

ATHARVA ROBOTICS CENTER

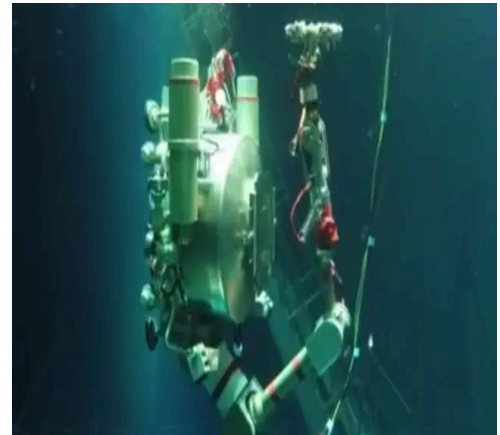
Daily News on Innovation & Technology

10th October, 2025

Japan's robot inspector swims inside nuclear reactor for critical safety scans

By Abhishek Bhardwaj, October 09, 2025

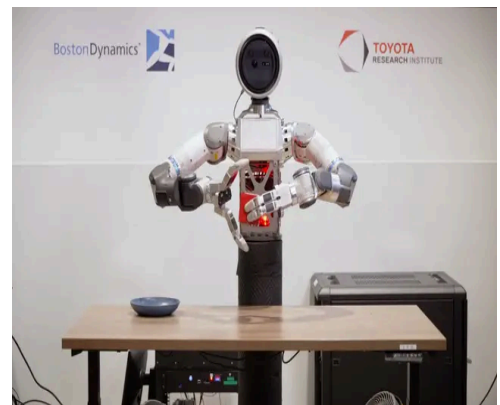
Japan-based Mitsubishi has announced the accomplishments of its autonomous robot, which is used to carry out underwater inspections in a nuclear reactor vessel. The A-UT – autonomous underwater inspection device – from the house of Mitsubishi Heavy Industries (MHI) Group is tasked with checking for faults in the weld lines inside a reactor vessel at the core of a nuclear power plant.



Video: Atlas humanoid robot gets 3-fingered hands to lift delicate and heavy objects

By Sujita Sinha, October 09, 2025

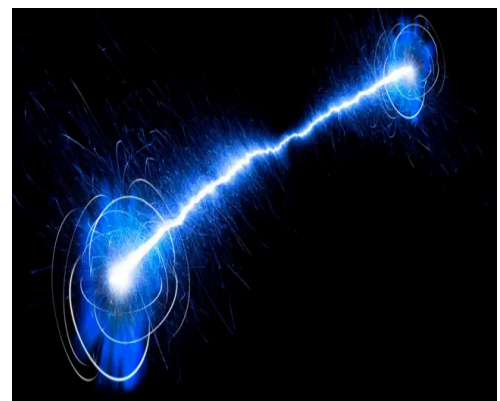
Boston Dynamics has unveiled a major update to its humanoid robot Atlas, this time focusing on its hands. Over 12 years since the robot was first introduced, the Massachusetts-based company has made significant progress in both mobility and AI. On Wednesday, the robotics firm shared a new video highlighting improvements to one of the most difficult parts of humanoid robots — their hands.



Breakthrough 'physics shortcut' solves quantum problems on ordinary laptop

By Aman Tripathi, October 09, 2025

A team of physicists from the University at Buffalo has developed a user-friendly method that allows researchers to solve complex quantum problems, once thought to require massive supercomputers, on an ordinary laptop. The breakthrough extends a powerful “physics shortcut” and provides a practical template that could soon become a primary tool for exploring quantum dynamics.



[US: World's first high-pulse microwave robot to fry drone swarms in seconds unveiled](#)

By Kapil Kajal, October 09, 2025

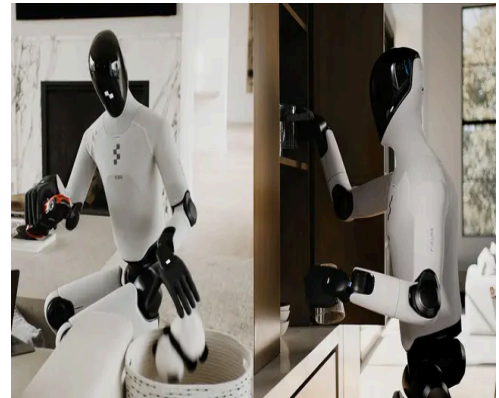
US defense firms Epirus and General Dynamics Land Systems (GDLS) have unveiled a new autonomous robotic system designed to counter growing drone threats on the modern battlefield, combining high-power microwave technology with a next-generation unmanned ground vehicle. The new platform, called Leonidas Autonomous Robotic (Leonidas AR), integrates Epirus' Leonidas high-power microwave (HPM) weapon with GDLS's Tracked Robot 10-ton (TRX) unmanned ground vehicle.



[Video: Figure 03 humanoid robot folds laundry, cleans dishes, and chats with ease](#)

By Aamir Kholam, October 09, 2025

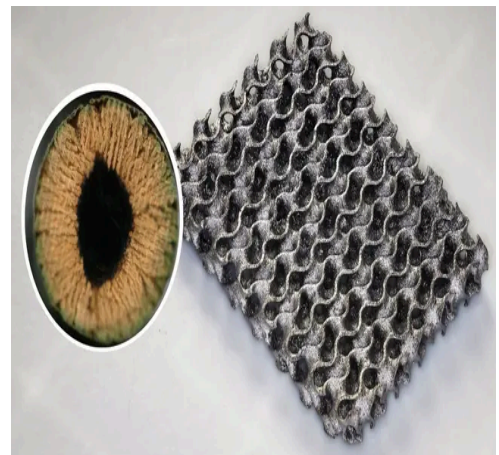
Figure AI has unveiled its third-generation humanoid, Figure 03, marking a major leap toward everyday robotic assistants. The five-foot-six machine builds on its predecessor, Figure 02, with a sharper sensory system, a softer look, and better coordination. The company says the new model is powered by Helix, its in-house AI that fuses vision, language, and movement to learn directly from human behavior.



[New 3D printing creates ultra-strong materials that could resist 20 times more pressure](#)

By Prabhat Ranjan Mishra, October 09, 2025

Researchers have developed a new 3D printing method that offers intricate constructions for next-generation energy, biomedical, and sensing technologies. Developed by researchers at EPFL, the new method helps grow metals and ceramics inside a water-based gel, resulting in exceptionally dense constructions. Researchers revealed that rather than using light to harden a resin pre-infused with metal precursors, as previous methods have done, they first created a 3D scaffold out of a simple water-based gel called a hydrogel.



Scientists deploy 'drone knights' to shield 200-year-old trees from drought

By Georgina Jedikovska, October 09, 2025

A group of researchers in Germany has found a high-tech way to protect some of Stuttgart's oldest trees from climate stress by sending data-driven drones into the sky to track them. Scientists at the University of Hohenheim recently introduced a data-driven drone system to monitor tree health and optimize irrigation across the university's historic Hohenheim Gardens. The initiative combines high-resolution aerial imaging, environmental sensors, as well as advanced analytics to assess the water requirements of trees that have stood for nearly two centuries. It is aimed at improving climate resilience and reducing water consumption.



News Articles

Qualcomm expands India focus to chips, AI and IoT

OJASVI GUPTA
New Delhi, October 9

QUALCOMM IS EXPANDING its India strategy to new growth areas, including artificial intelligence (AI), extended reality (XR), automotive technology and the Internet of Things (IoT).

The company expects these segments to play a key role in shaping its business over the next three years, Manmeet Singh, senior director and India business head for automotive, IoT, connectivity and broadband at Qualcomm India, told Fe.

Singh said that mobile chipsets still contribute over half of Qualcomm's revenue, but diversification is gathering pace. "Our mobile business remains strong, but we are building a broader portfolio around auto,



IoT, broadband and compute that will contribute substantially by 2028," he said.

A major focus is on XR and smart glasses. Qualcomm's chips already power a range of XR products and AI-driven wearables, from watches and earbuds to advanced eyewear. Singh said the next generation of smart glasses will resemble regular sunglasses but offer features like video recording,

beamforming audio for music streaming and the ability to project digital content onto transparent displays. The company is also working with Indian partners to develop locally relevant XR products.

AI integration is another priority. Qualcomm's upcoming Wi-Fi access points will use AI to manage bandwidth in real time, optimising performance for households with dozens of connected devices. "An average Indian home may soon have 30 to 35 connected devices. AI will be crucial to ensure each performs seamlessly," Singh said.

In automotive, Qualcomm's advanced driver-assistance systems are being adapted for Indian roads, taking into account challenges such as local traffic patterns and unpredictable conditions.

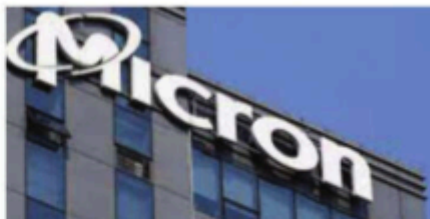
Source: Financial Express Newspaper, 10-10-2025

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Volatile World

Nowhere is the tension between dependency and autonomy clearer than in technology. Semiconductors are the brains of the digital age. India has long been absent from the scene, but projects like Micron's \$2.7 billion ATMP facility in Gujarat and Applied Materials' \$400 million R&D centre in Bengaluru indicate a promising foothold. Nevertheless, Trump's America First instincts may cap India's role at assembly only, keeping high-value fabrication at home



When Donald Trump returned to the White House in January 2025, many expected a revival of his emblematic economic nationalism. Few, however, foresaw his outrageous move to impose a \$100,000 H-1B visa fee. For three decades, the H-1B programme had been the conduit of America's technology industry, allowing firms to hire engineers, programmers, and researchers from abroad, majority of them from India.

By setting the fee at a level that makes the programme extortionate, Trump struck at the heart of the U.S.-India innovation marketplace. The immediate reaction was shock. Silicon Valley warned of talent shortages. Infosys and Wipro shares fell, while students in Indian tech institutions suddenly saw their American dreams blurred.

Nevertheless, the visa shock seems more than an immigration reform. It is a metaphor for a new geopolitical era, a world where technology, trade, and people could be instrumentalized. A world where the United States is both indispensable partner and a ruthless unpredictable power, where India must navigate volatility without compromising its strategic autonomy.

Trump's protectionism narrows India's choices, but also creates opportunities. By turning disruption into renewal, India can emerge as a new pole of global innovation, shaping rather than merely adapting to the twenty-first-century techno-disorder.

Trump's tariffs go beyond trade balances. During his first term, India lost preferential access under the Generalized System of Preferences, costing exporters hundreds of millions annually. Now Trump has imposed a 50 per cent tariff since India continues to buy discounted Russian oil. This is economic coercion cloaked as international trade policy. It reflects a world of strong-arm

interdependence, where commerce becomes provisional. Beijing punishes Australia by blocking coal imports, Brussels imposes carbon border taxes, and Washington links tariffs to geopolitical alignment, for example.

India's dilemma is unenviable. Russian crude supplies 35 per cent of its energy. Abandoning it would spike fuel prices and retard economic growth. But defying Trump risks U.S. tariffs on textiles, pharmaceuticals, and IT services. New Delhi's response has been rather timid, ineffectual hedging, trade pacts with the UAE and Australia, talks with the EU, and deeper ties with Southeast Asia. But the U.S. remains India's largest export market.

Dependency can be reduced, not eliminated. In a tariff-ridden world, India needs to build its massive domestic capacity to withstand shocks. Strategic autonomy must be measured in resilience, not rhetoric, otherwise the tension between dependency and autonomy is clearer than in technology. Semiconductors are the brains of the digital age. India has long been absent from the scene, but projects like Micron's \$2.7 billion ATMP facility in Gujarat and Applied Materials' \$400 million R&D centre in Bengaluru indicate a promising foothold. Nevertheless, Trump's America First instincts may cap India's role at assembly only, keeping high-value fabrication at home.

India must push beyond hosting foreign projects toward ecosystem building. It must design and establish firms in Bengaluru, upstream partnerships with Japan, and collaboration with Taiwan and the EU. Self-reliance, Atmanirbhar in Prime Minister Modi's lexicon, does not mean autarky. Even the U.S. depends on Dutch lithography. But self-reliance can mean shaping interdependence on favourable terms. After the Galwan clash in 2020, India excluded Huawei and ZTE from its 5G rollout, betting instead on Open RAN with U.S. and European partners. The Bharat 6G Alliance's partnership with the U.S. Next G Alliance reflects a goal to co-create standards. If successful, India could move from consumer to standard-setter in global telecom. But Open RAN faces hurdles, integration costs, interoperability issues, and Trump's transactionalism. Unless reciprocity is

genuine, with shared IP and joint pilots, India risks being reduced to a market rather than a co-developer.

India's space programme embodies both prestige and pragmatism. The Chandrayaan-3 lunar landing (2023) showcased ambition, while the NASA-ISRO NISAR satellite (2025) delivers data for agriculture and climate resilience. An Indian astronaut aboard the ISS would symbolize U.S.-India cooperation. But Trump could treat space partnerships as transactional deals, demanding cost-sharing or restricting technology transfers. For India, the lesson is that collaboration must be a platform for domestic innovation. Like Airbus in Europe, India must embed partnerships into indigenous capacity.

China is India's big trading partner and fiercest rival. The Galwan clash of 2020 reignited border hostility; nonetheless, Chinese goods dominate Indian imports, fuelling an \$80 billion trade deficit. India has banned several Chinese apps, tightened FDI rules, and barred Huawei, but remains dependent on Chinese hardware from smartphones to solar panels. Trump's hawkishness toward Beijing seems to give India cover. Export controls may slow China's rise, and multinationals may seek "China-plus-one" strategies, often landing in India. But Washington's zero-sum framing, risks reducing India to a stand-in status. India must diversify, engaging Europe, Japan, ASEAN, and the Global South, to preserve its real autonomy.

Artificial intelligence is becoming a ubiquitous technology getting embedded into all facets of life. India's partnerships with NVIDIA, Reliance, and TCS aim to build vernacular AI, democratizing access for farmers, students, and patients. But AI's bottleneck is compute. GPUs are dominated by NVIDIA and AMD, fabricated in Taiwan and South Korea. Washington's export controls, aimed at China, constrain India as well. If Trump tightens restrictions, India risks being starved of tools it needs to

innovate. India's response must be threefold: domestic compute clusters, diversified partners (Japan, EU), and open-source ecosystems.

Otherwise, AI risks replicating dependency rather than breaking it. The deepest U.S.-India corridor is not chips or satellites but people. About 71 per cent of H-1B visas went to Indians in 2024. Indian-Americans now number 4.5 million and lead global companies from Google to Microsoft. Trump's \$100,000 visa fee disrupts this channel. Students are uncertain about U.S. degrees and remittances are threatened.

But the long-term effect may be reverse brain drain. Engineers who once saw Silicon Valley as the only path may build careers in Bengaluru, Hyderabad or Pune. If managed wisely, this becomes brain circulation. Returnees bring skills, networks, and capital. Indian start-ups are already attracting Silicon Valley veterans home. The task is to provide fertile soil: world-class universities, start-up-friendly regulations, and incentives for returnees.

Human capital is the most resilient force for autonomy. Chips can be denied, visas restricted, supply chains disrupted. But a skilled population cannot easily be intimidated. Strategic autonomy, then, is not a slogan. It is the embedding of resilience in society, through skills, institutions, and multipolar engagements. Trump's new visa proclamation symbolized the end of an era of assumed openness. But shocks can be catalysts. If tariffs, visa barriers, and tech chokepoints force India to invest in its own capacity, diversify ties, and refurbish talent, they may strengthen rather than weaken autonomy.

India has the scale, talent, and traditions to emerge as a hub of innovation. By converting its youthful demographic dividend into an innovation dividend, leveraging joint projects for domestic capacity, and anchoring autonomy in capabilities, India can rise as a force multiplier of the twenty-first-century order. The Trumpage reminds India that technology is power, freedom is capability, and autonomy must be built and rebuilt continuously. If India seizes this moment, the H-1B challenge will become not the closing of a door but the opening of another, toward an India that is both a democracy of scale and a shaper of the global techno-age.



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The writer is the author of India In A New Key: Nehru To Modi. He hosts the podcast, America Unbound

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