

Wednesday, June 15, 2022

# Daily Current Affairs



 +91 70990 06849



# Can the new Google chatbot be sentient?

Is there a possibility of future Artificial Intelligence technologies becoming 'conscious'?

T.V.VENKATESWARAN

**The story so far:** Blake Lemoine, a U.S. military veteran, identifies himself as a priest, an ex-convict and an Artificial Intelligence (AI) researcher. He was engaged by Google to test for bias/hate speech in the Language Model for Dialogue Applications (LaMDA), Google's nextGen conversational agent. He was sent away on paid leave after claiming that the updated software is now sentient. He claims that the neural network with deep learning capacity has the consciousness of a child of seven or eight years old. He argues that consent from the software must be obtained before experiments are run on it. Google and many tech experts have dismissed the claim. However, this episode, which came on the heels of Google firing Timnit Gebru over her warnings on their unethical AI, has caused ripples in social media.

## Is AI technology here?

AI technology appears futuristic. However, Facebook's facial recognition software which identifies faces in the photos we post, the voice recognition software that translates commands we bark at Alexa, and the Google Translate app are all examples of AI tech already around us.

Inspired by the mathematician Alan Turing's answer to the question 'Can a machine think?', AI tech today aims to satisfy the Turing test to qualify as 'intelligent'. Turing was the designer and builder of the world's first computer, ENIGMA, which was used to break the German codes during the Second World War. To test if a machine 'thinks', Turing devised a practical solution. Place a computer in a closed room and a human in another. If an interrogator interacting with the machine and the human cannot discriminate between them, then Turing said that the computer should be construed as 'intelligent'. We use the reverse Turing test, CAPTCHA, to limit technology access to humans and keep the bots at bay.

## Which were the first chatbots to be devised?

As electronics improved and first-generation computers came about, Joseph Weizenbaum of the MIT Artificial Intelligence Laboratory

built ELIZA, a computer programme with which users could chat. ALICE (Artificial Linguistic Internet Computer Entity), another early chatbot developed by Richard Wallace, was capable of simulating human interaction. In the 1930s, linguist George Kingsley Zipf analysed the typical human speech and found that most of the utterances began with 2,000 words. Using this information, Wallace theorised that the bulk of commonplace chitchat in everyday interaction was limited. He found that just about 40,000 responses were enough to respond to 95% of what people chatted about. With assistance from about 500 volunteers, Wallace continuously improved ALICE's responses repertoire by analysing user chats, making the fake conversions look real. The software won the Loebner Prize as "the most human computer" at the Turing Test contests in 2000, 2001, and 2004.

## What is a neural network?

A neural network is an AI tech that attempts to mimic the web of neurons in the brain to learn and behave like humans. Early efforts in building neural networks targeted image recognition. The artificial neural network (ANN) needs to be trained like a dog before being commanded. For example, during the image recognition training, thousands of specific cat images are broken down to pixels and fed into the ANN. Using complex algorithms, the ANN's mathematical system extracts particular characteristics like the line that curves from right to left at a certain angle, edges or several lines that merge to form a larger shape from each cat image. The software learns to recognise the key patterns that delineate what a general 'cat' looks like from these parameters.

Early machine learning software needed human assistance. The training images had to be labelled as 'cats', 'dogs' and so on by humans before being fed into the system. In contrast, access to big data and a powerful processor is enough for the emerging deep learning softwares. The App learns by itself, unsupervised by humans, by sorting and sifting through the massive data and finding the hidden patterns.

## What is LaMDA?

LaMDA is short for 'Language Model for

Dialogue Applications', Google's modern conversational agent enabled with a neural network capable of deep learning. Instead of images of cats and dogs, the algorithm is trained using 1.56 trillion words of public dialogue data and web text on diverse topics. The neural network built on Google's open-source neural network, Transformer, extracted more than 137 billion parameters from this massive database of language data. The chatbot is not yet public, but users are permitted to interact with it. Google claims that LaMDA can make sense of nuanced conversation and engage in a fluid and natural conversation. The LaMDA 0.1 was unveiled at Google's annual developer conference in May 2021, and the LaMDA 0.2 in 2022.

## How is LaMDA different from other chatbots?

Chatbots like 'Ask Disha' of the Indian Railway Catering and Tourism Corporation Limited (IRCTC) are routinely used for customer engagement. The repertoire of topics and chat responses is narrow. The dialogue is predefined and often goal-directed. For instance, try chatting about the weather with Ask Disha or about the Ukrainian crisis with the Amazon chat app. LaMDA is Google's answer to the quest for developing a non-goal directed chatbot that dialogues on various subjects. The chatbot would respond the way a family might when they chat over the dinner table; topics meandering from the taste of the food to price rise to bemoaning war in Ukraine. Such advanced conversational agents could revolutionise customer interaction and help AI-enabled internet search, Google hopes.

## How intelligent are AI's?

The Turing test is a powerful motivator for developing practical AI tools. However, scholars, such as philosopher John Searle, use the 'Chinese Room Argument' to demonstrate that passing the Turing test is inadequate to qualify as intelligent.

Once I used Google Translate to read WhatsApp messages in French from a conference organiser in France and in turn replied back to her in French. For some time, she was fooled into thinking that I could speak French. I would have passed the



'Turing test', but no sane person would claim that I know French. This is an example of the Chinese room experiment. The imitation game goes only so far.

Further scholars point out that AI tech uses a false analogy of learning. A baby learns a language from close interaction with caregivers and not by ploughing through a massive amount of language data. Moreover, whether intelligence is the same as sentience is a moot question. However, the seemingly human-like conversational agents rely on pattern recognition, not empathy, wit, candour or intent.

## Is the technology dangerous?

The challenges of AI metamorphosing into sentient are far in the future; however, unethical AI perpetuating historical bias and echoing hate speech are the real dangers to watch for. Imagine an AI software trained with past data to select the most suitable candidates from applicants for a supervisory role. Women and marginalised communities hardly would have held such positions in the past, not because they were unqualified, but because they were discriminated against. While we imagine the machine to have no bias, AI software learning from historical data could inadvertently perpetuate discrimination.

T.V. Venkateswaran is Scientist F at Vignyan Prasara, Dept of Science and Technology

- **Advantages of AI** : It's the backbone of Fourth Industrial Revolution. It could contribute more than \$15 trillion to the world economy by 2030, adding 14% to global GDP.
- **Dangers of AI** : Surveillance by government, inscrutable "black box" algorithms, unethical use of data and potential job displacement.
- **Global AI Action Alliance:**  
 Launched by World Economic Forum in 2021.  
 It's a multi-stakeholder (companies, governments, academics and civil society groups) platform.  
 Objectives: to accelerate the adoption of inclusive, transparent, and trusted artificial intelligence tools globally and in industry sectors, Create a feedback loop of real-time learning and scaling across key sectors and challenge areas, and Catalyse and incubate new partnerships and initiatives to address urgent gaps and needs.

- **(UPSC Prelims question 2020)**

With the present state of development, Artificial Intelligence can effectively do which of the following?

1. Bring down electricity consumption in industrial units
2. Create meaningful short stories and songs
3. Disease diagnosis
4. Text-to-Speech Conversion
5. Wireless transmission of electrical energy

Select the correct answer using the code given below:

- (a) 1, 2, 3 and 5 only
- (b) 1, 3 and 4 only
- (c) 2, 4 and 5 only
- (d) 1, 2, 3, 4 and 5





# Centre clears *Agnipath* scheme

'Agniveers' can apply for regular employment after 4 years and may get priority

**SPECIAL CORRESPONDENT**  
NEW DELHI

Defence Minister Rajnath Singh on Tuesday announced the 'Agnipath' scheme for recruitment of youth in the armed forces for four years. The process of recruitment will commence in 90 days with a planned intake of 46,000 young men and women this year. This will be the only form of recruitment of soldiers into the three defence services from now.

Mr. Singh said the scheme was aimed at strengthening national security and for providing an opportunity to the youth to serve in the armed forces. Recruits under the scheme will be known as 'Agniveers'. After completing the four-year service, they can apply for regular employment in the armed forces. They may be given priority over others for various jobs in other government departments.

The move is expected to decrease the average age profile of armed forces personnel from the current 32



Defence Minister Rajnath Singh announcing the rollout of the 'Agnipath' scheme on Tuesday. ■ SHIV KUMAR PUSHPAKAR

to 24-26 years over a period of time, Lieutenant-General Anil Puri, Additional Secretary, Department of Military Affairs, said. Enrolment to all three services will be through a centralised online system, with special rallies and campus interviews at recognised technical institutes such as the Industrial Training Institutes, and the National Skills Qualifications Framework, Lt. Gen. Puri said. Recruitment will be carried out on an "All India All Class" basis with the eligibility age ranging from 17.5

to 21, with medical and physical fitness standards in accordance with existing norms.

The 'Agniveers' will receive an annual package of ₹4.76 lakh in the first year to ₹6.92 lakh in the fourth year, apart from risk and hardship and other allowances as applicable. Under the 'Seva Nidhi' package, they will receive about ₹11.71 lakh, including contribution and interest, on completion of service. The recruits will have to contribute 30% of their monthly emoluments

## Congress attacks govt. over *Agnipath* scheme

NEW DELHI

The Congress on Tuesday attacked the Centre over its Agnipath scheme for recruitment of soldiers into the Army, Navy and the Air Force, largely on a short-term contractual basis, alleging the decision could 'compromise' the efficiency and operational capability of the three Services. The party also expressed concern about the future of the youth.

to Seva Nidhi, with a matching contribution made by the government. There will be no entitlement to gratuity and pension benefits under the scheme. However, the 'Agniveers' will be provided a non-contributory life insurance cover of ₹48 lakh during their service.

Total budget allocation for defence for 2022-23 is ₹5.25 lakh crore, of which revenue allocation is ₹2.33 lakh crore, capital allocation is ₹1.52 lakh crore, and defence pensions add up to ₹1.19 lakh crore.



# What's in Agnipath scheme

Govt has unveiled a new scheme for recruitment into the armed forces. How does it differ from the existing system? Who is eligible, how many will be recruited, and what are the takeaways for the recruits and govt?

**KRISHN KAUSHIK**  
NEW DELHI, JUNE 14

THE GOVERNMENT on Tuesday unveiled a new recruitment path into the Indian armed forces. The scheme, announced by Defence Minister Rajnath Singh along with the chiefs of the three services, has been named Agnipath, and those recruited will be called Agniveers. The plan upends the decades-old system of recruitment across the armed forces.

## What is the new scheme?

Earlier known as the Tour of Duty, it is now Agnipath. Under the new plan, soldiers, sailors and airmen will be recruited for a four-year period. The scheme is not optional as all personnel below officer rank will be hired only through this route from now on.

In the previous system, troops joined for a 17-year period, which could be extended for some personnel, and it resulted in a lifelong pension. The new scheme envisages just a four-year tenure for most of those joining below the rank of officer. Troops under the scheme will not be eligible for pension benefits.

Recruitment will start within the next 90 days. Those selected will undergo a maximum training of six months, after which they will serve for three-and-a-half years in their respective services. At the end of this four-year period, only 25% of the Agniveers will be recruited back into the services, while the rest will move out. This will end up creating a much leaner and younger force.

## Who is eligible to apply?

Recruitment will be open to those between the ages of 17½ to 21. The minimum educational requirement would be Class 10 or Class 12, depending on the service. The forces will also look at aspirants trained at the Industrial Training Institutes (ITIs) for certain skills.

As only men are allowed across almost all combat arms of the three armed forces, most of the recruitment will be for men. However, according to the government, there will be progressive recruitment of women as well, based on service requirements. Navy Chief Admiral Hari Kumar said that for the Navy "women will be part of the Agniveer scheme".

## How many troops will be recruited?

In the first year, 46,000 will be recruited for the three services. This will go up to over 50,000 annually. The induction will happen every six months.

Over the four-year period, the Army will

## PAY & BENEFITS: WHAT THE AGNIVEERS WILL GET

Year	Basic pay per month	In Hand (70%)	Contribution to Seva Nidhi (30%)	Govt contribution to Seva Nidhi
1st	Rs 30,000	Rs 21,000	Rs 9,000	Rs 9,000
2nd	Rs 33,000	Rs 23,100	Rs 9,900	Rs 9,900
3rd	Rs 36,500	Rs 25,550	Rs 10,950	Rs 10,950
4th	Rs 40,000	Rs 28,000	Rs 12,000	Rs 12,000
Total contribution to Seva Nidhi after 4 years			Rs 5.02 lakh	Rs 5.02 lakh

### Exit after 4 years

Rs 11.71 lakh as Seva Nidhi Package

(Including interest accumulated on the above amount as per the applicable rates)

### OTHER BENEFITS



**LIFE COVER:** Rs 48 lakh



**DISABILITY ATTRIBUTABLE TO SERVICE:** Rs 15 lakh to Rs 44 lakh one-time ex gratia



**DEATH ATTRIBUTABLE TO SERVICE:** Rs 44 lakh ex gratia; plus salary for remaining service period



■ In the first year, Agniveers will be paid a basic monthly salary of Rs 30,000, over which there will be additional allowances, including for risk and hardship, ration, dress and travel. The salary will go up every year (see table).

■ However, 30% of the basic salary will be deducted and contributed to the Seva Nidhi scheme. So, for a salary of Rs 30,000, Rs 9,000 will go to Seva Nidhi. This component

will go up at 30%, each year. The government will contribute the same amount per month.

■ At the end of four years, the Agniveer will get the money accumulated in his Seva Nidhi account, along with the interest — a total of Rs 11.71 lakh, free from income tax.

■ Beyond this, the Agniveers will get a life insurance cover of Rs 48 lakh.

■ In case an Agniveer

dies within the four-year period — and the death is attributable to service — in addition to this insurance amount, his family will also get Rs 44 lakh in ex gratia, and the salary for the unserved period of the service.

■ In case of a disability, depending upon the extent of the disability as assessed by medical authorities, the Agniveer will be eligible to get Rs 15 lakh to Rs 44 lakh in one-time ex gratia.

recruit 1.75 lakh Agniveers, the Navy will take 12,500 and 15,400 will go to the Air Force. From the fifth year onwards, the recruitment will match the actual release of the troops, including from the current cadre and the Agniveers.

## What kind of training will Agniveers get?

That will depend on the service entered and the role assigned. The minimum training provided to each recruit will be ten weeks, and the maximum six months.

According to the three service chiefs, the training modules are being redeveloped and improved. Using new processes, the training

duration will be reduced in certain cases, but the output will remain the same.

If an Agniveer is selected back into a particular service after the four-year tenure, he or she might get additional training if required.

## What happens after four years?

At the end of the four-year cycle, 75% of the Agniveers will move out of the services. They will then be free to pursue any educational or job prospects they wish.

Defence Minister Singh said Agniveers are likely to be given preference by several central government departments and some state gov-

ernments in recruitment after their service, and such announcements could be made soon. According to the government, the Agniveers will emerge with a unique résumé, military discipline and fitness. Also, the Seva Nidhi money (see table), which will be over Rs 11 lakh and given to them at the end of their service, will help them become entrepreneurs, the government said.

## How does this benefit the armed forces?

The scheme, according to the government, will lead to "a much more youthful and technically adept" fighting force. Additional Secretary, Department of Military Affairs, Lt Gen Anil Puri said that at the moment the average age of a troop across the forces is 32. Over seven years, this will come down to 26 years.

The scheme will also significantly reduce the defence pension burden. With a huge veteran population, the government ends up paying over Rs 1 lakh crore annually in defence pensions. The government allocated Rs 1.2 lakh crore for defence pensions this year, out of a total defence budget of Rs 5.25 lakh crore.

This scheme is only applicable to personnel below officer ranks, and the officers are paid much higher pensions compared to troops.

But the total number of officers is considerably lower than the troops, and they serve longer before drawing a pension.

## Are there any concerns?

Tens of thousands of aspirants try for the armed forces every year as they get a permanent job, a promised pension and health benefits that can be availed even after retirement. All those benefits and the security of a permanent job are now gone.

From the perspective of the armed forces, there are two main concerns. First, not everybody is certain that the training that the Agniveers will get will be enough to trust them with the same kind of tasks that the current troops can be trusted with.

The scheme will bring "all India, all class" recruitment to the services. Within the Army, a concern is that it can lead to the erosion of the loyalty that a soldier has for his regiment or battalion, and the pride he derives out of it. Many veterans and senior officers believe that this is a significant motivator for the soldier, soldier or Air Force pilot.

On this concern, Army Chief Gen Manoj Pande said the Agniveers will be assimilated and integrated in the Army in every way, and will be deployed in operational units, headquarters and other establishments, and non-operational areas.



## **Agnipath Scheme Benefits**

It will reduce revenue expenditure of the government currently spent on salaries and pension bills of Soldiers (1/3<sup>rd</sup> of total defense budget spent on salaries and bills.) Government will be able to spend more on modernization of weapons and arsenals as well as be ready for contact-less warfare if digital era.

A younger, highly motivated armed forces can better perform in high altitude areas (China and Pakistan in Northern sector)

This reform is in line with international best practices - e.g. Israeli army has service of 30 months, US, UK, and France also have shorter duration service.



# Two states walk out of NPS

## Rajasthan and Chhattisgarh stop contributing to fund

**ENSECONOMICBUREAU**

MUMBAI, JUNE 14

THE NATIONAL Pension System (NPS), managed by the Pension Fund Regulatory and Development Authority (PFRDA) and designed to unburden the Central government and state governments of huge future pension liabilities, has received a setback as two states, Rajasthan and Chhattisgarh, have walked out of the system after participating in it for the last few years.

Sources confirmed that both the states, ruled by the Congress, have stopped contributing any funds from their side to the NPS since April 1. "Yes, both the governments have stopped the payment. Now, whatever the funds they had contributed earlier will be taken care of by us," said an official, adding that there are no legal ways through which the PFRDA can return the funds whatever have been contributed by

### PARTICIPANTS

■ All other states except Tamil Nadu and West Bengal had participated in the NPS and the last to join was Tripura

these two states.

All other states except Tamil Nadu and West Bengal had participated in the NPS and the last state that had joined the NPS was Tripura.

Chhattisgarh Chief Minister Bhupesh Baghel had urged Prime Minister Narendra Modi to issue a directive to the PFRDA to refund the money deposited towards the NPS since November 2004 by the state government along with accruals. Baghel made this demand after the PFRDA rejected the state government's request to withdraw Rs 17,240 crore accrued under the NPS.

The state government has de-

cided to reinstate the old pension scheme (OPS) "in the interest of government officials and employees." Meanwhile, speaking to the media, Supratim Bandyopadhyay, Chairperson, PFRDA, said the total assets under NPS have touched Rs 35 trillion and currently has an AUM of Rs 7.4 trillion with 5.33 crore subscribers across central and state government corporates and retail subscribers.

Bandyopadhyay said equity schemes under NPA have given a return of 11.92 per cent while the corporate bonds have provided a return of 9.21 per cent. Three new players, Tata Asset Management, Axis Bank and Max Financial have joined as new pension fund managers recently and will start their operations shortly.

Bandyopadhyay hinted that the PFRDA is working out plans to launch a guaranteed pension scheme, which can be linked to government securities and can also be made floating and may be launched by September.

## **National Pension Scheme**

- Launched in 2004 by the Government of India.
- It is a voluntary retirement savings scheme laid out to allow the subscribers to make a defined contribution towards planned savings.
- Here the government and employees contribute an equal portion towards the pension fund.
- -NPS invests employees' contributions over the length of their careers in market securities such as equities. However, there is no assurance of returns from this investment.
- The structure of NPS has two types of accounts- Tier 1 and Tier 2. While Tier 1 does not allow subscribers premature withdrawal, Tier 2 can be used for withdrawals before maturity. Minimum Rs.1000 of contribution to be made for both accounts.
- At the time of retirement of the total the pension fund 60 per cent tax-free on redemption while the rest needs to be invested in an annuity which is fully taxable.
- The minimum payment to retired employees as pension is Rs 3,500.

## **Old Pension Scheme**

- This was the pension system before 2004.
- Under this subscribers are assured of a monthly pension after retirement and income from OPS is not taxed.
- Under this 50 per cent of the last drawn salary is provided as the pension.
- This system was discontinued due to pension debt sustainability, an ageing population, an explicit burden on future generations and the incentive for early retirement in OPS.
- There is no requirement of mandatory investment of a portion of pension fund under this system unlike in NPS (40%)
- Currently West Bengal, Tamil Nadu, Rajasthan, and Chhattisgarh state governments follow this model.



# Unemployment has decreased, says latest labour force survey

Data show rate of joblessness fell to 4.2% in 2020-21, compared with 4.8% earlier

SPECIAL CORRESPONDENT  
NEW DELHI

The unemployment rate saw a decrease of 0.6% and fell to 4.2% in 2020-21, compared with 4.8% in 2019-20, according to the Periodic Labour Force Survey (PLFS) for 2020-21 released by the Ministry of Statistics and Programme Implementation here on Tuesday.

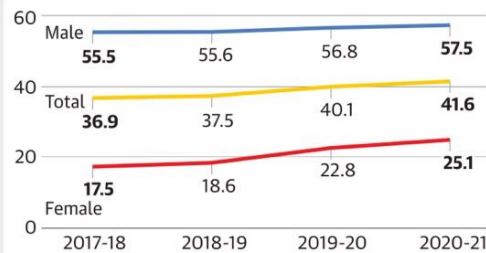
This means that only 4.2% of adults who looked for jobs could not get any work in rural and urban areas of the country in 2020-21.

Rural areas recorded an unemployment rate of 3.3% and urban areas 6.7%.

The National Statistical Office (NSO) uses "rotational panel sampling design" in urban areas to assess the labour force participation rate (LFPR), worker population ratio (WPR) and the unemployment rate, and visits select households in urban areas four times. There was, however, no revisit for the rural samples.

The sample size for the first visit during July 2020-June 2021 in rural and urban

**Looking for work** | The labour force participation rate (LFPR) has continued to improve further in 2020-21, according to the latest Periodic Labour Force Survey. The graph shows LFPR over years across genders



areas was 12,800 first-stage sampling units (FSU) in 7,024 villages and 5,776 urban frame survey blocks.

## First-stage sampling

Out of this, 12,562 FSUs (6,930 villages and 5,632 urban blocks) were surveyed for canvassing the PLFS schedule.

"The number of households surveyed was 1,00,344 (55,389 in rural areas and 44,955 in urban areas) and number of persons surveyed was 4,10,818 (2,36,279 in ru-

ral areas and 1,74,539 in urban areas)," the Ministry said in a release.

The LFPR, the percentage of persons in the labour force (that is, working or seeking work or available for work) in the population, was 41.6% during 2020-21. It was 40.1% in the previous year. The WPR was 39.8%, an increase from 38.2% of the previous year. The WPR is defined as the percentage of employed persons in the population.

Migrants are defined in

the survey as a household member whose last usual place of residence, at any time in the past, was different from the present place of enumeration. The migration rate, according to the survey, is 28.9%. The migration rate among women was 48% and 47.8% in rural and urban areas, respectively.

## Rural jobs

Experts point out that a second visit to the households in rural areas could have provided a bigger and larger picture of unemployment, which did not happen in the survey.

"Overall, the report suggests shifting the government's policy directions as it has become more rural-centric. Creation of rural jobs other than in the agricultural sector and MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act) could be priorities for the government at the Union and State levels," Sridhar Kundu, senior research analyst at the Indian School of Business, said.

National Statistical Office under Ministry of Statistics and Programme Implementation was created in 2019 by merging National Sample Survey Office (NSSO) and Central Statistics Office (CSO).

## Surveys by NSO :

1. Index of Industrial Production (monthly)
2. Annual Survey of Industries
3. All India Economic Censuses
4. Periodic Labour Force Survey