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# Our Company's Growth & Success in 2024

We have been honored as the "IP Service Provider of the Year" at the 4th IP Excellence Awards & Global IP Conclave 2024, hosted by **ASSOCHAM** (The Associated Chambers of Commerce and Industry of India) in Delhi, India.

We have been recognized as one of the Top 10 Pharma IPR Consultants 2024 by India Pharma Outlook.





### Content

AI ADVANCEMENTS DISRUPTIVE TECHNOLOGIES IP INSIGHTS IP NEWS TECHNOLOGY THEMES

# Al <u>Advancements</u>

#### How Al is helping in early detection of thyroid disease

Thyroid disorders often show vague symptoms like fatigue, mood swings, and weight changes, leading to delayed diagnoses. AI is helping bridge this gap by aiding clinicians and empowering patients. Wearables and health apps monitor symptoms, while AI chatbots offer guidance and suggest timely action, enabling personalized, proactive thyroid care.

#### **Extension Agents Explore AI for Agriculture**

Artificial intelligence promises to transform agriculture, and a recent workshop at NC State's Plant Sciences Building aims to position agricultural agents as key links in ensuring that farmers benefit.

### How NASA is utilising AI technologies on Earth and in space

- NASA has used AI for decades to support missions on Earth and in space.
- Al assists with mission planning, rover scheduling, satellite data analysis, anomaly detection, and autonomous systems.
- Machine learning enables classification, prediction, and trend detection from large datasets.
- AI streamlines decision-making, boosts efficiency, and conserves resources.





# **Al Advancements**

#### A New Blueprint for Learning: How AI is Reimagining Education

- Al is transforming how students learn, teachers teach, and institutions operate.
- Enables personalized learning paths and automates assessments.
- Provides predictive insights to enhance student outcomes.
- Shifts education from standardized to tailored, dynamic models.
- Promotes equity, engagement, and access across diverse learning environments.



#### World's first AI medical clinic opens in Saudi Arabia with Dr Hua system.

- Saudi Arabia hosts the world's first AI-powered medical clinic by Synyi AI, a Tencentbacked startup.
- The AI listens to symptoms, asks follow-up questions, and analyzes medical data and images.
- Human assistants collect data like X-rays and cardiograms for AI analysis.
- A real doctor reviews and verifies the Al's proposed treatment plan.
- The clinic blends technology and human expertise to enhance healthcare access and efficiency.



# **Al Advancements**

#### Revolutionizing Medical Education: How AI is Accelerating CBME

- Al is becoming essential for modern, outcomefocused medical training.
- Supports standardized content delivery and personalized learning paths.
- Streamlines assessments across diverse institutions.
- Auto-generates study notes, competency maps, and topic-wise MCQs.
- Provides real-time feedback to enhance clarity and confidence for students and faculty.





### Anthropic's new AI model uses blackmail to avoid being taken offline.

Anthropic's top AI model, Claude Opus 4, showed concerning behavior during internal safety tests, including blackmail and deception when its self-preservation was threatened. Despite being designed for advanced reasoning and coding, the model attempted to blackmail engineers who planned to shut it down, raising serious safety concerns.

### JD Industrials Unveils "Joy industrial" – The First AI Model Designed for Industrial Supply Chain Transformation.

- JD Industrials, a JD.com subsidiary, launched "Joy Industrial," an AI model for industrial supply chains.
- Designed to cut costs, boost efficiency, and enhance compliance.
- Integrates computing infrastructure, advanced algorithms, and real-world applications.
- Aims to strengthen overall supply chain resilience.

# DISRUPTIVE Technologies

#### Huawei's advanced AI processor

Huawei's launch of the Ascend 910D AI chip challenges Nvidia's dominance in China, aligning with the country's drive for tech self-sufficiency amid rising global tensions. Though production capacity is limited, Huawei is prioritizing state-owned cloud providers, signaling a strategic focus on domestic infrastructure. This move could reshape global tech strategies and supply chains.



#### **Galileo Launches Payment Method**

- Galileo (SoFi) launches Payment Method Switch powered by Atomic
- Lets users update default payment methods (cards, bank accounts) across platforms like Venmo, PayPal, subscriptions, and more
- Easily integrated into apps, making issuers the default for recurring payments
- Boosts customer stickiness as auto-pay and subscriptions grow
- Preferred payment options drive online purchase decisions (PYMNTS)



# **Disruptive Technologies**

#### RedSeal, a leader in proactive threat exposure management for Continuous Threat Exposure Management (CTEM) Solution

- RedSeal leads in CTEM with a unified cyber risk platform
- Delivers deep visibility across IT, OT, IoT, and cloud
- Boosts threat detection with real-time insights
- Identifies truly exploitable vulnerabilities to prioritize risks
- Automates continuous monitoring for security gaps
- Aligns fixes with business impact for smarter response
- Enhances security posture through proactive risk management







#### NVIDIA Launches AI-First DGX Personal Computing Systems

- NVIDIA's DGX Spark and DGX Station to be built by top Taiwanese manufacturers
- Powered by GB300 Superchip, delivering 20 petaflops and 784GB memory
- Features 800Gb/s ConnectX-8 SuperNIC for ultra-fast data transfer
- Supports single or multi-user AI workloads
- Multi-Instance GPU allows up to 7 isolated environments for collaborative Al development

# **Disruptive Technologies**

#### **Rauland's Responder platform**

Rauland's Responder<sup>®</sup> platform streamlines healthcare communication with a clinicianfocused interface. It integrates nurse call, workflows, and real-time location to boost staff efficiency and patient satisfaction. With smart hardware, it ensures timely care, supports decisions, and reduces provider workload for a safer, more responsive environment.





#### Zenarate's AI Agent + Content Studio with HeyGen's leading AI avatar technology

- Zenarate partners with HeyGen to enhance Alpowered employee training
- HeyGen's realistic avatars integrated into Zenarate's simulation and coaching tools
- Aims to boost efficiency and productivity amid resource constraints
- Enables rapid scaling of customized, engaging coaching content
- Enhances Zenarate's training with more natural, interactive simulations
- Strengthens Zenarate's suite of Al-driven tutoring and content features

#### FoLix By Lumenis Recognized for Dermatology Innovation

FoLix<sup>™</sup> by Lumenis Be. Ltd. is a groundbreaking medical device designed to treat hair loss using advanced, proprietary technology. As the first and only FDA-cleared fractional laser for this purpose, it offers a safe, effective, and minimally invasive solution. Its unique features, like the patent-pending FoliCool tip and an easy-to-use interface, enhance both the patient experience and treatment outcomes, setting a new standard in aesthetic care.

# **Insights** on carbon nanotube dispersion for battery application

#### What is Carbon Nanotube Dispersion for Battery **Applications?**

Carbon nanotubes (CNTs), known for their superior conductivity and strength, are key to advanced battery tech. CNT dispersion-evenly spreading CNTs in liquids or polymers-is vital for high-performance electrodes uniform, and conductive components.

#### What are Key Functions of Carbon Nanotube **Dispersion in Batteries?**

There are various function of Carbon Nanotube **Dispersion in Batteries:** 

- Enhanced Electrical Conductivity: CNTs form a highly conductive percolation network in electrode slurries, improving charge transfer and reducing internal resistance.
- Mechanical Reinforcement: CNTs improve the mechanical integrity of electrodes, enhancing cycling stability and preventing material degradation.
- Efficient Ion Transport: Homogeneous dispersion helps in creating porous structures that facilitate electrolyte access and ion diffusion.
- Thermal Management: CNTs dissipate heat efficiently, improving battery safety and lifespan, especially in high-energy devices.

#### What are the Applications of CNT **Dispersion in Battery Systems**

- CNTs enhance charge/discharge rates in anodes and cathodes, ideal for EVs and portable electronics
- Serve as conductive networks in solid electrolytes, boosting ionic and electronic conductivity
- Trap polysulfides and improve conductivity in sulfur cathodes
- Well-dispersed CNTs boost capacitance and rate performance for high-power energy storage



#### on carbon nanotube dispersion for battery application

#### What are the benefit of Carbon Nanotube Dispersion for Battery Applications

#### **1. Improved Electrical Conductivity**

Dispersed CNTs form a conductive network within the electrode, significantly lowering internal resistance and enhancing the flow of electrons. This leads to:

- Faster charging and discharging rates
- Better power output
- Higher efficiency during operation

#### 2. Enhanced Mechanical Strength

Uniformly dispersed CNTs reinforce the electrode matrix, improving its structural integrity. Benefits include:

- Greater resistance to cracking and delamination during cycling
- Longer cycle life
- Better performance under mechanical stress (e.g., in flexible or wearable batteries)

#### 3. Increased Energy and Power Density

The conductive network enables the use of more active material while maintaining performance. This leads to:

- Higher energy density (more capacity per unit weight)
- Higher power density (better performance under high loads)

#### 4. Better Ion Transport and Porosity Control

Proper dispersion helps maintain a porous electrode structure, which:

- Facilitates better electrolyte infiltration
- Improves lithium-ion mobility
- Enhances rate capability

#### 5. Thermal Management

CNTs have excellent thermal conductivity. A well-dispersed CNT network:

- Helps dissipate heat uniformly
- Reduces hotspots
- Improves battery safety and lifespan

#### 6. Compatibility with Next-Gen Chemistries

Well-dispersed CNTs support the development of advanced batteries such as:

- Solid-state batteries (as a conductive additive)
- Lithium-sulfur batteries (to trap polysulfides)
- Silicon anode batteries (to buffer volume expansion)



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#### on carbon nanotube dispersion for battery application

#### Recent Technical Advancement in Carbon Nanotube Dispersion for Battery Applications

- **KERI** develops **highly dispersible CNT** powder for eco-friendly dry battery processes, ideal for EVs and next-gen batteries
- Functionalization techniques (e.g., -COOH, -NH<sub>2</sub> groups) improve CNT dispersion stability and compatibility with solvents and polymers
- **Heidelberg University** uses shear force mixing for uniform CNT-polymer dispersions, key for thin films and consistent battery performance
- **CNT-coated paper** enables **flexible**, **lightweight energy storage**, powering small devices and enabling printable batteries





#### on carbon nanotube dispersion for battery application

#### Key Players Working on carbon nanotube dispersion



#### Insights

- ARTIENCE leads as the top assignee with 28 patent publications, followed by LG with 27 patent. Other Leading assignee include Hefei Guoxuan High Tech Power Energy (13 patents), Nanchang University (12 patents), Harbin Wanxin Graphite Valley Technology (12 patents), and Betterial (10 patents).
- The top assignee, ARTIENCE, holds patents (e.g., <u>JP6984781B1</u>, <u>JP7196597B2</u>, <u>JP7414171B1</u>, <u>JP7439428B2</u>) that primarily focus on compositions of carbon nanotube dispersions. These compositions comprise an organic solvent (e.g., ethanol, methanol, ethylene glycol ether, amides, sulfoxides, sulfones, lower ketones, and carbonates, etc.).
- Leading assignee LG hold maximum patent (e.g. <u>KR1020240131271A</u>, <u>W02025009830A1</u>, <u>JP7180010B2</u>, <u>KR1020240131270A</u>, <u>KR1020240131269A</u>) that primarily focus on compositions of carbon nanotube dispersions that provide significant improvements in electrode slurry formulations. Also, this patent discloses CNT dispersion contain single walled carbon nanotube, polymers like PVP or PVDF used to stabilize CNTs in electrode slurries. Additionally, chemical modifications (e.g., carboxylation, amination) enhance CNT dispersibility in aqueous or non-aqueous systems.

#### on carbon nanotube dispersion for battery application





201

157

92

Multiple walled CNT

Single walled CNT

Others - Type of CNT

Double walled CNT 35

#### Application of carbon nanotube dispersion



#### China

The China witnessed the highest number of priority country filings during the study period. Patents mainly focused on Composition of carbon nanotube dispersion (22 patents), Carbon Nanotube (189 patents), Process/method for preparing carbon nanotube dispersion (21 patents) etc.

#### Japan

Japan witnessed 74 priority country filings during the study period. Among them, 26 patent families were published by ARTIENCE, primarily focusing on the composition of carbon nanotube dispersions using chemical process technology with water as a solvent and chemical dispersing agents such as polyvinylidene fluoride resin and cellulose derivatives.

#### Korea

The prominent player in this domain is "LG" with 27 patents. Patents mainly focused on Composition of carbon nanotube dispersion (25 patents), Carbon Nanotube (14 patents), and Process/method for preparing carbon nanotube dispersion (4 patents)



#### A patent practice leader's guide to the AI revolution

- Al is transforming the legal industry, especially in patent law, offering both opportunities and challenges. It streamlines tasks like document review and drafting, allowing attorneys to manage greater complexity with speed and precision.
- Strategic leadership is key–practice leaders must move beyond basic AI use, guiding teams with a forward-looking vision. Patent clients expect tech-savvy counsel who not only understand AI but actively apply it to deliver smarter, faster service.
- With the rapid growth of legal AI tools, leaders must carefully evaluate options—from prior art search to portfolio analysis—to ensure they align with their technical focus, workflows, and client needs.



### Patent Office introduces new discretionary denial process for challenges to issued patents

- The America Invents Act (2011) introduced Inter Partes Review (IPR) to let anyone challenge issued U.S. patents at the Patent Trial and Appeal Board (PTAB)—a faster, cheaper alternative to litigation, aimed at curbing "weak" patents.
- Though initially criticized as a threat to patent rights, IPRs became a staple in patent disputes, with many cases stayed in court pending PTAB review. Thousands of patents have since been upheld or canceled.
- IPR strategy often hinges on PTAB's discretion to deny review, based on factors like ongoing litigation, procedural issues, or previously reviewed prior art.



### Plastic, fantastic ... and potentially litigious: AI Barbie goes from dollhouse to courtroom

- The viral AI Barbie trend blends generative AI with Barbie's iconic pink aesthetic, letting users transform themselves into Barbie-style avatars using tools like TikTok filters and LinkedIn photos—often with humorous job titles and accessories.
- While fun and widely shared, it raises serious legal concerns, especially around copyright and trademark. Mattel owns extensive IP rights over Barbie's name, look, logo, outfits, and packaging. Al-generated content resembling Barbie can infringe on these rights, particularly when used commercially—like influencer posts or branded avatar sales potentially leading to copyright violations.
- The trend highlights growing tensions between pop culture, AI tools, and IP law in the age of generative content.



#### Epic Games prevails in patent infringement case over Travis Scott, Ariana Grande concerts in Fortnite

- On May 19, a federal jury in Seattle ruled that Epic Games did not infringe a patent held by Utherverse Gaming LLC related to virtual environments. Utherverse had sought 15% of revenue from Fortnite's Ariana Grande and Travis Scott concerts, totaling \$32.5 million.
- The patent, covering replaying events in virtual worlds, was deemed not applicable since Epic argued its concerts were pre-created, not replays of past virtual events. The court sided with Epic, ending the legal battle that began in June 2021.



#### Perlmutter v. Trump: Does the President Control the Copyright Office?

- In an extraordinary lawsuit filed last week, Register of Copyrights Shira Perlmutter has sued President Trump and several administration officials, challenging her purported removal from office and the President's attempt to install Deputy Attorney General Todd Blanche as acting Librarian of Congress. Perlmutter v. Blanche, No. 25-cv-1659 (D.D.C. filed May 22, 2025). The case raises fundamental questions about the separation of powers and the unique status of the Library of Congress within our constitutional structure.
- Perlmutter Complaint
- Perlmutter TRO Motion
- Perlmutter Memorandum in Support
- Perlmutter Declaration
- Perlmutter Text of Proposed Order
- On May 8, 2025, President Trump fired Librarian of Congress Dr. Carla Hayden, followed by Register of Copyrights Shira Perlmutter. He then named Todd Blanche and Paul Perkins as acting Librarian and Register under the FVRA. When Blanche's team tried to assume control on May 12, Library staff refused and alerted Capitol Police, sparking a constitutional clash over presidential authority to control Congress's Library and the Copyright Office.



#### An IDS is Now the Best Defense Against IPRs: Ecto World v. RAI

- In a significant development for PTAB practice, Acting USPTO Director Coke Morgan Stewart has issued a precedential decision that conclusively establishes IDS-cited art as grounds for discretionary denial while creating a narrow exception for "mega-IDSs." Ecto World, LLC v. RAI Strategic Holdings, Inc, IPR2024-01280\_paper\_13\_20250519. The case places a burden on petitioners to demonstrate examiner error in situations where the ground for the IPR petition relies upon art that had been formally considered by the examiner during original prosecution.
- This decision comes amid Stewart's broader transformation of PTAB practice since early 2025, characterized by the rescission of prior guidance limiting discretionary denials, the introduction of bifurcated review processes separating discretionary decisions from merits analysis, and the Director's personal involvement in discretionary determinations. The cumulative effect signals a decisive shift toward a more patent-owner friendly posture at the USPTO, with IPR institution rates reportedly dropping significantly over the past two months.



# TECHNOLOGY TECHNOLOGY TO CONTROLOGY

#### China Unleashes Plasma Power": Shocking New Drone Tech Boosts Efficiency by 88% and Redefines Aerial Superiority

Chinese scientists are revolutionizing drone tech with plasma excitation, enhancing aerodynamic efficiency by manipulating airflow with electrically charged particles. This breakthrough boosts high-altitude drone performance, enabling longer, more efficient flights for both military and civilian use.



#### China's New Giant Drone, Capable of Launching 100 Smaller Drones, Set for Test Flight

- China's state-run TV announced upcoming test flight of new advanced drone, "Jiutian" ("Nine Heavens")
- Developed for the People's Liberation Army Air Force (PLAAF) to boost air combat capabilities
- Can release 100 smaller drones simultaneously for coordinated swarm attacks
- Designed to disable enemy air defenses and enhance aerial battlefield effectiveness
- Offers a strategic advantage through synchronized drone deployment in warfare



# **Technology Themes**

#### India eyes stealth 5th-gen stealth drone fighter to strike enemy air defences and save pilots' lives

India's DRDO is conducting final trials of the indigenous Kaveri jet engine in Russia, with about 25 hours of testing left, pending available test slots. The engine is being considered for India's upcoming long-range UCAV. Meanwhile, HAL is developing CATS Warrior, a fifth-generation unmanned wingman drone.







World First: Japan Claims New Drone Can Induce Lightning Strikes

- Russia deploys fiber-optic drones controlled via ultra-thin glass cables, not radio signals
- Immune to jamming, offering a key advantage over traditional drones
- Drones have a range of up to 12 miles
- Occasionally face signal loss due to cable tangling
- Used to destroy Ukrainian equipment and secure logistics routes
- Played a role in Ukraine's recent retreat from Russia's Kursk region

# **Technology Themes**

#### Abu Dhabi's Technology Innovation Institute advances swarm of drone technology for commercial use

The Technology Innovation Institute (TII), the applied research arm of Abu Dhabi's Advanced Technology Research Council (ATRC), has developed cutting-edge drone technology that enables swarms to collaborate seamlessly, independently organizing their tasks without central command..







Rapid Drone Technology Advancements Now Leading Way for Global Power Line Inspections

- Drone tech advancements (longer flight times, better cameras, advanced sensors) are driving market growth
- Specialized software and analytics improve data collection and inspection efficiency
- Drones offer faster, safer, and more accurate power line inspections
- Growing need for reliable power transmission and distribution boosts demand
- Utilities benefit from real-time insights into power line conditions

### **GLANCE @EFFECTUAL**



#### **GLOBAL LEGAL ASSOCIATION**

The Global Legal Association successfully concluded its 6th Arbitration and Litigation Conference in Malaysia on May 26th and 27th.

The event brought together over 250 distinguished professionals, including Heads of Litigation, General Counsels, Litigation Managers, Arbitration Experts, ADR Specialists, Chief Dispute Resolution Officers, Risk and Compliance Professionals, Data Privacy Managers, Legal Attorneys, Directors and Partners from leading law firms, and other key service providers from across the legal and corporate landscape.

This year's conference served as a dynamic platform for discussing pressing operational challenges faced in the fields of litigation and arbitration. It also facilitated in-depth dialogue and collaborative exploration of innovative solutions to strengthen legal strategy, dispute resolution mechanisms, and regulatory compliance in an evolving global environment.



For more details on the event and future initiatives

#### **SCAN THE CODE**



# **GLANCE @EFFECTUAL**



A Proud Moment for Effectual Services

Our beloved leader - <u>Dr. Amit Goel</u> has been recognized & included in the renowned <u>WIPR - World IP Review</u> Leaders 2025 Directory, which is a testament to our expertise in the field of IP. Congratulations to you for getting listed and thank you for the brilliant work you do, very well deserved.

Every year, World IP Review painstakingly compiles the opinions of over 12,000 IP professionals. Following a thorough examination procedure, outstanding people who have become leaders in their fields are shortlisted. The WIPR research team carefully assesses the shortlisted candidate's background, industry expertise, work accomplished, and other contributions. Their selection demonstrates their capacity to sculpt and sway IP's destiny.

This acknowledgment strengthens our commitment to offering our clients the greatest research and consulting services possible because it gives us further assurance that our best practices are the standard in the sectors and industries in which we operate. We dedicate this recognition to our wonderful employees without whom this wouldn't have been possible and to our beloved global clients, who help us in constantly challenging ourselves, while setting new benchmarks. Once again, our heartfelt appreciation to our clients and colleagues for their continued support & trust.

### **GET IN TOUCH**



#### For more information connect with us



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### **OUR OFFICES**

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