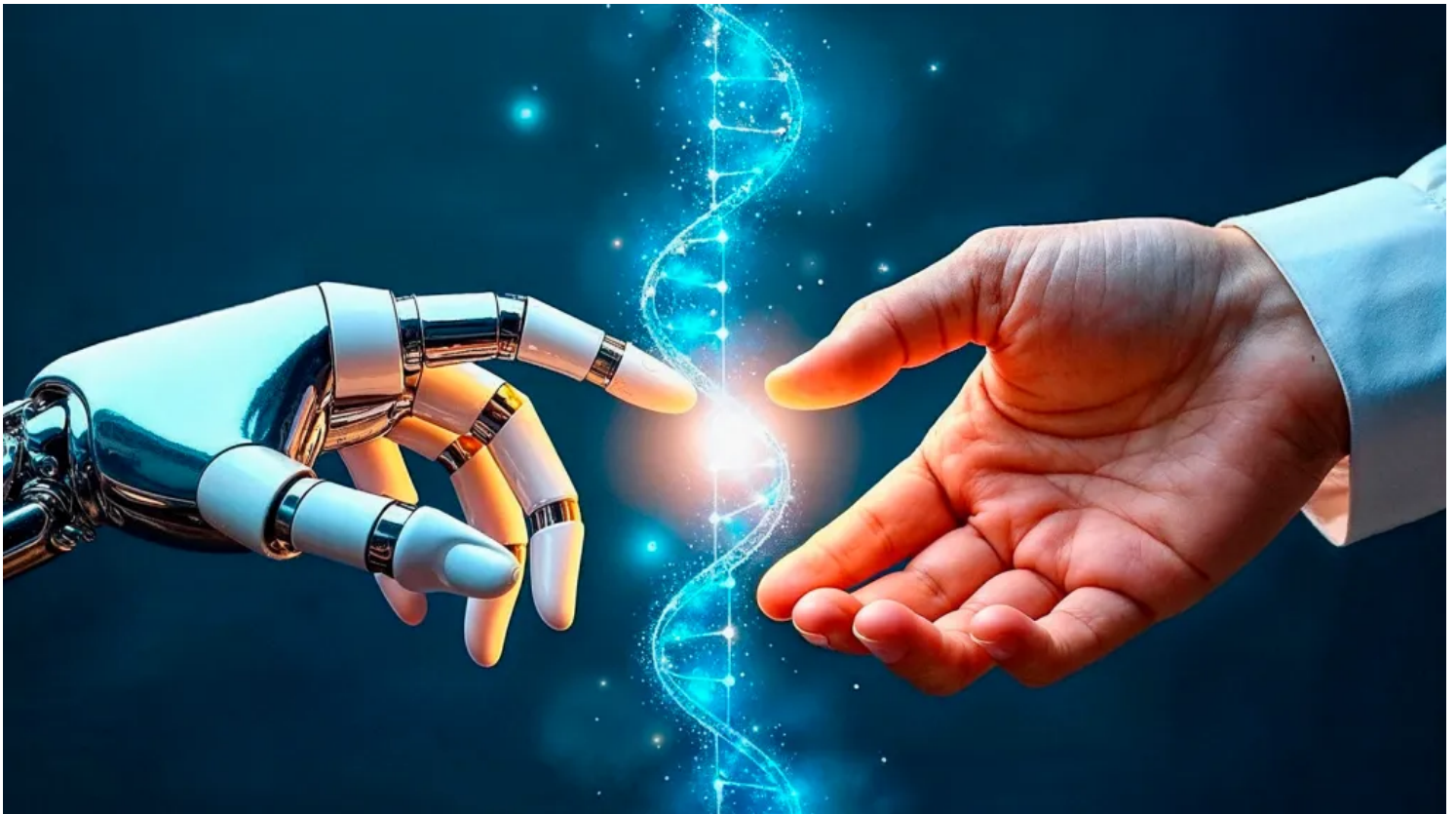


EXPRESS OPINION

India is facing a tech crisis. But it can still catch up

Countries that fall behind in developing frontier AI risk suffering the fate of those that missed the Industrial Revolution: A small business elite might prosper, but ordinary people will be disempowered.



Large data centres have a significant environmental impact. In India, this impact will be borne disproportionately by local communities. (Representational image)

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4 min read Sep 14, 2026 08:21 AM IST ✓

First published on: Sep 14, 2026 at 06:20 AM IST

India is facing a technological crisis. Even as US and Chinese companies have released a parade of increasingly capable AI models this year, India has no competitive frontier model and no realistic prospect of producing one without significant policy shifts.

The anticipated impact of AI can be separated into two categories. First, AI is expected to diffuse through the economy by automating some routine jobs. Each industry will require specialised applications, built on foundation models. India already has an active startup ecosystem devoted to building such applications, and AI tools have been rapidly adopted by Indian businesses.

However, AI will also have a strategic impact on scientific research, cybersecurity and defence. AI models have recently been used to solve some of the most important open problems in mathematics. Anthropic's Mythos model has formidable cybersecurity capabilities; it has not been released publicly and is available only to selected organisations.

Currently, consumers have access to other frontier models, including Chinese open-weight models. But it is unrealistic to expect this state of affairs to continue indefinitely. Earlier this year, the US government temporarily imposed export restrictions both on Mythos and on a version of Mythos with guardrails called Fable. The US government is clear that it wishes to "achieve global dominance in AI" and is likely to increasingly restrict and regulate AI to its advantage.

US industry leaders and academics have repeatedly advised India to focus on applications rather than the frontiers — a position supported by sections of the Indian IT industry. But countries that fall behind in developing frontier AI risk suffering the fate of those that missed the Industrial Revolution: a small business elite might find a

niche and prosper, but ordinary people will suffer the disempowerment that accompanies technological subjugation.

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India can still catch up to the frontier with a focused national effort.

Remarkably, the algorithms underlying modern AI models are widely understood. Instead of algorithmic secrets, the industry has exploited “scaling laws” that predict how a model’s performance improves with its size and the computing power used for its training. So, while better algorithms improve efficiency, the basic formula for producing frontier models is to scale compute and data.

Lack of computing power has bottlenecked sovereign Indian model development. For example, the India AI mission has a pool of 45,000 graphics processing units (GPUs). But this capacity, shared by organisations across the country, is only a fraction of the capacity controlled by a single US frontier lab. The mission allocated 4,096 GPUs to Sarvam AI to train India’s flagship model. This is about fifty times smaller than what is used to train frontier models. No amount of ingenuity can compensate for this resource gap.

Ironically, a number of data centres, with significant computing capacity, are coming up in various Indian states. But these data centres will primarily serve multinational corporations, and their mere physical location in India offers no tangible benefits. Most of the announced capital investment will be directed to electronic equipment, and the employment they create will be limited to a few construction and maintenance jobs. Large data centres have a significant environmental impact, which has made them politically explosive in the US. In India, this impact will be borne disproportionately by local communities.

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India could use these data centres to alleviate its compute shortage by instituting a “compute tax”: any data centre established in India would be required to reserve, say, 25 per cent of its computing capacity for a publicly administered national compute pool. This capacity would remain physically within the data centre, but could be allocated by a central scheduler to Indian institutions, much as large AI labs manage compute across multiple facilities. Multinational companies are likely to resist such a mandate. But their bargaining position is weak given their need to diversify computing

infrastructure geographically, and the growing hostility to these installations elsewhere.

Such a tax would not obviate the other issues associated with data centres. But together with environmental safeguards and welfare measures, it might open a narrow route to building a frontier model in India.

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