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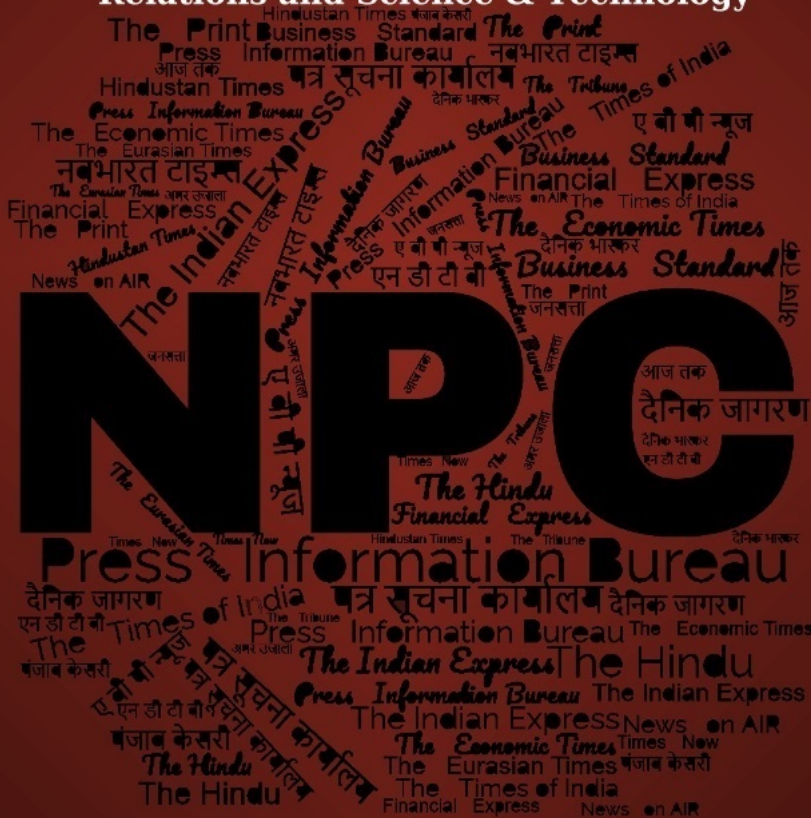
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# समाचार पत्रों से चयनित अंश Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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# Defence News

## Forces release joint doctrines for cyberspace, amphibious operations

*Source: The Times of India, Dt. 08 Aug 2025*

The armed forces have come up with new joint doctrines for cyberspace and amphibious operations, with the former especially emerging as a key element of non-contact warfare, blurring the demarcation between war and peace.

The "declassified versions" of the doctrines were released during a meeting chaired by Chief of Defence Staff General Anil Chauhan with the three Service chiefs, Admiral Dinesh K Tripathi, General Upendra Dwivedi and Air Chief Marshal A P Singh, here on Thursday.

Cyberspace operations have become critical in modern-day warfare, especially in the backdrop of China developing potent cyber warfare and cyber espionage capabilities.

"The armed forces are conscious of the pursuits in the cyberspace domain by our adversaries, including software and hardware initiatives, which are indicative of the increased threats of aggressive cyberspace exploitation," the CDS said, in the doctrine's foreword.

"Operations in cyberspace can be equated to manoeuvre warfare, where speed and agility are of utmost importance... The armed forces, through a collaborative whole of nation approach, will befittingly respond to and face the challenges posed by our adversaries in cyberspace," he added.

The doctrine outlines a unified approach to defend national cyberspace interests, integrating offensive and defensive cyber capabilities.

<https://timesofindia.indiatimes.com/india/forces-release-joint-doctrines-for-cyberspace-amphibious-operations/articleshow/123176697.cms>

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## Armed forces push deeper cyber ties with private sector

*Source: The Economic Times, Dt. 08 Aug 2025*

The armed forces have unveiled a new Joint Doctrine for Cyberspace Operations that places public-private partnership (PPP) at the heart of its strategy and looks at leveraging private expertise for national security, including solutions to enhance cyber security.

A declassified version of the doctrine, released by chief of defence staff Gen Anil Chauhan, says the complexity of cyber challenges-ranging from espionage and electromagnetic activity to attacks on cognitive domains- requires a collaborative approach to build capability.

The document highlights "strengthening public-private partnership" as a core strategy, urging structured engagement with private enterprises, research bodies and academic institutions to create resilient digital solutions for the defence forces.

The policy document says the forces will "encourage and facilitate indigenous startups/enterprises, including co-opting with industry and academia, platforms and solutions towards enhancing cyber security in armed forces".

While the forces already involve the private sector deeply into cyber operations-several Indian companies offer offensive and defensive tools that have already been put in use-the doctrine indicates that the intention is to move beyond traditional procurement to deeper collaboration. This could include joint development, co-designing and operational integration with private sector specialists. Specifically, the doctrine advocates structured public-private engagement, talent flow from academia and creating platforms and solutions co-developed with the private sector.

Private sector support for capability development in emerging technology areas such as AI & ML , as well as secure supply chains for IT products is on the cards as the forces are looking at homegrown technology to form the backbone of military cyber systems.

<https://economictimes.indiatimes.com/news/defence/armed-forces-push-deeper-cyber-ties-with-private-sector/articleshow/123174090.cms?from=mdr>

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## **Australian Army Chief to visit India this month amid deepening Indo-Pacific military ties**

***Source: The Indian Express, Dt. 08 Aug 2025***

Chief of the Australian Army, Lieutenant General Simon Stuart, is set to visit India from August 10 to 14, during which he will hold high-level discussions with Indian Army Chief General Upendra Dwivedi and other senior officials of the Ministry of Defence.

His visit comes only four months after India's Chief of Defence Staff travelled to Australia, where he held high-level meetings with Admiral David Johnston, Australia's Chief of Defence Force, and the Chiefs of Staff Committee. The deliberations focused on strengthening military cooperation, with emphasis on maritime security in the Indo-Pacific, joint exercises, capacity building, defence technology exchange, and new bilateral initiatives.

According to Army sources, this visit is of strategic significance, reaffirming the growing depth of the India–Australia Comprehensive Strategic Partnership, particularly in the military domain, as both nations work to uphold a stable and rules-based order in the Indo-Pacific. India and Australia had earlier held the 2+2 Ministerial Dialogue in New Delhi in November 2023, and the next edition is scheduled in Australia in 2025, showcasing regular high-level dialogue between the two nations.

The Defence Policy Talks, held in July 2023 in Australia, had provided a timely platform for reviewing ongoing collaboration and identifying new areas for joint initiatives, the sources said, adding that these dialogues, along with working groups and staff-level talks, continue to drive forward-looking cooperation in capability development, logistics, interoperability, and strategic posturing in the Indo-Pacific.

“From this robust foundation, the Indian Army–Australian Army bilateral engagement has emerged as a key pillar in the growing military partnership,” a source said. Both the armies have seen a growing operational cooperation between the Indian Army and the Australian Army, which was marked by increasing complexity, scale, and strategic relevance of joint exercises and deployments.



“Exercise AUSTRAHIND, launched in 2016, remains the flagship bilateral field training exercise between the two Armies. Focused on counter-terrorism, close-quarter battle, and joint tactical operations, it has seen active participation from Indian Army, alongside Australia’s 1st Brigade,” the sources said, adding that the next edition is scheduled in Australia in November 2025, further strengthening interoperability under realistic terrain scenarios.

The Army has also been an active participant in Exercise Talisman Sabre, a multinational exercise hosted by Australia. The Indo-Pacific Endeavour (IPE-22) also witnessed significant engagement by the Indian Army, where both sides conducted joint professional exchanges and field discussions on HADR, jungle warfare, and counter-terrorism operations. Sources said that on the training and institutional cooperation front, the two Armies have maintained a consistent exchange through premier military courses and academic programmes.

“Indian Army officers regularly participate in Australian courses such as the Australian Defence and Strategic Studies Course, Army Command and Staff Course, and the Combined Defence Intelligence and Research Analysis Course,” a source said, adding that Australian officers are nominated for Indian institutions including the National Defence College (NDC), Defence Services Staff College (DSSC), and the Higher Defence Orientation Course (HDOC).

“An Instructor Exchange Programme conducted at the Indian Army’s Counter-Insurgency and Jungle Warfare (CIJW) School, Vairengte, further deepened tactical and instructional integration,” the sources said, adding that regular Subject Matter Expert Exchanges (SMEEs) have enriched doctrinal understanding and contributed to enhanced interoperability between the two forces. Another initiative was the India–Australia Young Officers Exchange Programme, conceptualized by late General Bipin Rawat and launched during the 2022 Prime Minister-level virtual summit.

“This initiative allows young officers from both Armies to train together, experience field environments, and understand each other’s operational ethos an investment in future leadership synergy,” an officer said. Sources said the Army-to-Army Staff Talks, first initiated in 2010, have evolved from a biennial to an annual engagement since 2016, reflecting the growing frequency and significance of operational dialogue.

“This platform also serves as a vital forum for discussing bilateral strategic issues, enhancing mutual understanding and coordination on matters of regional and global relevance,” they added. Moreover, Indian firms have exported key platforms to Australia in significant amounts, showcasing indigenous capabilities in tactical ISR, mobility, and protected systems.

Collaboration between the Army Design Bureau and Australia’s Digger Works is being explored to jointly develop combat-tested, cost-effective solutions suited to contemporary battlefield needs.

“Lieutenant General Simon Stuart’s visit to India reflects the Indian Army’s rising profile as a credible partner in the Indo-Pacific and its commitment to shaping collective preparedness through meaningful cooperation,” a source said, adding that this visit is expected to consolidate operational synergy and strategic trust—laying the groundwork for the next phase of Army-to-Army collaboration in the region.

<https://indianexpress.com/article/india/australian-army-chief-india-visit-deepening-indo-pacific-military-ties-10175257/>

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## Army to station specialised 'Rudra' brigades in eastern Ladakh, Sikkim

*Source: The Tribune, Dt. 08 Aug 2025*

The Army has decided to deploy two new specialised brigades, equipped with enhanced firepower and manpower, along the northern borders with China.

According to sources, one brigade each will be positioned in eastern Ladakh and Sikkim along the Line of Actual Control (LAC). These brigades will be armed with advanced weaponry, including specialised armed drones, missiles, loitering munitions and dedicated commando units.

Army Chief Gen Upendra Dwivedi had announced the concept of these integrated brigades — named 'Rudra' — on July 26 during Kargil Vijay Diwas.

Sources said the target is to operationalise both Rudra brigades within the next few months. The move is part of a broader effort to reorganise the Army's warfighting capabilities in these strategically sensitive sectors along the LAC, the de facto boundary between India and China.

Unlike traditional brigades, which usually consist of 3,000 to 3,500 personnel and focus on specific domains like infantry or armour, each Rudra brigade will integrate multiple combat components. These include infantry, mechanised infantry, armoured units, artillery, special forces and unmanned aerial systems, along with dedicated logistics and combat support structures.

Lethal special forces units, known as 'Bhairav', are being raised as light commando battalions to support operations of the Rudra brigades. These will augment existing 'Ghatak' platoons currently deployed along the Line of Control (LoC) and in counter-insurgency roles.

Additional firepower will come from the 'Shaktibaan' artillery regiments, which will focus on drone warfare and loitering munitions — systems capable of hovering in the air and striking designated targets with precision.

A further component, known as 'Divyastra' batteries, will consist of infantry battalions equipped with drones and indigenous air defence systems. These units form part of the Army's layered air defence strategy, which demonstrated its prowess during Operation Sindoor.

Importantly, the Rudra brigades will not involve raising new units. Instead, they will integrate and re-task existing elements, tailored to meet specific operational needs in defined areas.

In 2023, Army commanders had initiated a phased restructuring plan aimed at transforming the force into a leaner, more agile and modernised entity. Key operational reforms, including integrated battle-ready brigades, have already been tested in military exercises held in Punjab.

These changes stem from a 2022 study on "Re-organisation and Rightsizing of the Indian Army", which assessed existing structures to improve efficiency and operational readiness in light of evolving challenges on both western and northern borders.

<https://www.tribuneindia.com/news/india/army-to-station-specialised-rudra-brigades-in-eastern-ladakh-sikkim/>

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# Science & Technology News

## चंद्रमा पर परमाणु रिएक्टर बनाने की तैयारी कर रहा अमेरिका

Source: Dainik Jagran, Dt. 08 Aug 2025

**न्यूयार्क टाइम्स से**

न्यूयार्क : अमेरिका चंद्रमा पर परमाणु रिएक्टर बनाने की तैयारी कर रहा है। नासा के अंतरिम प्रशासक सीन डफी ने कहा कि 2030 तक चंद्रमा की सतह पर परमाणु रिएक्टर स्थापित करने की योजना है। उन्होंने कहा, हम चीन के साथ चंद्रमा की दौड़ में हैं।

चंद्रमा पर बेस बनाने के लिए हमें ऊर्जा की आवश्यकता है। इसीलिए हम अगले पांच वर्षों में चंद्रमा पर 100 किलोवाट का परमाणु रिएक्टर स्थापित करना चाहते हैं। बता दें कि अंतरराष्ट्रीय अंतरिक्ष स्टेशन को ऊर्जा सौर पैनलों से प्राप्त होती है, लेकिन यह चंद्रमा पर लगभग अत्यधिक ठंडी और लंबी अंधेरी रात के कारण सौर ऊर्जा प्रभावी विकल्प नहीं हो सकता। चंद्रमा में रात और दिन पृथ्वी के 14 दिनों के बराबर होते हैं। चंद्रमा पर रिएक्टर पृथ्वी पर रिएक्टर जैसा काम नहीं



लाकहीट मार्टिन द्वारा तैयार किए गए चंद्रमा पर परमाणु रिएक्टर का काल्पनिक चित्र • न्यूयार्क टाइम्स

करेगा। चंद्रमा पर भेजा जाने वाला रिएक्टर इतना छोटा होगा कि वह राकेट के अंदर समायोजित हो सके।

लाकहीट मार्टिन में चंद्र अन्वेषण के उपाध्यक्ष केविन ने कहा कि उच्च शक्ति वाले रिएक्टर की सबसे बड़ी चुनौती ऐसी सामग्री विकसित करना होगी जो अधिक तापमान में भी टिक सके और जिसका उपयोग ऊष्मा को बिजली में बदलने में किया जा सके। 2030 तक रिएक्टर बनाना और उसे लांच करना कुछ विशेषज्ञों को कल्पना प्रतीत होता है।

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## The biochemist's path to Artificial Intelligence

Source: Press Information Bureau, Dt. 07 Aug 2025

Proteins, which are assemblies of numerous atoms forming the building blocks of life, demonstrate cognitive-like responsiveness. Traditionally, intelligence is thought of as a trait exclusive to complex higher organisms with nervous systems like humans and apes. It involves cognition, learning, and the ability to respond to stimuli with adaptation or intention.

A team from Bose Institute, an autonomous institute of the Department of Science and Technology (DST) set out to examine whether a molecule composed on an assembly of atoms mimic intelligent behaviour at the very basic level.

The research led by Prof. Shubhra Ghosh Dastidar, involving his student Nibedita Ray Chaudhuri, worked on TAK1 kinase, a protein known for its role in cellular stress signaling and crucial to immune response, inflammations and even for the survival of cells. They observed that such highly

organized assembly of atoms in specific cases, can develop such potential, even at a very rudimentary level.

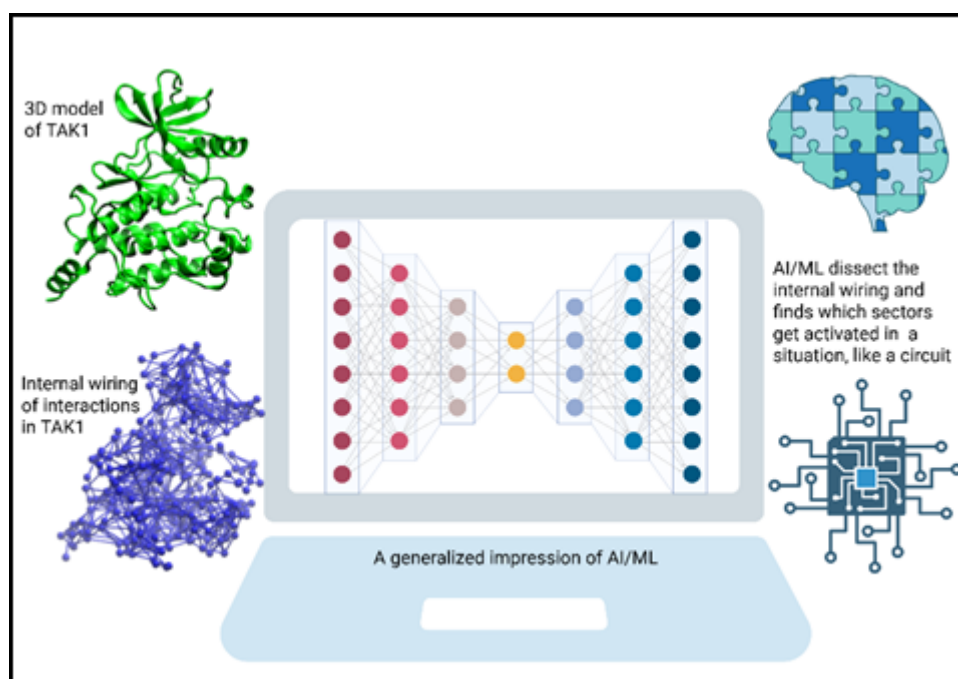
The discovery, which is now published in Journal of Chemical Information and Modeling is an outcome of the handshaking between Biochemical research and Machine Learning (ML); the latter is a subset of Artificial Intelligence (AI) based methods. The work is a classic example of an interdisciplinary approach and forms a part of a trilogy on TAK1, published during 2023-2025.

Proteins are composed of thousands to millions of atoms suitably bonded to form polymeric chains of compounds called amino acids, but they become functionally alive only when those chains fold into a specific 3D compact form, called native state. It happens through the formation of enormous number of tiny electrostatic interactions between the atoms.

The collective pattern of this internal wiring is unique to a specific protein whose memory is coded into its so called 'primary sequence', and it gets updated across evolution yielding newer characteristics.

The findings of the researchers of Bose Institute highlight that this internal wiring in TAK1 not only makes it 'functional' but also creates a pseudo-intelligence enabling it to deploy its own machinery in a context dependent manner.

The internal wiring of interactions can process signals like chemical modifications as well as remotely sensed physical inductions by another molecules through different routes of its internal circuits of interactions, to trigger the TAK1's function.



*A schematic representation, showing the TAK1 structure as well as its internal atom-atom interactions. AI/ML, working in a computer, looks at it to find how the internal wiring responds in a context dependent manner*

TAK1 kinase is extremely important for immune response, inflammations and even for the survival of cells, and so its machinery is a target for drug molecules.

While the identification of the intelligent machinery of an important drug target itself opens up enormous possibilities of its future applications towards human benefit, it is also of fundamental



importance in the biochemical science to extend the dogma of 'sequence-structure-function' to the possibility of 'sequence-structure-function-intelligence' for molecule specific cases.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=2153623>

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The Tribune  
The Statesman  
ਪੰਜਾਬ ਕੇਸਰੀ ਜਨਸੱਤਾ  
The Hindu  
The Economic Times  
Press Information Bureau  
The Indian Express  
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