

# Technology Roundup

A NEWS BULLETIN

TECHNOLOGY INFORMATION SERVICES (TIS)

PAKISTAN SCIENTIFIC AND TECHNOLOGICAL INFORMATION CENTRE

PASTIC

September - October 2025

VOLUME 17 NO. 5



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## Tech News Headlines

- Pakistan's First Hyperspectral Satellite Launched
- CDA-STZA Collaboration Boosts Technology Development
- KP Government in Support of the Affordable Internet Services
- Google Launches AI Plus Plan to Power Pakistan's Digital Evolution
- Pakistan's Technology Powerhouse at GITEX
- Pakistan's First Stem Cell Skin Bank
- Solar Growth Fuels Pakistan's Energy Shift
- AI for Growth: Saudi-Pakistan Tech Partnership
- Pakistani Tech Talent Wins Global AI Challenge
- Pakistan's Drive for Health Technology Exports
- Sindh Expands IT Program with Google Partnership
- Pakistan's First Free Cancer Knee Implant Surgery
- New Cloud Ecosystem Boosts Pakistan's Digital Growth
- Quantum Lie Detector Confirms True Quantum Computing
- Oman Leads Next Frontier in Human Space Simulation
- Smart Nano Films Drive Future of Sustainable Cooling
- Atomic Clock Innovation May Reveal Unseen Cosmic Events
- New Insights into Earth's Deepest Diamond Pathways
- Smart Roads Initiative Targets Safer Motorcycle Deliveries
- Rainbow Chip Revolutionizes Optical Data Transfer
- McGill's DOLPHIN Unveils Invisible Clues inside Cells
- Smart Defense Framework Protects Drones from Hackers
- Revolutionary Vaccine Targets Tumors with Precision
- UAE Sets New Benchmark in 6G Connectivity
- Neural Mini-Brains as Next-Gen Computers

## Forthcoming Tech Events

➤ International Conference on Engineering & Computing Technologies (ICECT)

➤ International Conference on Applications of Space Science and Technology (ICAST)

➤ 7<sup>th</sup> International Conference on Recent Trends in Chemistry

➤ 9<sup>th</sup> International Symposium on Light Matter Interaction (ILMI)

➤ Organic and Medicinal Chemistry Symposium

➤ 19<sup>th</sup> International Conference on Open Source Systems and Technology

## Tech & Trade Offers

More inside ➡



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### Pakistan's First Hyperspectral Satellite Launched

Pakistan has achieved a major milestone with the successful launch of first Hyperspectral Satellite (HS-1) from China, marking a breakthrough in national space technology. According to the Space and Upper Atmosphere Research Commission (SUPARCO), HS-1 will capture highly detailed hyperspectral imagery across hundreds of spectral bands, far beyond the capability of ordinary satellite cameras. This advanced technology will enable precise analysis of land, vegetation, water resources, and urban features. The satellite is expected to significantly enhance precision agriculture, environmental monitoring, urban planning, and disaster management. It will support mapping of crop health, soil moisture, and water quality, while improving early warning systems for floods and landslides, especially in northern Pakistan. SUPARCO stated that HS-1 will also aid CPEC-related development by identifying geo-hazards and supporting sustainable infrastructure planning. The Prime Minister of Pakistan congratulated scientists and engineers for the achievement and praised China's cooperation, calling it a model of strategic partnership. The Foreign Office termed the launch a "pivotal step" in Pakistan's space programme, reaffirming SUPARCO's commitment to use space technology for national development.



### CDA-STZA Collaboration Boosts Technology Development

The Capital Development Authority (CDA) and the Special Technology Zones Authority (STZA) have agreed to establish a Joint Working Group (JWG) to accelerate the creation of a Special Technology Zone (STZ) in Islamabad, a major move towards transforming the federal capital into a modern technopolis. The decision was finalized during a high-level meeting chaired by CDA Chairman and STZA Chairman at CDA Headquarters. Under the proposed plan, STZA will function as the regulatory body responsible for licensing high-tech enterprises, while CDA will oversee physical planning and infrastructure development. The JWG will evaluate proposals, analyze financial and operational models, and present its recommendations to the Federal Government. Officials shared that the upcoming zone will host innovation clusters and high-tech production facilities, offering fiscal incentives to attract local and international firms. Chairman CDA emphasized that developing the Special Technology Zone is a top CDA priority to foster innovation, create jobs, and strengthen Islamabad's role as a regional technology hub.



### KP Government in Support of the Affordable Internet Services

The Khyber Pakhtunkhwa government has announced a major step to enhance affordable and high-quality internet services across the province. The decision aims to eliminate financial barriers that limited the expansion of broadband networks, especially in remote and underserved areas. The government seeks to create a more enabling environment for telecommunication companies to invest and innovate in digital infrastructure. The initiative,

introduced under the leadership of the Chief Minister Khyber Pakhtunkhwa, has been received with great enthusiasm by internet users, businesses, and freelancers alike. It will help reduce operational costs for telecom operators and ensure better connectivity at lower rates. Under the new framework, companies will be responsible for repairing any damage caused to roads or pathways during excavation. The move reflects the vision of Digital Pakistan, promoting inclusive access to technology and strengthening the province's journey toward a digitally empowered society.



### [Google Launches AI Plus Plan to Power Pakistan's Digital Evolution](#)

Google has launched its AI Plus Plan in Pakistan, marking a significant milestone in the nation's journey towards digital transformation. The initiative, introduced in collaboration with the Special Investment Facilitation Council (SIFC), underscores Pakistan's growing appeal as a destination for global technology investment and innovation. The AI Plus Plan aims to democratize access to advanced artificial intelligence tools, enabling users across diverse sectors, from education and business to digital media to harness next-generation computing power. Through this program, users will gain access to Gemini 2.5 Pro, the Veo 3 Fast video generation



model, and full Gemini ecosystem integration, supporting a wide range of creative and analytical applications. In addition to AI tools, the plan includes 200 GB of cloud storage and offers the flexibility to share benefits among up to five users per subscription. Officials noted that this initiative will not only enhance Pakistan's digital capabilities but also accelerate innovation, entrepreneurship, and AI literacy nationwide.

### [Pakistan's Technology Powerhouse at GITEX](#)

Pakistan has inaugurated its national pavilion at GITEX Global 2025 in Dubai, showcasing ten homegrown startups and over twenty established tech companies to promote the country's growing role in the global digital economy. The Pakistan Pavilion, inaugurated by the Federal Minister for Information Technology and Telecommunication, serves as a hub for networking, investor engagement, and innovation display. Organized by the IT ministry in collaboration with national tech bodies, the initiative seeks to attract foreign investment and strengthen Pakistan's global technology footprint. Speaking at the event, the minister said Pakistan's participation reflects its confidence, capability, and commitment to a digitally empowered future under the Digital Nation Pakistan vision. With a skilled youth and rising IT exports, Pakistan is poised to take a leading role in the global tech landscape. The ministry is supporting ten startups at GITEX to connect them with global investors. Officials noted Pakistan's growing



recognition as a leading tech destination, reaffirming its focus on innovation, entrepreneurship, and digital partnerships across the Gulf and beyond.

### Pakistan's First Stem Cell Skin Bank

The Stem Cell and Skin Bank was inaugurated at PIMS Hospital, Islamabad, during a seminar on “From Trauma to Recovery – Elevating Burn Treatment Standards.” The initiative represents a major advancement in Pakistan's healthcare system, aimed at improving burn treatment through modern regenerative medicine and alignment with international standards. The facility will enhance the country's capacity to provide timely care, advanced skin grafting, and long-term rehabilitation for burn patients. Participants highlighted that burn injuries cause not only severe physical harm but also long-lasting psychological effects, requiring a comprehensive approach that combines emergency response, surgical care, and emotional support. Experts emphasized that adherence to international treatment protocols and the presence of trained specialists are essential for achieving consistent recovery outcomes. The Stem Cell and Skin Bank is expected to pave the way for cutting-edge therapies, improved survival rates, and stronger institutional readiness for future medical challenges. The event concluded with a hands-on workshop where medical staff were trained in modern burn management techniques and post-recovery care practices.



### Solar Growth Fuels Pakistan's Energy Shift

Pakistan's combined off-grid and net-metered solar capacity has reached an estimated 18,000 megawatts (MW), prompting government efforts to manage the growing impact of renewable energy on national grid stability. According to Power Division Secretary, net-metering installations now contribute 6,000 MW, while off-grid systems, identified through satellite imagery, add roughly 12,000 MW. It was cautioned that the increasing load from decentralized solar generation could strain the national grid if not carefully synchronized. The grid-based electricity carries additional costs of Rs14 per unit for capacity payments and Rs9 per unit in taxes, making net-metered solar power significantly cheaper. However, it was emphasized that solar energy cannot fully replace grid electricity due to reliability and balancing challenges. The National Assembly's Standing Committee on Power, reviewed the “Multi-Vendor Electricity Distribution Bill 2025,” deferring its approval until February 2026. The Officials also confirmed that starting January 2026, consumers drawing up to one megawatt will be able to purchase electricity from multiple vendors under an open-access framework.



### AI for Growth: Saudi-Pakistan Tech Partnership

Saudi Arabia's GO Telecommunications Group is set to establish an Artificial Intelligence (AI) Hub in Pakistan this month, aiming to develop digital solutions and build youth capacity, according to Pakistan's Ministry of IT and Telecommunications. The initiative was announced

during the visit of Pakistan's IT Minister to Riyadh, where discussions centered on cooperation under Saudi Vision 2030 and Pakistan's National AI Policy 2025. The minister also held meetings with the CEO of GO Telecommunications Group and senior officials of the Saudi Data and Artificial Intelligence Authority. The AI Hub will act as a specialized center for digital innovation, focusing on knowledge transfer, talent development, and AI-driven capacity building. The collaboration includes plans for digital infrastructure expansion, advanced data centers, and a technical skills development institute in Pakistan. Both sides emphasized that the partnership would not only promote AI and cybersecurity collaboration but also accelerate economic transformation. Pakistan's National AI Policy 2025 envisions creating 50,000 AI-powered civic projects, 1,000 local AI products, and 3,000 annual AI scholarships within five years.



### Pakistani Tech Talent Wins Global AI Challenge

In a remarkable achievement showcasing Pakistan's growing IT and AI potential, Mirza Abdullah Tariq, an IT professional from Gujrat, has won the Trae AI IDE: Zero Limits Hackathon, securing first place among 879 international teams. Tariq's team, Pathfinders, comprising members from Pakistan, Nepal, and the Philippines, developed an AI-based job recommender system called Access Jobs within just 48 hours, earning a prize of \$3,000. Access Jobs is an intelligent job-matching platform that leverages machine learning and explainable AI to connect candidates with positions aligned to their skills, experience, and preferences. Users can



create detailed profiles including education, experience, and salary expectations, after which the system recommends tailored job opportunities, tracks applications, and analyses skills. Employers can also create profiles to identify suitable talent efficiently. Built using React 18, TypeScript, Tailwind CSS, and a Django-Python backend, the tool integrates Novita AI API for resume parsing and employs custom recommendation algorithms. Currently in its demo phase, Access Jobs aims for a full-scale launch following additional support and development.

### Pakistan's Drive for Health Technology Exports

Pakistan has set a target to raise its pharmaceutical and medical device exports to \$30 billion within five years, Federal Health Minister announced at a seminar "Made in Karachi – Medical Devices." He said the government has launched a digital regulatory platform that cuts the licensing process for medical devices from nearly three and a half years to just 20 days, replacing manual submissions with an online system designed to curb delays. The companies can apply within ten minutes and receive their license in twenty days without traveling to Islamabad or paying intermediaries. Pakistan's current health-sector exports are under \$1 billion, but collaboration with the



Medical Devices Association aims to expand them by \$3 billion initially, advancing toward the long-term goal of \$30 billion. He emphasized Karachi's pivotal role, contributing 68 percent of national revenue and serving as an emerging hub for healthcare technology. Dr Abbas Zafar, Vice Chancellor of Ziauddin University, said local production of devices could make healthcare more affordable and strengthen self-reliance in the medical technology sector.

### Sindh Expands IT Program with Google Partnership

The Sindh government has entered into two strategic Memorandums of Understanding (MoUs) with Google to expand digital skills training under its Peoples IT Program (PITP) and to introduce a Digital Journalism Scholarship initiative. The agreements were signed in Karachi during a ceremony chaired by Chief Minister. Highlighting the success of PITP, the Chief Minister noted that thousands of youth have acquired globally recognized IT certifications, with over 4,300 graduates already engaged in economic activities. He emphasized that inclusion of women and students from rural areas has been a cornerstone of the program's



impact. With the launch of PITP-II, the provincial government has earmarked Rs1.4 billion to train 35,000 students in 12 emerging technologies. Training will be conducted through institutions such as NED University, Mehran University, and Sukkur IBA, targeting candidates from matriculation to graduation levels. The second MoU supports the Google Digital Journalism 2.0 program in collaboration with Tech Valley, offering 1,000 scholarships to journalists, government representatives, and media students, promoting innovation in digital reporting.

### Pakistan's First Free Cancer Knee Implant Surgery

In a major medical advancement, Jinnah Postgraduate Medical Centre (JPMC) has successfully conducted its first artificial knee implant surgery on a cancer patient, marking a new chapter in Pakistan's orthopedic oncology care.

The complex four-hour procedure was carried out completely free of cost, although such surgeries typically cost around Rs3.5 million in private hospitals. The operation was performed by a multidisciplinary team from oncology, orthopedics, and plastic surgery departments, reflecting strong interdepartmental collaboration in advanced medical care. Postoperative evaluations confirmed the patient to be cancer-free, with



the implant expected to restore full mobility and long-term functionality. The high-quality artificial knee, valued between Rs1 million and Rs1.1 million, was provided free of charge and is designed to last 20–25 years. Officials described the achievement as a milestone in Pakistan's public healthcare sector, underscoring JPMC's growing capacity to deliver specialized treatments at par with international standards. The breakthrough is expected to enhance early cancer intervention and strengthen public trust in government healthcare institutions.

### New Cloud Ecosystem Boosts Pakistan's Digital Growth

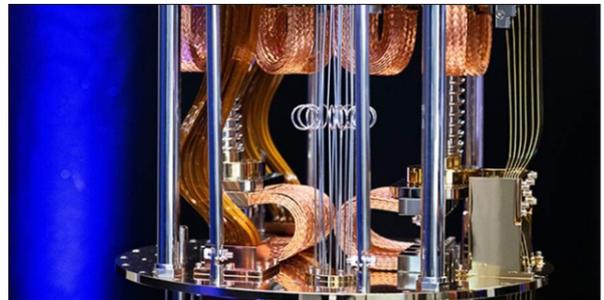
Zeta Technologies, in collaboration with iVolve Technologies, has launched Zeta CloudHub, a comprehensive cloud computing platform offering public, private, hybrid, and multi-cloud solutions. The initiative aims to provide a secure, scalable, and sovereign cloud environment for government bodies, enterprises, SMEs, and startups, supporting Pakistan's transition toward Digital Independence. The partnership focuses on strengthening open-source private cloud infrastructure, enabling organizations to optimize workloads, ensure data sovereignty, and innovate across hybrid and multi-cloud ecosystems.



This approach aligns with global trends, as nearly 80% of enterprises use multi-cloud strategies and 70% adopt hybrid systems. Aligned with the Digital Pakistan Vision, Zeta CloudHub promises to enhance business agility and resilience. According to Zeta's CEO, the platform combines telecom-grade infrastructure with open-source innovation to give Pakistan's public and private sectors greater control over their digital assets. At the GSMA Digital Nation Summit 2025, Zeta Technologies also showcased its leadership in cloud connectivity and digital sovereignty, reinforcing Pakistan's position in the evolving global digital economy.

### Quantum Lie Detector Confirms True Quantum Computing

Physicists have demonstrated a breakthrough in verifying true quantum behavior within large-scale processors, using a method inspired by John Bell's foundational quantum test often described as a "quantum lie detector." The experiment, confirms that certain quantum computers genuinely exhibit quantum effects rather than merely simulating them. In this study, researchers from Leiden University, Tsinghua University, and Zhejiang University successfully tested Bell correlations in systems containing up to 73 qubits, the core units of quantum computation. Instead of directly measuring these complex correlations, the team adopted an innovative strategy, minimizing system energy to reveal evidence of quantum nonlocality. The results showed energy levels far below what is achievable in classical systems, with a 48-standard-deviation margin, making accidental outcomes virtually impossible. The researchers further confirmed a rarer phenomenon known as genuine multipartite Bell correlations, successfully generating low-energy quantum states across 24 qubits. This achievement marks the largest verification of nonlocal quantum behavior to date and strengthens confidence that quantum computers truly operate in the quantum domain, a milestone that could enhance secure communication, quantum cryptography, and advanced algorithm design.



### Oman Leads Next Frontier in Human Space Simulation

Oman is preparing to host an unprecedented Moon/Mars analog mission, designed to simulate extraterrestrial habitats across five continents. Scheduled from October 13 to 26, 2025, the project will be coordinated by the Austrian Space Forum (OeWF), a Vienna-based private research institution known for its pioneering planetary simulation missions. For the first time,

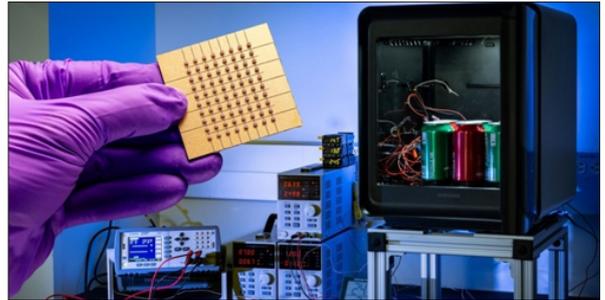
17 institutions spanning Africa, America, Asia, Australia, and Europe will collaborate simultaneously to replicate conditions of human life on the Moon and Mars. Over 200 scientists from 25 nations are expected to participate in this large-scale, interdisciplinary experiment. The Oman-based component of the mission will be centered at the Space Habitat Center, Zone 88, situated within a Special Economic Zone. This location has been chosen for its terrain and environmental resemblance to extraterrestrial landscapes. Building on the success of AMADEE-18, which

explored Mars-like environments for astrobiological and engineering research, the 2025 mission seeks to refine technologies and protocols critical for future human exploration of the Moon and Mars.



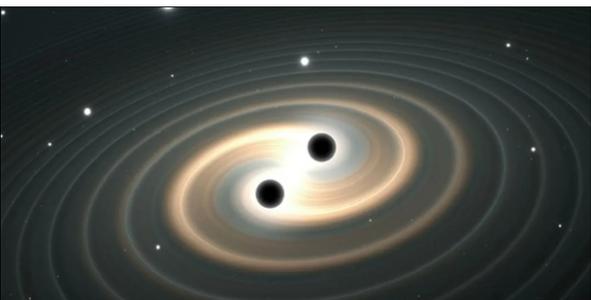
### Smart Nano Films Drive Future of Sustainable Cooling

A next-generation thermoelectric refrigeration system, developed by the Johns Hopkins Applied Physics Laboratory (APL) in Laurel, Maryland, has earned a place among the 2025 R&D 100 Award winners, recognizing it as one of the world's most innovative emerging technologies. The breakthrough relies on Controlled Hierarchically Engineered Superlattice Structures (CHESS), nano-engineered thermoelectric materials designed to transfer heat with exceptional efficiency. In collaboration with Samsung Research, CHESS demonstrated nearly double the heat-pumping efficiency at the material level and achieved up to 70% higher performance than existing bulk thermoelectric devices when integrated into a full refrigeration system. Beyond its efficiency, the CHESS thin-film design uses minimal active material and standard semiconductor manufacturing tools, making it both scalable and cost-effective. Researchers envision applications ranging from miniature cooling devices to building-scale HVAC systems, similar to how lithium-ion batteries revolutionized energy storage. The achievement adds to APL's growing portfolio of award-winning innovations, underscoring its continued leadership in advanced thermoelectric materials and applied nanotechnology.



### Atomic Clock Innovation May Reveal Unseen Cosmic Events

Scientists from the Universities of Birmingham and Sussex have introduced a breakthrough method for detecting gravitational waves in the milli-Hertz range, opening an unexplored window into the cosmos that current detectors cannot reach. While observatories like LIGO and Virgo detect high-frequency waves and pulsar timing arrays capture ultra-low signals, the mid-frequency or milli-Hz band ( $10^{-5}$ –1 Hz) has long remained inaccessible. The new detector design employs advanced optical resonator and atomic clock technologies to sense minute distortions in laser light caused by passing gravitational waves,



all within a tabletop-sized setup. Published in *Classical and Quantum Gravity*, the proposal envisions compact detectors resistant to seismic and environmental noise. According to Dr. Vera Guarrera of the University of Birmingham, this innovation “extends the reach of gravitational wave detection into a completely new frequency range,” potentially enabling a global network of synchronized detectors. The milli-Hz range is expected to reveal signals from white dwarf binaries, black hole mergers, and even early-universe phenomena. Though large-scale missions like LISA aim to probe this spectrum in the 2030s, the proposed optical cavity system could begin exploring it immediately and cost-effectively from Earth.

### [New Insights into Earth's Deepest Diamond Pathways](#)

Diamonds, most of which originate from kimberlites, owe their survival to the extraordinary speed of these volcanic eruptions. Kimberlites are carrot-shaped volcanic pipes that rise from depths exceeding 150 kilometers in Earth's mantle, transporting mantle fragments and sometimes diamonds to the surface at ascent rates estimated as high as 80 miles per hour. Despite decades of study, their precise origins and eruption dynamics have remained puzzling. A new study in *Geology* led by Ana Anzulović at the University of Oslo sheds light on this mystery using atomistic modeling. By simulating how volatile components, particularly carbon dioxide and water, affect the buoyancy of proto-kimberlite melts, the researchers determined the minimum volatile content required for successful eruptions. Focusing on Canada's Jericho kimberlite, the study found that at least 8.2% CO<sub>2</sub> is necessary for ascent, without it, the melt would stagnate within the crust. The models also revealed that water enhances fluidity by increasing element diffusivity, while CO<sub>2</sub> helps drive explosive ascent near the surface. These findings represent the first quantitative constraints on kimberlite eruption mechanics and underscore the role of volatiles in Earth's deep processes.



### [Smart Roads Initiative Targets Safer Motorcycle Deliveries](#)

Dubai's Roads and Transport Authority (RTA) has launched an artificial intelligence-powered initiative aimed at reducing motorcycle accidents by up to 50 percent. The “AI for Safe Cities”



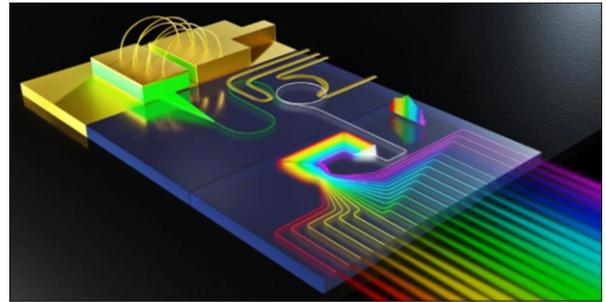
project integrates advanced cameras, facial recognition, and telematics to monitor rider behavior, verify credentials, and enforce safety compliance within designated operational zones. According to RTA officials, the system analyzes parameters such as speeding, sudden braking, reckless maneuvers, and traffic violations to identify training needs among delivery riders. It also ensures the use of proper uniforms and safety gear. Facial recognition technology will

detect distractions such as mobile phone use, while geofencing tools will restrict riders from traveling beyond approved delivery areas. Data reports will be shared with fleet managers to enhance driver performance and safety awareness. Currently, 12,000 delivery motorcycles from various platforms are part of the pilot phase, with nationwide deployment expected by

mid-2026. The project will eventually integrate with UAE Pass and Emirates ID systems to verify that each rider operates the assigned motorcycle, minimizing unlicensed and unauthorized deliveries.

### Rainbow Chip Revolutionizes Optical Data Transfer

Researchers at Columbia University have developed a silicon chip that can transform a single laser into a frequency comb, generating dozens of distinct and powerful light channels simultaneously. The innovation uses a special optical locking mechanism to clean up noisy laser light, achieving lab-grade precision in a compact photonic device. The breakthrough could significantly improve data transmission efficiency and enable advances in quantum technologies, LiDAR, and optical sensing. Unlike conventional systems that require large, costly lasers, this chip harnesses multimode laser diodes integrated with silicon photonics to produce stable, coherent beams. Once purified, the light is split through the chip's nonlinear optical effects into evenly spaced wavelengths, each acting as a separate data channel. This compact, energy-efficient “rainbow chip” could replace multiple discrete lasers in data centers, cutting costs and energy use while boosting transfer speeds. Beyond computing, the technology opens pathways for portable optical clocks, on-chip spectroscopy, and next-generation communication systems, marking a leap forward in scalable silicon photonics.



### McGill's DOLPHIN Unveils Invisible Clues inside Cells

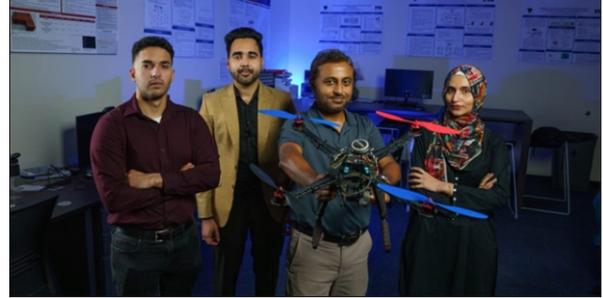
Researchers at McGill University have developed a groundbreaking artificial intelligence tool, named DOLPHIN, capable of detecting previously unseen disease markers within single cells, a major step toward earlier diagnosis and personalized treatment. Published in Nature Communications, the study demonstrates how DOLPHIN can identify subtle molecular signatures by examining RNA splicing patterns at a much finer scale than conventional methods. Instead of viewing each gene as a single unit, the AI analyzes how smaller segments, known as exons, combine, revealing hidden biological variations that often signal



disease progression or treatment response. In testing on pancreatic cancer samples, DOLPHIN discovered over 800 new disease markers missed by standard approaches and successfully distinguished aggressive from less severe cases, offering physicians a clearer path for therapy selection. Beyond diagnostics, the researchers envision using DOLPHIN to build digital “virtual cells”, simulating cellular behavior and drug responses before laboratory or clinical trials. This innovation brings medicine closer to predictive, precision healthcare, where treatment strategies are tailored to each patient's unique cellular blueprint.

### Smart Defense Framework Protects Drones from Hackers

Cybersecurity experts at Florida International University (FIU) have introduced a new defense framework, SHIELD, to protect drones from cyberattacks during flight. Since drones operate as flying computers, they face risks similar to conventional networked systems, often becoming vulnerable to software or hardware manipulation. Unlike existing methods that focus only on sensor-level protection, SHIELD monitors the entire control system, detecting even subtle signs of intrusion such as abnormal power surges or processor overloads. Once an attack is identified, the system classifies it using machine learning and instantly initiates a tailored recovery process, enabling the drone to complete its mission safely. Developed by a research team led by Dr. Mohammad Ashiqur Rahman, the technology was presented at the IEEE/IFIP International Conference on Dependable Systems and Networks. Early simulations show SHIELD can detect and recover from attacks in under a second, representing a breakthrough in ensuring the reliability and resilience of autonomous aerial systems as commercial drone operations expand worldwide.



### Revolutionary Vaccine Targets Tumors with Precision

Russia has unveiled Enteromix, the world's first mRNA-based vaccine reported to show complete effectiveness and safety against cancer in clinical studies. The breakthrough is being hailed as a historic milestone in oncology, potentially transforming how cancer is treated worldwide. Developed by the National Medical Research Radiological Centre in collaboration with the Engelhardt Institute of Molecular Biology, Enteromix trains the immune system to recognize and destroy cancer cells by mimicking their protein structure. Unlike chemotherapy or radiation, which often damage healthy tissue, this vaccine offers targeted protection with



minimal side effects. Administered through a standard intramuscular injection, Enteromix has already entered limited clinical use in Russian oncology centers pending national approval. Researchers suggest it may benefit patients with lung, breast, colorectal, and pancreatic cancers, and even those resistant to conventional therapies. If confirmed for widespread use, Enteromix could mark the dawn of personalized cancer immunization, ushering in a new era of safer, more effective cancer care.

### UAE Sets New Benchmark in 6G Connectivity

In a major leap for the region's connectivity landscape, the UAE has successfully completed the Middle East's first 6G pilot test, achieving a record-breaking 145 gigabits per second (Gbps). The experiment was conducted through collaboration between e& UAE and NYU Abu Dhabi, marking a pivotal step towards next-generation communication networks. The test demonstrated the immense potential of Terahertz-based 6G technology, which promises ultra-fast speeds, near-zero latency, and advanced network intelligence capable of adapting in real time. Experts believe this breakthrough will redefine the way people, busi-

nesses, and cities interact, enabling innovations such as holographic communication, autonomous vehicles, and AI-driven urban systems. Officials emphasized that 6G will go beyond speed to introduce enhanced resilience, radar-level environmental sensing, and post-quantum security protocols to safeguard critical infrastructure. The collaboration between e& UAE and NYU Abu Dhabi highlights how academia and industry can jointly advance the region's technological future, setting the stage for a smarter, faster, and more secure era of digital connectivity.



### Neural Mini-Brains as Next-Gen Computers

What once seemed confined to science fiction is gradually entering scientific reality i.e. the creation of computers built from living cells. Known as biocomputing, this field is being



advanced by researchers in Switzerland who are experimenting with wetware a system where lab-grown neurons are cultivated into clusters, called organoids, and connected to electrodes to mimic basic computational functions. At FinalSpark's laboratory, organoids derived from human skin stem cells are cultured over several months until they can respond to electrical stimulation. Early tests show these miniature "brains" can generate measurable activity when

prompted, though their behavior remains unpredictable. The long-term aim is to harness such neural activity to enable adaptive learning, similar to how artificial intelligence processes data. One of the greatest challenges lies in sustaining these living systems, as organoids lack blood vessels and nutrients essential for survival. Even so, progress is evident organoids can now remain viable for up to four months. Researchers believe biocomputers may eventually complement silicon-based systems, opening new possibilities for energy-efficient computing and medical research.

### SOURCES AND IMAGE CREDITS

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## FORTHCOMING TECH EVENTS

### PAKISTAN

- International Conference on Engineering & Computing Technologies (ICECT)  
November 13 – 14, 2025, National University of Modern Languages (NUML), Islamabad  
<https://numl.edu.pk/icect/>
- International Conference on Applications of Space Science and Technology (ICAST)  
November 18 – 20, 2025, Institute of Space Technology, Islamabad  
<https://icast.pk/>
- 7<sup>th</sup> International Conference on Recent Trends in Chemistry November 19 – 20, 2025, Allama Iqbal Open University, Islamabad <https://icrtc2025.aiou.edu.pk/>

- 9<sup>th</sup> International Symposium on Light Matter Interaction (ILMI) November 20 – 21, 2025, National Centre for Physics, Islamabad <https://www.ncp.edu.pk/lmi-2025.php>
- Organic and Medicinal Chemistry Symposium November 28th, 2025, LUMS, Online <https://sbasse.lums.edu.pk/omc-symposium>
- 19<sup>th</sup> International Conference on Open Source Systems and Technology December 01 – 02, 2025, UET, Lahore <https://icosst.kics.edu.pk/2025/>
- 22<sup>nd</sup> International Conference on Smart Communities: Improving Quality of Life using AI, Robotics and IoT (HONET) December 02 – 04, 2025, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology (GIKI), Topi <https://honet-ict.org/>
- 2<sup>nd</sup> International Conference on Computing & Emerging Technologies (ICCET 25) December 08 – 09, 2025, Superior University, Lahore <https://iccet.pk/>
- 22<sup>nd</sup> International Conference on Frontiers of Information Technology (FIT'25) December 15 – 16, 2025, COMSATS, Islamabad <https://fit.edu.pk/>
- 3<sup>rd</sup> International Conference on Recent Advances in Computing, Artificial Intelligence, and Data Science (CAIDS-2025) December 16 – 17, 2025, Riphah International University, Islamabad <https://www.caids.org.pk/>
- 6<sup>th</sup> International Conference on Computational Intelligence & Internet of Things (ICCIOT) December 16 – 17, 2025, UET, Peshawar <https://www.uetpeshawar.edu.pk/icciot/>
- 5<sup>th</sup> NUST Flagship International Conference on Digital Futures & Transformative Technologies (ICoDT2) December 17 – 18, 2025, NUST, Islamabad <https://nust.edu.pk/events/31655/>
- 15<sup>th</sup> International Conference on Mathematics, Actuarial Science, Computer Science, & Statistics (MACS 15) December 20 – 21, 2025, IoBM, Karachi <https://macs.iobm.edu.pk/>
- 27<sup>th</sup> International Conference on Multi Topic (INMIC 2025) December 23 – 24, 2025, Riphah International University, Islamabad <https://inmic2025.riphah.edu.pk/>
- 7<sup>th</sup> International Workshop on Ion Beam Applications - 2026 January 13 – 15, 2026, National Centre for Physics, Islamabad <https://www.ncp.edu.pk/iwiba-2026.php>
- 6<sup>th</sup> International Conference on Biological Research and Applied Science January 20 – 22, 2026, Jinnah University for Women, Karachi <https://ibras.juw.edu.pk/>
- Advances in Theoretical High Energy Physics - 2026 January 26 – 30, 2026, National Centre for Physics, Islamabad <https://www.ncp.edu.pk/athep-2026.php>
- 7<sup>th</sup> International Conference on Advancements in Computational Sciences February 10 – 11, 2026, The University of Lahore, Lahore <https://sites.uol.edu.pk/icacs26/>

- 1<sup>st</sup> International Conference on Computing Sciences & Emerging Trends  
February 11 – 12, 2026, Quaid-e-Awam University of Engineering, Science & Technology,  
Nawabshah <https://cset.quest.edu.pk/>
- 6<sup>th</sup> International Conference on Computational Intelligence & Internet of Things (ICCIOT),  
2026 February 11 – 12, 2026, University of Engineering and Technology, Peshawar  
<https://www.uetpeshawar.edu.pk/icciot/index.html>

## **INTERNATIONAL**

- The International Conference on Engineering Advancements, Science and Technology  
(ICEAST) November 03 – 06, 2025, Muscat, Oman <https://iceast.mtc.edu.om/>
- 7<sup>th</sup> EAGE Rock Physics Workshop November 10 – 12, 2025, Cape Town, South Africa  
<https://eage.eventsair.com/seventh-eage-rock-physics-workshop/>
- 4<sup>th</sup> International Conference on Computational Intelligence and Knowledge Economy  
November 27 – 28, 2025, Dubai, UAE <https://amityuniversity.ae/ICCIKE2025/>
- 2<sup>nd</sup> International Symposium on Civil Engineering and Smart Structure Technology  
December 05 – 07, 2025, Zhengzhou, China <http://www.iccesst.com/>
- 7<sup>th</sup> International Conference on Frontier Technologies of Information and Computer (ICFTIC  
2025) December 05 – 07, 2025, Qingdao, China <https://www.icftic.org/>
- 8<sup>th</sup> International Conference on Civil Engineering and Architecture (ICCEA 2025)  
December 06 – 08, 2025, Jakarta, Indonesia <https://www.iccea.org/>
- 4<sup>th</sup> International Conference on Modelling, Simulation & Intelligent Computing (MoSICom  
2025) December 10 – 12, 2025, Dubai, UAE <https://mosicom2025.com/>
- International Connect on Civil, Structural and Environmental Engineering  
December 16 – 18, 2025, Toronto, Canada <https://civilconnect.org/>
- International Conference on Materials, Mechanical, and Civil Engineering Technologies  
December 17 – 19, 2025, Tokyo, Japan <https://mmcet.com/>
- International Conference on Computational Intelligence, Security, and Artificial Intelligence  
(IEEE-IntelliSecAI 2025) December 17 – 18, 2025, Al Khobar, Kingdom of Saudi Arabia  
<https://intellisecai.org/>

The International Conference on Engineering Advancements, Science and Technology  
(ICEAST) November 03 – 06, 2025, Muscat, Oman <https://iceast.mtc.edu.om/>

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- 4<sup>th</sup> International Conference on Modelling, Simulation & Intelligent Computing (MoSiCom 2025) December 10–12, 2025, Dubai, UAE <https://mosicom2025.com/>
- International Connect on Civil, Structural and Environmental Engineering  
December 16–18, 2025, Toronto, Canada <https://civilconnect.org/>

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