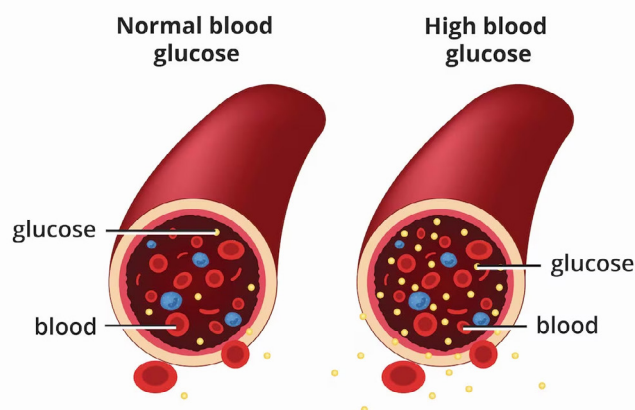


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Smart Insulin: Breakthrough in Diabetes Treatment

Context: An international team of scientists from companies in Denmark, the UK, and Czechia, along with the University of Bristol, has achieved a major breakthrough in diabetes treatment by developing a “smart” insulin that responds in real time to fluctuations in blood sugar levels.

- This innovative approach modifies the insulin molecule itself to include an “on-and-off switch” that automatically activates in response to changing glucose levels.



involves synthetic insulin administration. However, patients face challenges due to fluctuating blood glucose levels, necessitating constant monitoring and adjustments to insulin doses. Overdosing can lead to dangerously low blood sugar levels, resulting in severe complications.

Breakthrough in Smart Insulin Development

- “Smart” insulin also known as NNC2215, is designed to automatically respond to blood glucose fluctuations, thereby reducing the burden of constant monitoring.
- The insulin comprises two essential components:
 - » Ring-shaped structure
 - » A glucose-like molecule called a glucoside.
- When blood sugar levels are low, the glucoside binds to the ring, keeping the insulin inactive. As blood sugar rises, glucose replaces the glucoside, triggering the insulin to activate and effectively lower blood sugar levels.

Challenges:

- Despite promising results in animal trials, NNC2215 faces challenges in activation. Its current mechanism requires a significant spike in glucose to activate, resulting in a sudden influx of insulin that may not be ideal for gradual glucose management.
- Researchers are actively working to refine the molecule to ensure a more controlled and gradual insulin release, with human trials anticipated soon.

Conclusion:

The development of smart insulin NNC2215 represents a promising advancement in diabetes management, offering the potential to significantly improve the quality of life for millions of individuals who rely on insulin therapy. It could reshape the landscape of diabetes treatment, making it easier for people to manage their condition and enhancing their overall well-being.

8 projects selected by IndiaAI Mission to promote responsible AI

Context: The IndiaAI Mission has chosen eight Responsible AI projects in response to the Expression of Interest (EOI) issued under the Safe and Trusted AI Pillar. Acknowledging

Understanding Diabetes:

- Diabetes has emerged as a pressing global health concern, impacting over 500 million individuals worldwide and causing nearly seven million deaths each year.
- As the prevalence of diabetes continues to rise, advancements in treatment become increasingly vital. Diabetes is primarily categorized into two types:
 - » **Type 1 Diabetes:** This form typically begins in childhood and occurs when the pancreas produces little to no insulin, a hormone essential for regulating blood sugar levels.
 - » **Type 2 Diabetes:** More common among adults, this type arises when the body’s cells become resistant to insulin, requiring higher levels than what the pancreas can produce.
- Effective management of both types of diabetes typically

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the necessity for robust safeguards to support the responsible development, deployment, and adoption of AI, the selected projects focus on creating indigenous tools and frameworks, as well as establishing guidelines for ethical, transparent, and trustworthy AI technologies.

Promoting responsible AI:

- As AI increasingly influences various sectors of society, India is committed to investing in agile mechanisms for developing indigenous governance tools, frameworks, and guidelines that leverage Indian datasets and address unique challenges and opportunities.
- To support this vision, India AI had issued an expression of interest (EOI) to promote responsible AI projects across several critical themes, including:
 - » Machine Unlearning
 - » Synthetic Data Generation
 - » AI Bias Mitigation
 - » Ethical AI Frameworks
 - » Privacy-Enhancing Tools
 - » Explainable AI
 - » AI Governance Testing
 - » Algorithm Auditing Tools
- More than 2,000 proposals were submitted by reputable academic institutions, start-ups, research organizations, and civil society.
- A multi-stakeholder committee was established to provide technical expertise in evaluating these proposals, leading to the selection of eight projects across various themes.

About IndiaAI Mission:

The India AI Mission is an initiative aimed at fostering the development and application of artificial intelligence in India. Its primary goals include:

- **Promotion of Responsible AI:** The mission focuses on encouraging ethical AI practices, ensuring transparency, and addressing biases in AI systems.
- **Indigenous Solutions:** It aims to develop tools, frameworks, and guidelines tailored to India's unique socio-economic context, leveraging local datasets.
- **Collaboration:** The mission brings together various stakeholders, including academic institutions, startups,

research organizations, and civil society, to collaborate on AI projects.

- **Investment in Innovation:** By supporting research and development, the mission seeks to position India as a global leader in AI technology.
- **Critical Themes:** The mission addresses key areas such as machine learning, data privacy, algorithm auditing, and AI governance, fostering advancements in these critical fields.



Need of IndiaAI Mission

The India AI Mission is essential for several reasons:

- **Economic Growth:** By promoting AI development, the mission can drive innovation and boost productivity across various sectors, contributing to overall economic advancement.
- **Societal Impact:** AI has the potential to address pressing social issues, such as healthcare access, education, and public safety, enhancing quality of life for citizens.
- **Global Competitiveness:** Establishing a robust AI ecosystem helps position India as a leader in the global AI landscape, attracting investment and talent.
- **Ethical Standards:** The mission emphasizes responsible AI practices, ensuring that technologies are developed and deployed ethically, minimizing biases and promoting fairness.
- **Indigenous Development:** Focusing on local datasets and challenges allows for the creation of tailored solutions that are more effective and relevant to Indian society.
- **Interdisciplinary Collaboration:** By fostering

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partnerships among academia, industry, and civil society, the mission encourages a multidisciplinary approach to problem-solving.

- **Skill Development:** The initiative promotes education and training in AI, preparing the workforce for future opportunities and challenges in the AI field.

Conclusion:

This initiative aligns with the Government of India's vision of leveraging AI for inclusive growth. IndiaAI, an IBD (Independent Business Division) under the Digital India Corporation (DIC) of the Ministry of Electronics and IT (MeitY), is the implementation agency of the IndiaAI Mission, which aims to democratize AI's benefits across all strata of society, bolster India's global leadership in AI, foster technological self-reliance, and ensure ethical and responsible use of AI.

Supreme Court Closes Habeas Corpus Petition Against Isha Yoga Centre

Context: On October 18, 2024, the Supreme Court of India dismissed a habeas corpus petition filed by S. Kamaraj, a retired professor from Coimbatore, alleging that his two daughters were being held captive and brainwashed at the Isha Yoga Centre, run by spiritual leader Jaggi Vasudev. The petition was originally transferred from the Madras High Court to the Supreme Court.

- A bench led by Chief Justice DY Chandrachud noted that the two daughters, aged 39 and 42, are adults and voluntarily reside at the Ashram.
- The court stated that the habeas corpus purpose was

fulfilled, as the women confirmed their ability to leave at any time. Consequently, no further directions were deemed necessary.

- The Supreme Court clarified that the closure of the habeas corpus proceedings would not affect any regulatory compliance obligations for the Isha Foundation.

Habeas Corpus:

- Protects individuals from unlawful detention by ensuring their release. It enables individuals to request a court order for the custodian to bring the detained person before the court.
- In India, the Supreme Court and High Courts have the authority to issue habeas corpus, providing a quick way to restore personal freedom.



Constitutional Writs under Article 32:

- **Mandamus:** Commands a public official or body to fulfill a legal duty they are required to perform.
- **Prohibition:** Issued by higher courts to prevent lower courts from acting beyond their authority.
- **Certiorari:** Directs a lower court or tribunal to transfer a case to a higher court or correct errors in its proceedings.
- **Quo Warranto:** Challenges the legality of a person holding a public office without the necessary qualifications.

Power Packed News

Sagar Kavach

- The Indian Coast Guard successfully conducted the Coastal Security Exercise 'Sagar Kavach' on 16-17 October 2024 off the coast of Gujarat and the Union Territory of Daman and Diu.

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- Coordinated by the Coast Guard Regional Headquarters in Gandhinagar, this was the second edition of the exercise this year, aimed at strengthening maritime and coastal security by validating Standard Operating Procedures (SOPs).
- The exercise involved various key stakeholders, including the Indian Navy, State Police, Marine Police, Border Security Force (BSF), National Security Guard (NSG), Gujarat Maritime Board (GMB), Intelligence Bureau (IB), and port authorities.
- During the two-day exercise, multiple operational scenarios were simulated to test the coordination and preparedness of participating agencies in maintaining maritime security. This initiative plays a vital role in ensuring coastal defense and addressing threats such as infiltration, smuggling, and maritime terrorism along India's coastline.



Akhil Sheron Wins Bronze at ISSF World Cup Final in Rifle 3-Position Event

- Akhil Sheron secured a bronze medal in the men's 50m rifle 3-position event at the ISSF World Cup Final held at the Dr. Karni Singh Shooting Range in Tughlakabad, New Delhi. This achievement marked India's second medal at the event, following Sonam Maskar's silver in the women's 10m air rifle.
- Hungary's Istvan Peni claimed the gold medal, while Jiri Privratsky from the Czech Republic took the silver. In the women's event, Olympic champion Huang Yuting of China won gold.
- The ISSF World Cup Final 2024, featuring top shooters from across the world, took place from October 13 to 18 in New Delhi. This event highlights India's growing prominence in the international shooting arena.



SAMARTH Scheme

- The SAMARTH scheme, a demand-driven and employment-oriented skilling program by the Ministry of Textiles, has been extended for two more years (FY 2024-25 and 2025-26) with a budget allocation of Rs 495 crore.
- This extension aims to train 3 lakh individuals in textile-related skills to promote employment generation in the organized textiles sector.
- SAMARTH covers the entire value chain of textiles, except for spinning and weaving. The program's curriculum has been updated to meet the latest technological and market demands.
- The scheme is implemented through Implementing Partners (IPs), which include textile industries, industry associations, government agencies, and sectoral organizations such as DC Handlooms, DC Handicrafts, Central Wool Development Board, and the Central Silk Board.
- So far, SAMARTH has trained 3.27 lakh candidates, with 2.6 lakh (79.5%) successfully gaining employment. Special emphasis has been placed on women's employment, with 2.89 lakh (88.3%) women trained under the scheme, highlighting its role in empowering women in the textile sector.



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