerate innovation across Merck's life science, healthcare and electronics research teams.



WHERE SCIENCE MEETS SOCIETY: RESPONSIBLE AI AND BIG DATA INNOVATION AT GATE

- GATE Institute is the first Big Data and AI Centre of Excellence in Bulgaria and Eastern Europe.
- Co-funded by the EU and Bulgarian Government, founded by Sofia University and Chalmers University.
- Aims to drive a data-driven smart society and digital transformation.
- Focuses on innovations in Future Cities and Digital Health.

NO MORE BUMPY FLIGHTS: HOW EMIRATES IS USING ARTIFICIAL INTELLIGENCE TO MAKE TURBULENCE A THING OF THE PAST

Emirates' current turbulence detection and forecasting framework integrates SkyPath, Lido mPilot from Lufthansa Systems and IATA's Turbulence Aware programme. Together, these systems form a complementary ecosystem that delivers real-time turbulence information, high-accuracy weather reporting, and predictive analytics powered by AI and machine learning.



AI ADVANCEMENTS

MIMICKING THE BRAIN CAN IMPROVE AI PERFORMANCE

- University of Surrey researchers created a new AI approach inspired by human brain networks.
- Published in Neurocomputing, the study shows that brain-like neural wiring boosts performance in generative AI and models like ChatGPT.
- Their method, Topographical Sparse Mapping, links each neuron only to nearby or related neurons, improving efficiency and accuracy.



AI TO HELP DOCTORS FIND AND FIX BROKEN BONES

- Hospitals are trialling AI to detect fractures and dislocations for faster patient treatment.
- The AI acts as a support tool, providing clinicians with quicker, assisted diagnoses.
- It generates near-instant annotated images that highlight potential issues for clinicians to review.



DISRUPTIVE TECHNOLOGIES

TOKAMAK ENERGY ANNOUNCES FUSION POWER PLANT MAGNET TECHNOLOGY BREAKTHROUGH

Tokamak Energy's Demo4 HTS magnet system achieved 11.8 Tesla at -243°C , with seven million ampere turns flowing through its center column—showcasing HTS's ability to carry roughly 200 times the current density of copper. The system uses precisely wound HTS tapes made from multi-layer metal conductors coated with REBCO superconducting material, demonstrating strong potential for future power distribution and fusion applications.



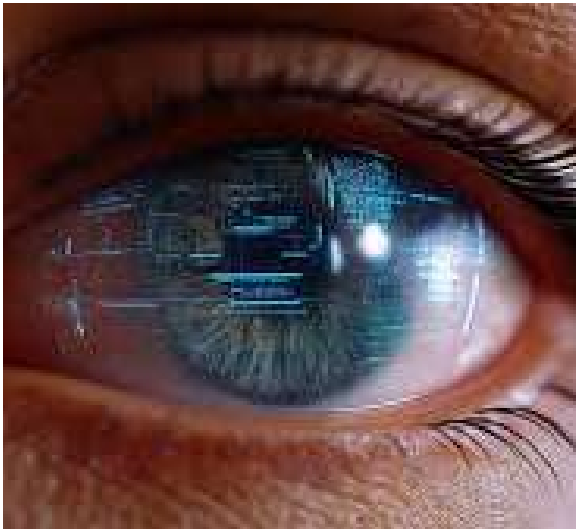
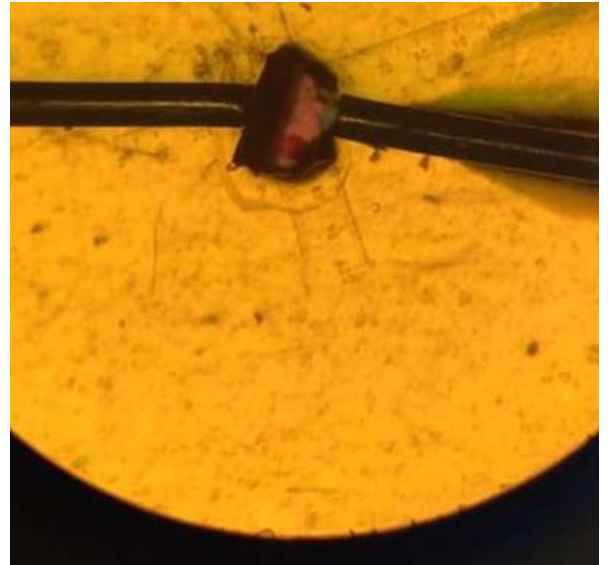
CRYSTAL INTELLIGENCE INTEGRATES XDC NETWORK TO BOOST BLOCKCHAIN COMPLIANCE AND ANALYTICS

- Crystal Intelligence integrates XDC Network into its compliance platform to enhance monitoring of the \$16T RWA tokenization market.
- Provides advanced blockchain analytics for crypto compliance and risk management.
- XDC Network handles 2,000+ transactions/sec with six-second finality and is ISO 20022 compliant.
- Supports tokenized assets like USTY (BlackRock-backed) and gold-backed tokens via Tradetiq and Securitize.
- Achievements include \$1B in Brazilian asset tokenization and joining the Trade Finance Distribution Initiative.

DISRUPTIVE TECHNOLOGIES

NEW HIGHLY EFFICIENT MATERIAL TURNS MOTION INTO POWER – WITHOUT TOXIC LEAD

- Scientists developed a lead-free material that efficiently converts motion into electricity.
- Halogen bonding between organic and inorganic parts boosts and controls its piezoelectric performance.
- Findings could enhance efficiency in other hybrid materials.



SOFT ROBOTIC EYE CREATED THAT REQUIRES NO WIRES OR BATTERIES AND SEES BETTER THAN HUMAN EYES

- Squishy lens auto-focuses with light, ideal for soft robots in tight spaces.
- Light-sensitive gel moves the lens without wires or bulk.
- Durable design suits rough environments.
- Captures ultra-fine details down to 0.005 mm.

AI CREATES THE FIRST 100-BILLION-STAR MILKY WAY SIMULATION

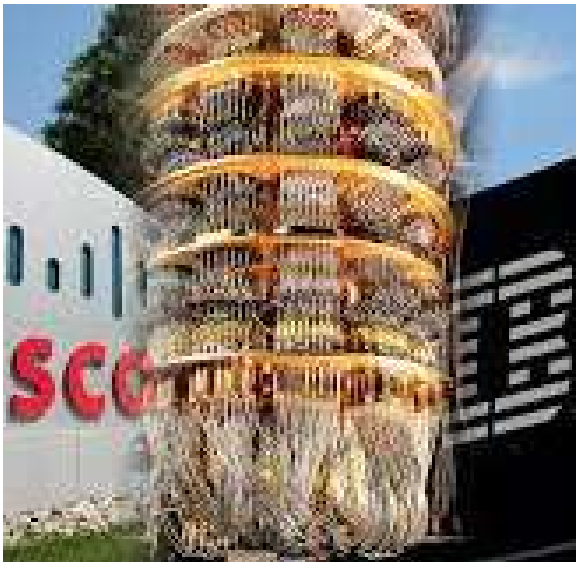
- New AI-powered simulation models every star in the Milky Way with unprecedented speed.
- Combines deep learning with physical simulations trained on high-res supernova data.
- Predicts gas spread after supernovae without extra simulation resources.
- Achieves true individual-star resolution for 100+ billion stars.
- Simulates 1 million years in 2.78 hours, cutting 1 billion years from 36 years to about 115 days.



DISRUPTIVE TECHNOLOGIES

RESEARCHERS AT ETH ZURICH HAVE DEVELOPED A MICROROBOT CAPABLE OF TRANSPORTING DRUGS TO SPECIFIC LOCATIONS WITHIN THE BODY, WITH THE POTENTIAL FOR USE IN HOSPITALS IN THE NEAR FUTURE.

- Researchers developed a magnetically controlled microrobot inside a soluble gel capsule with iron oxide nanoparticles.
- It's injected via catheter into blood or cerebrospinal fluid.
- An electromagnetic navigation system guides it to the target.
- The catheter has a flexible polymer gripper that releases the microrobot at the destination.



IBM, CISCO OUTLINE PLANS FOR NETWORKS OF QUANTUM COMPUTERS BY EARLY 2030S

- Quantum computers promise breakthroughs in physics, chemistry and security.
- IBM targets an operational quantum computer by 2029.
- Microwave qubits need conversion to optical signals for fiber communication.
- Development led by groups like Fermi Lab's Superconducting Quantum Materials Center.

AMAZON LEO UNVEILS GIGABIT-SPEED ANTENNA

- Amazon Leo's Leo Ultra antenna offers up to 1 Gbps download and 400 Mbps upload.
- Network has ~150 satellites, testing with enterprise users.
- Features full-duplex, flat-panel design for harsh environments.
- Enables private, secure data routing to enterprise systems or AWS.





IP INSIGHTS

ON MAGNETOMETER

WHAT IS MAGNETOMETER?

A magnetometer is an instrument used to quantify magnetic fields, capturing both their strength and direction, whether they originate from the Earth or from sources in space. Its origins trace back to Carl Friedrich Gauss, who developed the first absolute magnetometer by suspending a permanent bar magnet horizontally from a fine gold fiber. By observing the magnet's oscillation period within the Earth's magnetic field, Gauss was able to determine the field's intensity, establishing the foundational principles for modern magnetic measurement.

TYPES OF MAGNETOMETERS

Spin-Exchange Relaxation Free (SERF):

A SERF magnetometer measures very weak magnetic fields by using lasers to track alkali metal atoms whose spin coherence is preserved by operating in a low-field, high-density regime that suppresses spin-exchange relaxation.

Dual-Cell (OR) Hybrid Magnetometers :

A dual-cell, or hybrid, magnetometer measures magnetic fields by combining two linked sensing cells—often using different atomic species or operating modes—to improve sensitivity, stability and noise rejection compared to a single-cell design.

Nitrogen-Vacancy (NV) Diamond Magnetometer:

An NV-diamond magnetometer measures magnetic fields by detecting changes in the quantum spin states of nitrogen-vacancy centers in diamond when illuminated with laser light.

Quantum Gradiometer magnetometer:

It measures differences in magnetic field strength between two points by using quantum sensors whose paired measurements suppress common noise and reveal extremely small magnetic field gradients.

A full-tensor magnetic gradiometer:

It measures all components of the magnetic field gradient tensor to provide highly detailed, multidirectional information about subsurface magnetic variations

A micro-fabricated atomic-sensor magnetometer:

It is a compact device that uses laser-cooled or vapor-based traps atomic vapors in tiny cells to measure magnetic fields with high sensitivity and low power consumption.

Extremely Low Frequency (ELF) Magnetometer:

Measures very low-frequency magnetic fields, typically in the range of 3–30 Hz, useful for studying natural geomagnetic signals and monitoring power-line or submarine communications.

IP INSIGHTS

ON MAGNETOMETER

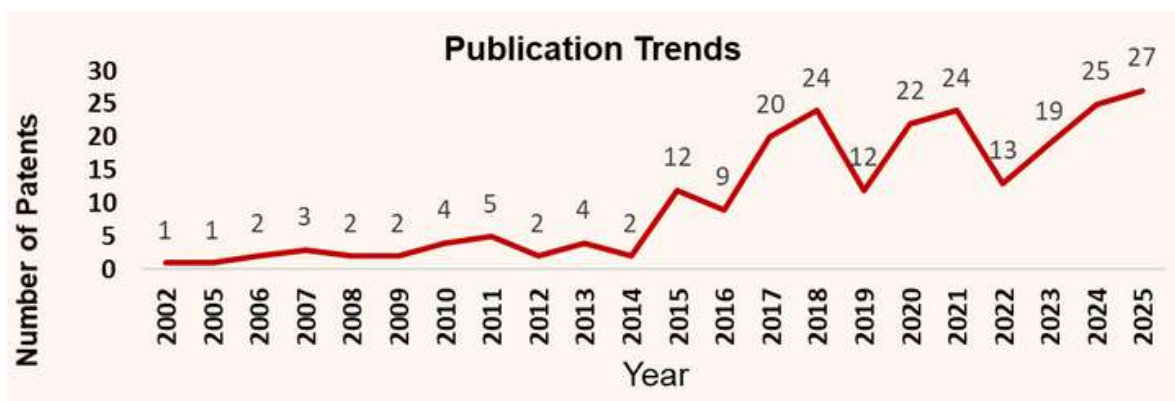
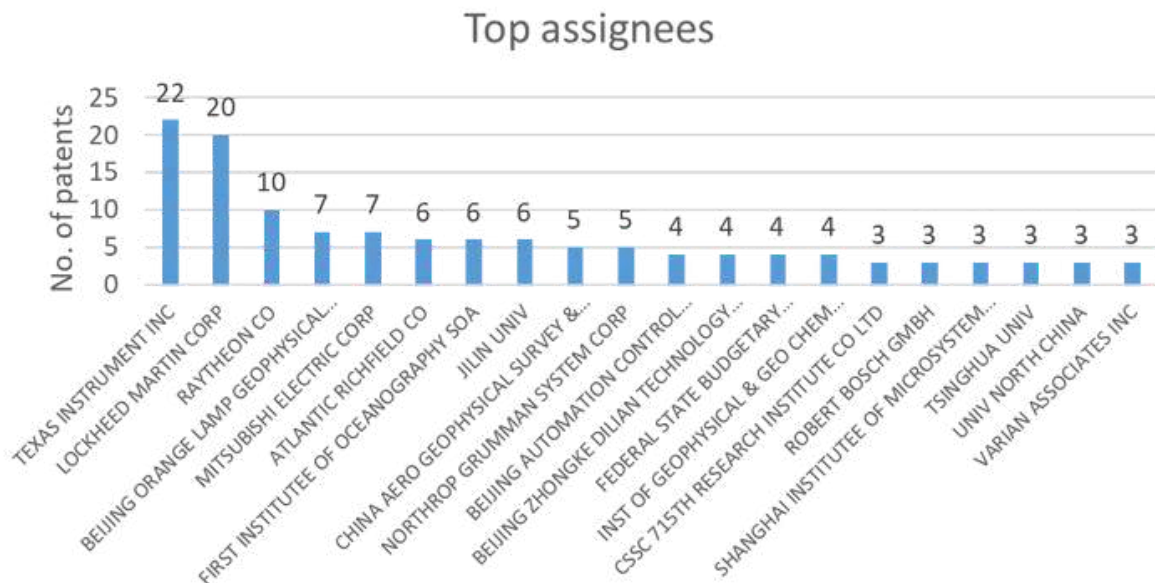
WHAT ARE THE APPLICATIONS OF MAGNETOMETERS?

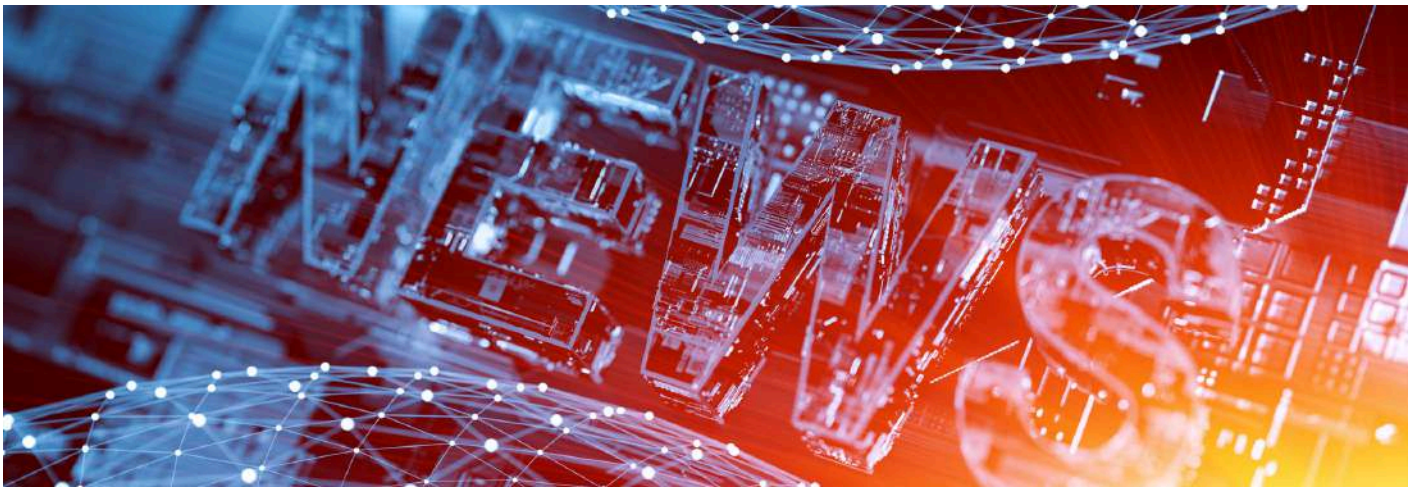
Magnetometers are used for tasks ranging from locating sunken ships to monitoring heart activity, and their versatility allows them to be deployed in many environments. Depending on the application, they may be mounted on spacecraft or aircraft for large-scale surveys, towed behind quad bikes for surface mapping, or lowered into boreholes to analyze subsurface magnetic conditions.

WHAT ARE THE BENEFITS OF MAGNETOMETERS?

Magnetometers provide significant value because they offer a precise way to detect and measure magnetic fields. They enable accurate, measurement of magnetic fields for navigation, exploration, and scientific analysis. They help detect hidden or buried objects—including submarines, minerals and archaeological sites—without physical intrusion.

TOP ASSIGNEES BY PATENTS/ PUBLICATIONS





IP NEWS

USPTO EXTENDS COMMENT PERIOD FOR ONE CHALLENGE NPRM



- The U.S. Patent and Trademark Office (USPTO) is extending the comment period for the proposed rule titled “Revision to Rules of Practice before the Patent Trial and Appeal Board” that was published in the Federal Register on October 17, 2025. The proposed rule’s comment period is extended until December 2, 2025.
- The USPTO is granting a 15-day extension of time in response to several requests from stakeholders. The USPTO does not anticipate that any further extensions of time will be forthcoming and that this extension should not be taken as indicative of the agency’s propensity to grant extensions for future proposed rules.
- “For nearly four years, this Office has promised, discussed, and debated formal rulemaking on discretionary denial practice at the Patent Trial and Appeal Board,” said Director Squires. “Although the previous Administration could not get it done, it is now past the time for concluding the process and issuing a final rule. While we endeavor to be responsive to stakeholders—and indeed are by granting an additional 15 days today for comment, on top of the 30-day period originally noticed—45 days total has now been provided.
- This is an ample amount of time to respond, certainly in light of history here, and particularly in view of the wide-ranging and thorough airing these issues have received across our stakeholder communities over the past four years. Now’s the time.”

IP NEWS

WHIRLPOOL SUES TO BLOCK SAMSUNG, LG MICROWAVE IMPORTS IN PATENT DISPUTE



- Whirlpool asked a U.S. trade agency to block the import and sale of microwaves from rival manufacturers based in South Korea and China, alleging they copied its patented technology for over-the-range models.
- The complaint, filed with the Washington-based U.S. International Trade Commission, aims to protect a key market for Whirlpool, based in Benton Harbor, Michigan. Whirlpool alleges that South Korean rivals Samsung and LG, along with China-based Midea and Haier, infringed five of its patents for "low-profile microwave-hood combination products," or LP-MHCs.
- In its complaint, Whirlpool said it pioneered technology for the microwaves, which both cook and provide ventilation. Whirlpool also filed related lawsuits against the companies in Texas and New Jersey federal courts on Tuesday seeking monetary damages, according to court filings and a Whirlpool spokesperson.
- Spokespeople for Samsung, LG, Haier-owned GE Appliances and Midea did not immediately respond to requests for comment on the ITC complaint. Whirlpool said in a statement that it "will not hesitate to defend our innovation and intellectual property when a competitor steals a patent-protected design."
- Whirlpool created the LP-MHC product category, and until the Proposed Respondents began their unlawful conduct, Whirlpool was the sole provider of LP-MHCs in the United States," the complaint said.

IP NEWS

GODADDY HIT WITH \$170 MILLION PATENT VERDICT OVER WEB-DESIGN TECH



- Internet domain registrar GoDaddy owes a patent owner \$170 million for violating its rights in website-building technology, a Delaware federal jury said in a verdict made public on Friday.
- The jury agreed with Express Mobile that GoDaddy's web-design tools infringe two of its patents.
- GoDaddy said in a statement that it disagrees with the verdict and will "vigorously fight it in the district court and on appeal, if necessary." Express Mobile attorney Jay Nuttall called the verdict "an outstanding result for our client that confirms the value of Express Mobile's foundational patents."
- Novato, California-based Express Mobile owns patents covering internet and mobile technology developed by the company's founder, former IBM engineer Steven Rempell. Express Mobile sued GoDaddy in 2019, arguing that its user tools for building websites infringed Express Mobile's patents related to similar technology.
- Tempe, Arizona-based GoDaddy denied the allegations and argued that the patents were invalid. GoDaddy won a separate jury trial over related Express Mobile infringement claims in 2023.
- Express Mobile won a \$40 million verdict in a similar case against e-commerce platform Shopify in 2022. Shopify convinced a Delaware federal judge to overturn the verdict last year.

IP NEWS

US JURY SAYS APPLE MUST PAY MASIMO \$634 MILLION IN SMARTWATCH PATENT CASE



- A federal jury in California said that Apple owes medical-monitoring technology company Masimo \$634 million for infringing a patent covering blood-oxygen reading technology.
- The jury agreed with Masimo that the Apple Watch's workout mode and heart rate notification features violated Masimo's patent rights, a Masimo spokesperson confirmed.
- An Apple spokesperson said that the company disagrees with the verdict and will appeal.
- "Over the past six years (Masimo has) sued Apple in multiple courts and asserted over 25 patents, the majority of which have been found to be invalid," the spokesperson said. "The single patent in this case expired in 2022, and is specific to historic patient monitoring technology from decades ago."
- Masimo, in a statement, called the verdict "a significant win in our ongoing efforts to protect our innovations and intellectual property."
- The dispute led a U.S. trade tribunal to block imports of Apple's Series 9 and Ultra 2 smartwatches in 2023 after finding that Apple's technology infringed Masimo's patents.
- A California judge declared a mistrial in Masimo's trade-secret case against Apple in 2023 after a jury failed to reach a unanimous verdict. Apple won a minimal \$250 verdict against Masimo in Delaware last year over allegations that Masimo's smartwatches infringe two Apple design patents.

IP NEWS

TESLA SUED FOR ALLEGEDLY INFRINGING ROBOTICS PATENTS



- Tesla (TSLA.O) was sued on Monday by a Virginia company that accused Elon Musk's electric vehicle maker of knowingly infringing five patents related to robotics systems for self-driving vehicles.
- In a complaint filed in Alexandria, Virginia, federal court, Perrone Robotics said its founder Paul Perrone developed a general purpose robotics operating system whose applications could be configured to individual robots and automated devices, addressing the once significant problem of needing specific hardware and software for each vehicle.
- Perrone said all Tesla vehicles, such as the Model Y, using any version of the carmaker's self-driving software Autopilot in the last six years infringe the five patents, including one patent that the Charlottesville-based company offered to sell Tesla in 2017.
- The lawsuit seeks unspecified damages and a halt to further infringements.
- Tesla did not immediately respond to requests for comment.
- Musk, the world's richest person, has long tried to convince investors that Tesla can become a leader in so-called autonomous driving for private vehicles, as well as robotaxis it plans to produce.
- The case is Perrone Robotics Inc v Tesla Inc, U.S. District Court, Eastern District of Virginia, No. 25-02156.

IP NEWS

US PATENT OFFICE ISSUES NEW GUIDELINES FOR AI-ASSISTED INVENTIONS



- The U.S. Patent and Trademark Office issued new guidelines on Wednesday outlining when inventions created with the help of artificial intelligence can be patented.
- USPTO Director John Squires said on Wednesday,, in a notice set to be published Friday, that the office considers generative AI systems to be "analogous to laboratory equipment, computer software, research databases, or any other tool that assists in the inventive process."
- They may provide services and generate ideas, but they remain tools used by the human inventor who conceived the claimed invention," the office said. "When one natural person is involved in creating an invention with the assistance of AI, the inquiry is whether that person conceived the invention under the traditional conception standard."
- The office reiterated its guidance from last year that AI itself cannot be considered an inventor under U.S. patent law.
- However, it rejected the approach taken by the PTO during former President Joe Biden's administration for deciding when AI-assisted inventions are patentable, which relied on a standard normally used to determine when multiple people can qualify as joint inventors.
- "The same legal standard for determining inventorship applies to all inventions, regardless of whether AI systems were used in the inventive process," the office said on Wednesday. "There is no separate or modified standard for AI-assisted inventions."
- Spokespeople for the USPTO did not immediately respond to a request for comment on the new guidance.

IP NEWS

US SUPREME COURT WON'T HEAR PATENT APPEAL AGAINST APPLE, GOOGLE, LG



- The U.S. Supreme Court on Monday declined to take up a case involving the right to challenge expired patents, leaving in place a win for Apple (AAPL.O), Google (GOOGL.O) and LG Electronics (066570.KS). The justices declined to hear an appeal by Gesture Technology Partners, which was challenging a decision to invalidate a patent that it had accused the technology companies of infringing.
- Inventor Timothy Pryor formed Gesture in 2013. Pryor owns patents related to motion-sensing and other technologies that he began developing in the 1990s.
- Gesture sued the tech companies in 2021 for allegedly infringing a patent covering camera technology used in cell phones. Gesture said the companies violated its rights before the patent expired in 2020, and that its validity had not been challenged while it was active.
- Apple, Google and LG filed petitions to invalidate the patent at the U.S. Patent and Trademark Office's Patent Trial and Appeal Board later in 2021. The board's patent review process is particularly popular with tech companies that are frequently targeted in infringement lawsuits.

IP NEWS

NOKIA HITS WARNER BROS. WITH SUIT OVER STREAMING TECH PATENTS



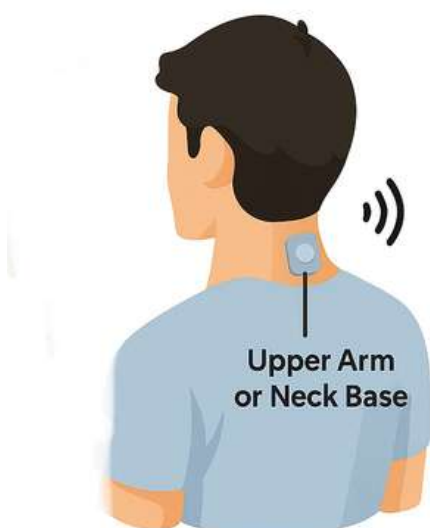
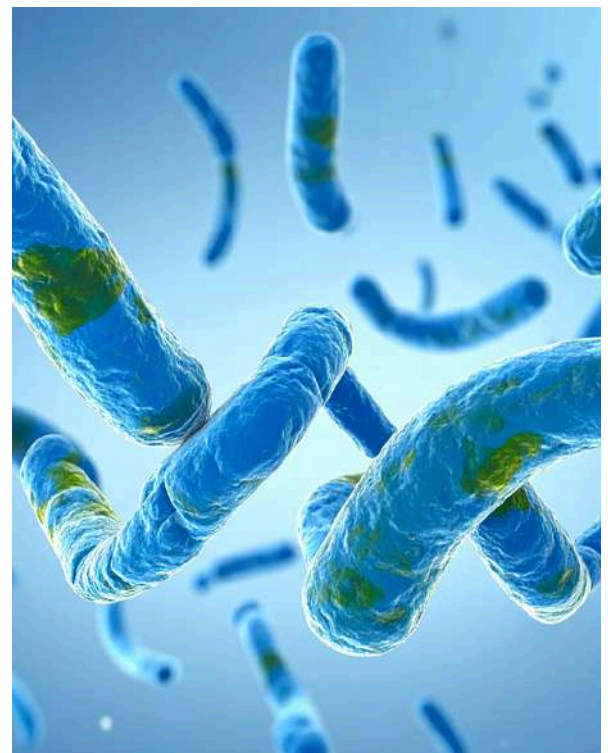
- Nokia has launched a sweeping legal offensive against Warner Brothers, accusing the entertainment titan of infringing its video technology patents across multiple jurisdictions — from the U.S. to Europe and South America. The Finnish telecom giant filed suits in the U.S. District Court of Delaware, Europe’s Unified Patent Court (UPC), and national courts in Germany and Brazil.
- According to Nokia, Warner Brothers’ streaming platforms rely heavily on its patented inventions in video compression, content delivery, and recommendation systems — technologies that power the seamless streaming experience for millions of viewers.
- “Litigation is never our first choice,” Nokia said, “but we will always defend our intellectual property. We hope Warner Brothers engages with us to reach an agreement to pay for the use of our technologies.”
- The lawsuit centers on 18 Nokia patents related to cutting-edge streaming features such as video encoding, skip mode, and personalized media playlists.
- Nokia’s history in defending its innovations has been nothing short of cinematic. The company recently defeated Amazon in multiple jurisdictions, with the U.S. International Trade Commission finding in 2024 that Amazon’s devices infringed on Nokia’s video patents. German courts followed suit, issuing injunctions that temporarily crippled Amazon’s Fire Stick and certain Prime Video features.



TECHNOLOGY THEMES

MAGNETIC HYDROGEL-BOOSTED BACTERIAL BIOSENSOR FOR FAST GUT DISEASE DIAGNOSIS

- MagGel-BS is a magnetic hydrogel-encapsulated bacterial biosensor for fast, oral GI disease detection.
- Protects bacteria, boosting survival 10x and maintaining sensing ability.
- Detects GI bleeding in mice within 20 minutes vs. hours for standard sensors.
- Enables magnetic control for targeting and recovery.
- Safe with no immune response, offering a rapid, noninvasive diagnostic tool.



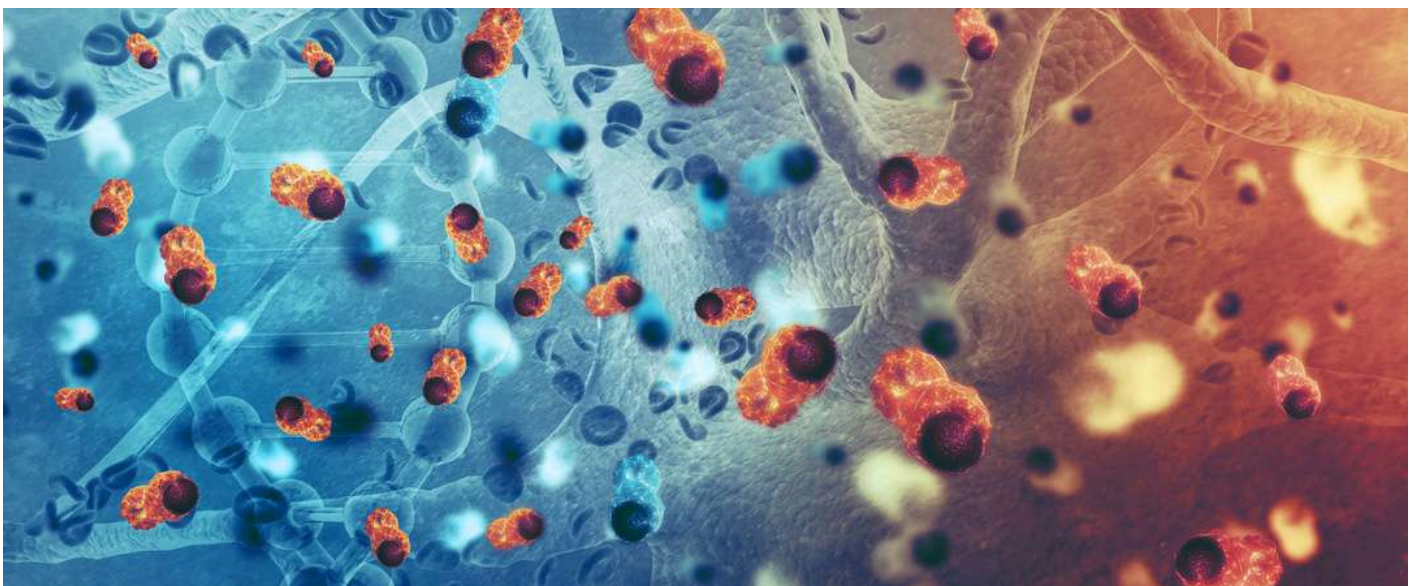
BIOHYBRID BIOSENSOR – THE MYCODOT PATCH

- MycoDot Patch is a conceptual wearable biosensor combining mycelium with quantum-dot sensors.
- Designed as a breathable, skin-mounted patch for continuous, non-invasive health monitoring.
- Detects multiple physiological or biochemical signals simultaneously.
- Represents a trend of merging biological materials with flexible, self-regenerating electronics.

TECHNOLOGY THEMES

CATCHING CANCER WITH BACTERIAL BIOSENSORS — A NEW FRONTIER IN COLORECTAL CANCER DETECTION

- UC San Diego researchers developed CATCH, a bacterial biosensor method for detecting colorectal cancer.
- Uses engineered *Acinetobacter baylyi* to uptake DNA from dying cancer cells and detect KRAS mutations via CRISPR.
- Cancer DNA triggers bacterial survival under selective conditions, providing a clear “yes/no” readout.
- Tested successfully in cell cultures, organoids, and mice with colorectal tumors.
- Offers a non-invasive, rapid and potentially affordable alternative to colonoscopies.
- Adaptable to detect other cancers or diseases with specific DNA mutations.
- Early proof-of-concept; challenges include safety, stability, and translation to humans.



GLANCE @EFFECTUAL



A Proud Moment for Effectual Services

We are delighted to share that our esteemed leader, **Dr. Amit Goel, has been recognized in the IAM 300 – 2026 listing**, a prestigious global acknowledgment reserved for the world's leading IP strategists. This accomplishment reflects not only Dr. Goel's exceptional vision and dedication but also underscores the depth of expertise and innovation that defines our organization in the field of Intellectual Property.

Dr. Amit Goel's recognition is a testament to his unwavering commitment to excellence, his strategic leadership and the transformative impact he continues to create within the IP landscape. His guidance has played a pivotal role in strengthening our capabilities, elevating our global presence and consistently driving high-value outcomes for our clients and partners.

Congratulations, Dr. Amit Goel, on this well-deserved achievement. We extend our heartfelt appreciation for the brilliant work you do and for inspiring all of us to pursue the highest standards of professional excellence. Your recognition brings pride to the entire team at Effectual and reinforces our collective pursuit of leadership in the IP domain.

GLANCE @EFFECTUAL



8TH

MALAYSIA 2026

GLA ANNUAL ARBITRATION & LITIGATION SUMMIT

 22nd – 23rd Jan' 2026

 AIAC

We are very happy to announce our upcoming flagship event, the **8th GLA Annual Arbitration & Litigation Summit 2026 Malaysia Edition**, scheduled for **22nd – 23rd Jan, 2026**. This conference is expected to bring together 275+ IP professionals, including:

- Head of IP
- IP Counsels
- Head of Litigation
- General Counsels
- Litigation Managers
- Arbitration Heads
- ADR Professionals
- Chief Dispute Resolution Officers
- Risk & Compliance Professionals
- Data Privacy Managers
- Legal Attorneys
- Directors/Partners of Law Firms and
- other key service providers.



275+
ATTENDEES



70+
SPEAKERS



15+
EXHIBITORS



15+
MEDIA PARTNERS



15+
SESSIONS

REGISTER NOW



GET IN TOUCH

The sum of
human
ingenuity and
expertise that
powers us.

Human interactions
that drive
innovation.



EffectUal
Services
Intelligence That Matters

For more information connect with us



✉ info@effectualservices.com



OUR OFFICES



USA

📍 Suite-427,425
Broadhollow Road,
Melville | NY-11747

☎ +1-972-256-8133



INDIA

📍 SDF A-05, NSEZ, Noida-
Dadri Road, Noida
Phase II -201305

☎ +91-120-452-2210



SINGAPORE

📍 531A, Upper Cross
Street, Singapore-
051531

☎ +91-120-452-2211