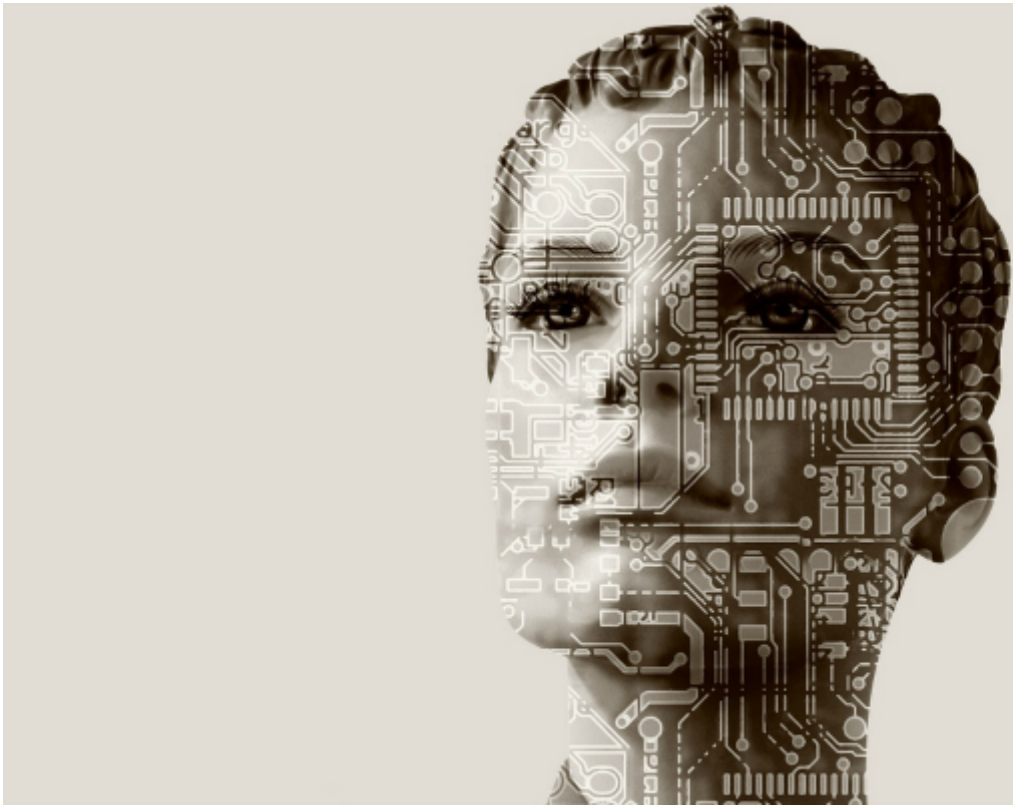


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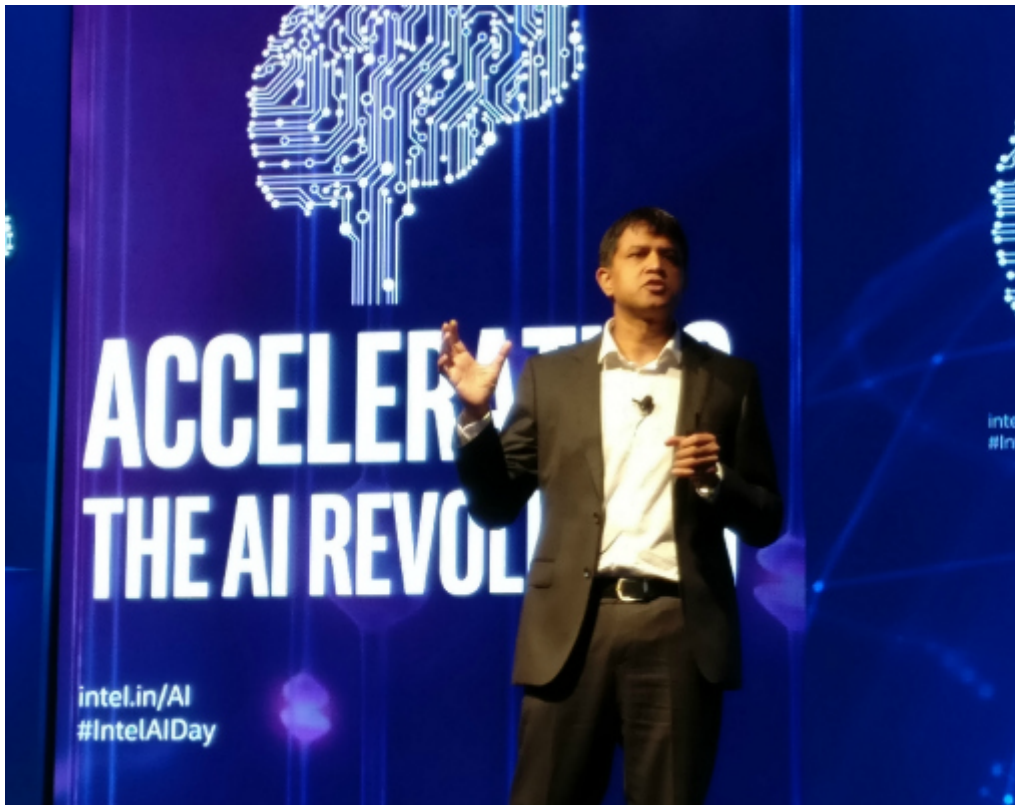
# Artificially Inside: How Intel's Search For AI Is Keeping Researchers And Developers In India Busy

[GWYN D'MELLO](#) | APRIL 27, 2017

As major technology firms agree, artificial intelligence is the future of the tech industry. Everything from social media platforms, to consumer software, and IoT gadgets to scientific research, AI can be a huge benefit, whether it be crunching data to recognise patterns or help us in our everyday life. Intel understands this fact too, as evidenced by the focus it's putting on AI research.



At the Intel AI Day in Bangalore early April, the company laid out its plans to push for AI development across various fields. From scientific researchers to software developers, various speakers espoused the benefits of machine learning technology, as well as discussing the road ahead.



Intel's MD for South Asia, Prakash Mallya, at the AI Day event in Bangalore

"It's all about partnership," says Prakash Mallya, Managing Director for Intel in South Asia. "We want to engage the ecosystem and accelerate the usage of AI to rapidly transform everybody's life."

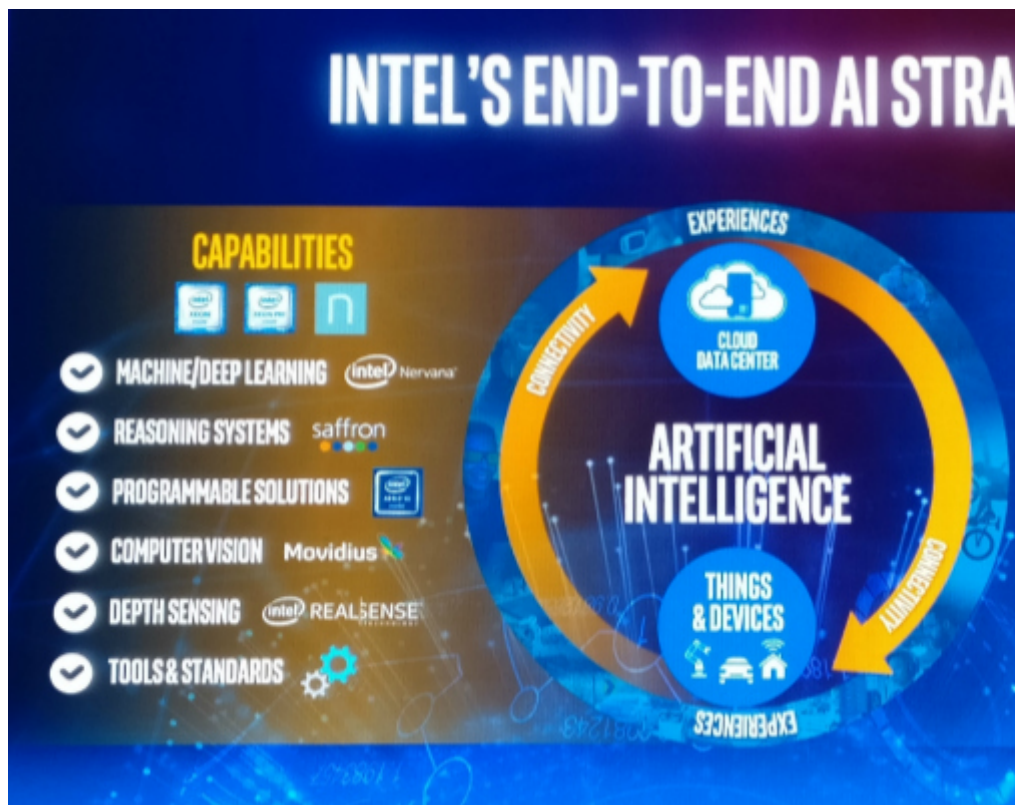
## **Intel estimates each person on the Internet generates 1.5GB of data each day.**

They believe this wealth of data can be leveraged in various ways, including for algorithm-based government administration and medical treatments. Consequently, the company is collaborating with other major players like Wipro, Hewlett Packard, Julia Computing, and Calligo Technologies, as well as other AI startups in India and abroad.

## India's race towards an AI future

For instance, Julia Computing is working on an AI-powered software capable of diagnosing diabetic retinopathy, a degenerative condition that affects eyesight. The developers have trained a neural network using a huge dataset of images showing infected eyes and those free from the condition. In this way, the technology could theoretically be applied in a patient's home, using a high quality smartphone camera. This way, the patient can self-diagnose for the condition before visiting a doctor, and even track the advancement of his condition.

Meanwhile, Dr Pushpak Bhattacharyya, Professor of Computer Science and Engineering at IIT Bombay, details how his team is working on a translation software using AI. The team is using a combination of machine learning and natural language processing (what AI like Siri and Google's Digital Assistant use to understand conversational speech), to translate Indian languages. "It's a 3D problem," he says, describing how India's variety of languages and dialects can pose a functional problem. However, the results of a successful program could benefit us every day, allowing us to translate spoken conversation into our native tongue on the fly.



Even Flipkart is getting in on the AI action, using machine learning to power its “suggested picks” on the ecommerce platform. “AI was like marriage in 1995 – Everyone was excited about it, but it always failed to deliver on its promises,” he says with a chuckle. According to him, that all changed over times. As Big Data emerged as a precious resource, hardware became at the same time more advanced and more accessible, and the open source community burgeoned, Deep Learning became an achievable dream. The company is currently plugging in a neural network to recognise what a customer purchases and suggest similar picks. This isn’t the kind of suggestions the platform currently has, which are based solely on product type and model. Instead, Flipkart is applying this technique to even items like clothing. Still in development, their AI is capable of recognising the colour, patterns and even style of an item of clothing and then suggest others that fit the bill. In the future, this could work by you being

able to just describe the item you want in a search bar, instead of relying on a catalogue or keywords. It could even be applied to a smartphone app, allowing you to scan something you see in a store or on someone's person, and have it look up the item on Flipkart.

Even the National Institute for Smart Government in Hyderabad intends to leverage AI in the near future. According to the group's CEO, DN Narasimha Raju, the state government is looking to artificial intelligence as way to cope with grievance redressal.

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## Unsupervised Learning

But indeed, some of the most interesting work may be coming from the Indian Institute of Science in Bangalore, where the student team of Chiranjib Bhattacharya, professor of Computer Science and Automation, is exploring unsupervised learning. This is different from the usual type of machine learning in one key way; none of the data the machine “learns” from is labelled. In this case, the neural network isn’t fed any examples of a good or bad outcome (depending on what function it’s being applied to), instead it just finds patterns and cluster the raw data accordingly. For example, in facial detection, you’d feed the AI images of faces so it can map out what a face generally looks like. On the other hand, with an AI taught by unsupervised learning, it will be able to tell a face apart from a landscape or a dog, but might be confused by a picture of a gorilla.

Of course, supervised learning is more efficient, but unsupervised learning can be beneficial in a country like India, where vast amounts of government data has not yet been digitised and organised. In this case, an AI using unsupervised learning can sift through huge sets of digital records and classify them as groups based on what they contain. In addition, unsupervised learning also has major applications in cyber security, where an attacker's mode of entry may differ. In this case, the neural network using this kind of learning can recognise patterns left by a hacker by noticing the difference in their movements as compared to other users.

We may be more familiar with the flashier versions of AI we've gotten used to, like smartphone digital assistants and board game-playing bots. But all the above research, being developed right here in India, is continuing in the background, gestating until the day they're ready to change our lives in ways we never imagined. We're witnessing a revolution similar to that of the birth of steam power, or the invention of computers themselves. And one day, we'll be ready to put almost our entire lives in the hands of artificial intelligence.

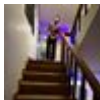
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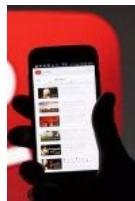
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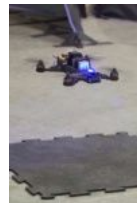
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