

## Department of Data Science Weekly Data Science Bytes

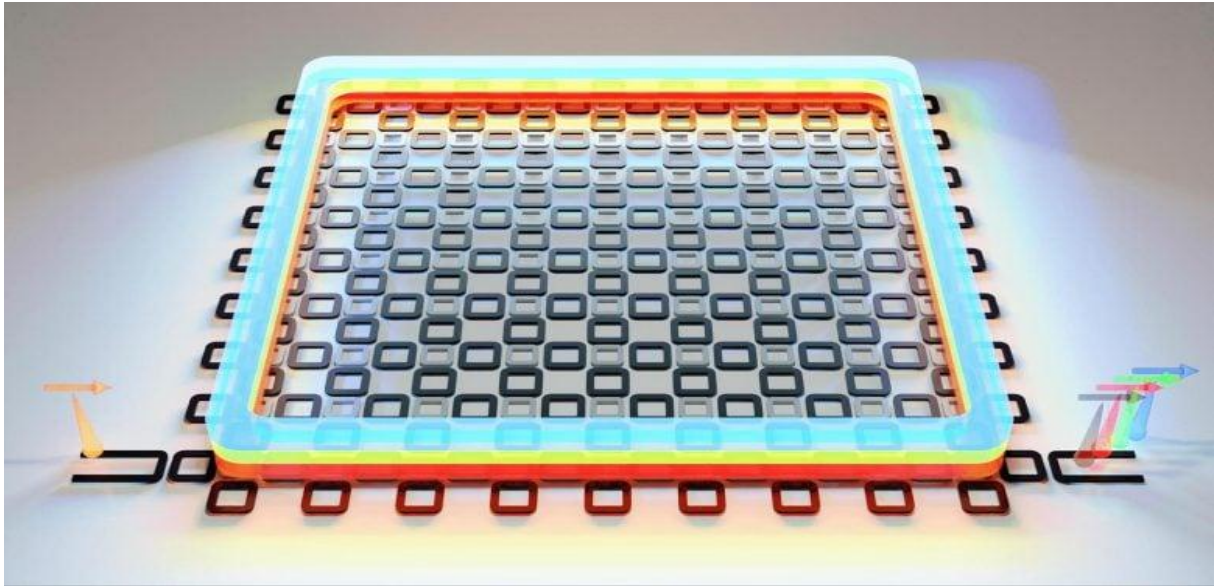
### How are Indian firms training LLMs? | Explained



- At the AI Impact Summit, the Bengaluru-based startup Sarvam AI released two Large Language Models (LLMs), which are the foundation for AI systems that power services like Google's Gemini and OpenAI's ChatGPT. The two models were trained on 35 billion and 105 billion parameters respectively, and were less power- and compute-intensive than comparable models, while demonstrating improvements over other models in Indian languages, Pratyush Kumar, a Sarvam co-founder said.

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## Scientists Create Chip That Generates Brand-New Colors of Light, Cracking a Decades-Old Nonlinear Optics Challenge



- Despite this progress, one major hurdle has remained: building a compact light source that can be integrated directly onto a chip. Such a device would simplify manufacturing and allow seamless integration with existing electronic and photonic hardware. A particularly important goal has been to create chips capable of transforming a single laser color into multiple new colors. This capability is essential for certain quantum computing platforms and for high-precision measurements of time and frequency.
- Researchers at JQI now report a promising advance. They have developed and tested photonic chips that can reliably transform one incoming color of light into three distinct new hues. Notably, the chips function without active tuning or repeated fine adjustment, marking a significant improvement over earlier approaches. The findings were published in *Science*.

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## Scientists Build Tiny Light Racetracks That Could Revolutionize Sensors



- Researchers at the University of Colorado at Boulder have developed high-performance optical microresonators that could help power a new generation of advanced sensors.
- A microresonator is a tiny structure designed to confine light in a very small space. As light circulates inside, its intensity builds. When that intensity reaches a high enough level, scientists can trigger specialized optical effects that make the device useful for sensing and other applications.
- “Our work is about using less optical power with these resonators for future uses,” said Bright Lu, a fourth year doctoral student in electrical and computer engineering and a lead author of the study. “One day these microresonators can be adapted for a wide range of sensors from navigation to identifying chemicals.”

Source: <https://scitechdaily.com/scientists-build-tiny-light-racetracks-that-could-revolutionize-sensors/>

## EU-India deal highlights growing alignment on technology policy



- India and the EU have agreed a range of science and innovation tie-ups as part of a broader free trade agreement, highlighting the two powers' increasing alignment on technology policy.
- Both Brussels and New Delhi want to move away from Chinese and, to some extent, US tech platforms. Both could also stand to gain in areas like pharmaceutical tie-ups and semiconductors, experts say. And Indian technology workers are increasingly moving between Europe and India in a brain circulation, deepening ties.
- The free trade deal, unveiled on January 27 during a visit by EU leaders to India, “brings together India's skills, services and scale, with Europe's technology, capital and innovation,” European Commission President Ursula von der Leyen said [in a speech](#).
- The powers also unveiled a [laundry list](#) of promises to work together, including in science and technology.

## AI-driven translation tools boost reach of Hindi in science and technology communication: Jitendra Singh



- Union Minister of State (Independent Charge) for Science & Technology, Dr. Jitendra Singh, on Tuesday said that AI-driven translation tools are revolutionizing the dissemination and interpretation of Hindi content, helping scientific knowledge reach a broader audience across India. He was addressing the first meeting of the Hindi Advisory Committee of the Ministry of Science and Technology, held in New Delhi.
- Singh, who also holds portfolios in the Prime Minister's Office, Personnel, Public Grievances and Pensions, Department of Atomic Energy, and Department of Space, emphasized that the use of Hindi across all Ministries and Departments is essential, as it represents India's cultural identity and a unifying medium of communication.

## State drafts new science & technology policy with strong 'swadeshi' push



- The Gujarat govt is set to unveil a new Science, Technology, and Innovation (STI) Policy 2025–30, aimed at positioning the state as a hub for frontier technologies while strengthening indigenous capability across critical sectors.
- Framed as a key driver of 'atmanirbharata' and long-term economic transformation, the draft policy lays out a strategy to expand research capacity, deepen innovation linkages, and reduce dependence on imported technologies. The new policy will replace the existing Gujarat Science, Technology, and Innovation Policy, 2018, now nearing the end of its tenure