

## IN BRIEF


**Artist authors book using only emoticons**

**VALENCIA**  
Book from the Ground is a work written using only emoticons by Chinese artist Xu Bing to illustrate the ability to create a universal language using only graphic symbols. Mr. Xu said his aim in creating the book is for any person anywhere in the world to be able to understand the story without having to know any language. IANS


**Australian newspaper prints rival's pages**

**SYDNEY**  
One of Australia's tabloids mistakenly printed pages from a rival newspaper on Thursday. Sydney-based Daily Telegraph accidentally printed two pages of the Sydney Morning Herald. "Both papers share the same printing facility in Sydney's west," Daily Telegraph said in its apology on Twitter. IANS


**EasyJet airline bans peanuts on flights**

**LONDON**  
British airline easyJet has stopped selling peanuts and will remove all nuts from inflight foods, it said on Thursday, to ensure the safety of passengers with allergies. The no-frills carrier said people on the flight will also be asked not to eat nuts on board if fellow passengers are allergic. AFP

# Speak your mind: brain implant translates thought to speech

Scientists say no muscle movement is needed for device to decode signals

BENEDICT CAREY

Now, scientists are reporting that they have developed a virtual prosthetic voice, a system that decodes the brain's vocal intentions and translates them into mostly understandable speech, with no need to move a muscle, even those in the mouth. This could help thousands of people who are reduced to painstaking means of communication as a result of injuries suffered in accidents or combat, of strokes, or of neurodegenerative disorders like amyotrophic lateral sclerosis.

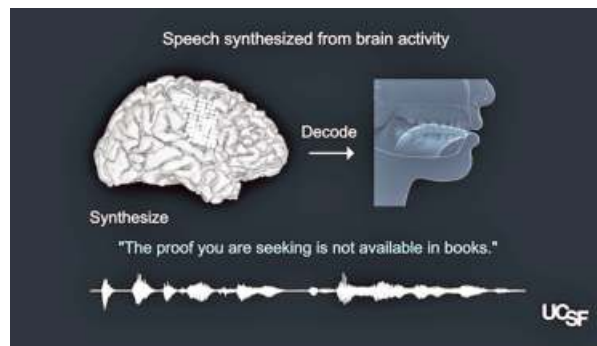
"It's formidable work, and it moves us up another level toward restoring speech" by decoding brain signals, said Dr. Anthony Ritaccio, a neurologist and neuroscientist at the Mayo Clinic in Jacksonville, Florida, who was not a member of the research group.

Researchers have previously developed other virtual speech aids. Those work by decoding the brain signals responsible for recognising letters and words. But those approaches lack the speed and fluidity of natural speaking.

**Motor commands**

The new system, described on Wednesday in the journal *Nature*, decipher the brain's motor commands guiding vocal movement during speech – the tapping of the tongue, the narrowing of the lips – and generates intelligible sentences that approximate a speaker's natural cadence.

Experts said the new work represented a "proof of principle", a preview of what may be possible after further experimentation and refine-



An illustration explaining how the speech synthesizer works and, below, the brain electrode Array. ■ NYT/UCSF

ment. The system was tested on people who speak normally; it has not been tested in people whose neurological conditions or injuries could make the decoding difficult or impossible.

For the new trial, scientists at the University of California, San Francisco, and UC Berkeley recruited five people who were in the hospital being evaluated for epilepsy surgery.

Many people with epilepsy do poorly on medication and opt to undergo brain surgery. Before operating, doctors must first locate the "hot spot" in each person's brain where the seizures originate; this is done with electrodes that are placed in the brain, or on its surface, and listen for tell-tale electrical storms.

Pinpointing this location can take weeks. In the interim, patients go through their days with electrodes implanted in or near brain regions that are involved in movement and auditory signalling. These patients often consent to additional experiments that piggyback on those implants.

The five such patients at UCSF agreed to test the virtual voice generator. Each had been implanted with



one or two electrode arrays: stamp-size pads, containing hundreds of tiny electrodes, that were placed on the surface of the brain.

**When neurons fire**

As each participant recited hundreds of sentences, the electrodes recorded the firing patterns of neurons in the motor cortex. The researchers associated those patterns with the subtle movements of the patient's lips, tongue, larynx and jaw that occur during natural speech. The team then translated those movements into spoken sentences.

Native English speakers were asked to listen to the sentences to test the fluency of the virtual voices. As much as 70% of what was spoken by the virtual system was intelligible, the study found.

"We showed, by decoding the brain activity guiding articulation, we could simulate speech that is more accurate

and natural sounding than synthesized speech based on extracting sound representations from the brain," said Dr. Edward Chang, a professor of neurosurgery at UCSF and an author of the new study. His colleagues were Gopala K. Anumanchipalli, also of UCSF, and Josh Charrier, who is affiliated with both UCSF and Berkeley.

Previous implant-based communication systems have produced about eight words a minute. The new programme generates about 150 words a minute, the pace of natural speech.

The researchers also found that a synthesized voice system based on one person's brain activity could be used, and adapted, by someone else – an indication that off-the-shelf virtual systems could be available one day. The team is planning to move to clinical trials to further test the system.

The biggest clinical challenge may be finding suitable patients: strokes that disable a person's speech often also damage or wipe out the areas of the brain that support speech articulation.

Still, the field of brain-machine interface technology, as it is known, is advancing rapidly, with teams around the world adding refinements that might be tailored to specific injuries. "With continued progress," wrote Chethan Pandarinath and Yahia H. Ali, biomedical engineers at Emory University and Georgia Institute of Technology, in an accompanying commentary, "we can hope that individuals with speech impairments will regain the ability to freely speak their minds and reconnect with the world around them." NY TIMES

# Athletic icons Mo Farah and Gebrselassie locked in a feud

Stolen items and an unpaid bill are at the heart of the row

AGENCE FRANCE-PRESSE  
LONDON

Athletics icons Mo Farah and Haile Gebrselassie are locked in a bitter dispute just days away from the London Marathon with claims of robbery and an unpaid hotel bill at the heart of the row.

Britain's quadruple Olympic champion Mr. Farah wrapped up his pre-marathon press conference with claims that Mr. Gebrselassie, who owns a hotel near Addis Ababa, had made no effort to recover items stolen from Mr. Farah's room.

Mr. Farah was staying at the hotel in late March as part of training for the prestigious London race.

Mr. Gebrselassie – a two-time Olympic champion – hit back by accusing Mr. Farah of not paying his heavily discounted hotel bill and claimed in a statement to media that only thanks to his intervention had an assault charge brought by a fellow guest against the Briton been dropped.

Mr. Farah said on Wednesday that around £2,500



Mo Farah, left, and Haile Gebrselassie.



pounds had been stolen on March 23, along with a watch given to him by his wife, Tania.

"Someone's got the key from reception, opened it up, took my money, took my nice watch that my wife got me, and two phones," said Mr. Farah. "The watch was sentimental -- it can't be replaced."

**Text twist**

Mr. Farah, who finished third in last year's race but has since set a new European record in landing the prestigious Chicago Marathon, also revealed the contents of a text message he

sent Mr. Gebrselassie when he lost patience at not having his pleas for help answered.

"I want to inform you that I'm disappointed you have not made any effort to find my stolen money, and especially my watch," the text read.

Mr. Gebrselassie, who also won four outdoor world titles in his illustrious career, hit back claiming the text message looked like "an act of blackmailing and accusation" and added there had been "multiple reports of disgraceful conduct" at the hotel levelled against Mr. Farah and his entourage.

# World's forests are 'in emergency room': study

REUTERS  
LONDON

The world lost 12 million hectares of tropical tree cover last year – the equivalent of 30 football pitches a minute – researchers said on Thursday, warning the planet's health was at stake.

It was the fourth highest annual decline since records began in 2001, according to new data from Global Forest Watch, which uses satellite imagery and

remote sensing to monitor tree cover losses from Brazil to Ghana.

"The world's forests are now in the emergency room," said Frances Seymour, senior fellow at the U.S.-based World Resources Institute, which led the research. Ms. Seymour said the data represented "heart-breaking losses in real places," with indigenous communities most vulnerable to losing their homes.

# Scientists track Indian Ocean's plastic

PRESS TRUST OF INDIA  
MELBOURNE

The Indian Ocean is the world's biggest dumping ground for plastic waste, but where the trash ultimately ends up has remained a mystery, scientists say.

According to researchers from the University of Western Australia (UWA), little research had been done to measure and track plastic waste in the Indian Ocean.

The team found that the unique characteristics of the southern Indian Ocean pushes floating plastics towards the western side of the ocean, where it leaks past South Africa into the South Atlantic Ocean.

"Because of the Asian monsoon system, the southeast trade winds in the southern Indian Ocean are stronger than the trade winds in the Pacific and Atlantic Oceans," said Mirjam van der Mheen, a PhD student at UWA.

In the northern Indian Ocean, the simulations showed that there may be an accumulation in the Bay of Bengal. It is also most likely that floating plastics will ultimately end up on beaches, transported by the reversing monsoon winds and currents, researchers said.

"Our study shows that the atmospheric and oceanic attributes of the Indian Ocean are different to other ocean basins and that there may not be a concentrated garbage patch," said Ms. van der Mheen.

# WHO says one in 10 children did not get vaccinated in 2016

Global health body worried about immunisation levels

BINDU SHAJAN PERAPPADAN  
NEW DELHI

Despite immunisation being one of the most successful and cost-effective means to help children grow into healthy adults, worldwide 12.9 million infants – nearly 1 in 10 – did not receive any vaccination in 2016.

The figures released by the World Health Organisation (WHO) during the ongoing immunisation week added that this means infants missed the first dose of diphtheria-tetanus-pertussis (DTP) vaccine putting them at serious risk of these potentially fatal diseases.

What is worrying, says WHO, is the fact that "global vaccination coverage remains at 85%, with no significant changes during the past few years. An additional 1.5 million deaths could be



avoided if global immunisation coverage improves."

Over the years, the positive trend "has been the increasing uptake of new and underused vaccines". In fact, according to WHO in 2017, the number of children immunised – 116.2 million – was the highest-ever reported. Since 2010, 113 countries have introduced new vaccines, and more than 20 million additional children have been vaccinated.

"But despite gains, all of the targets for disease elimination – including measles,

rubella, and maternal and neonatal tetanus – are behind schedule, and over the last two years, the world has seen multiple outbreaks of measles, diphtheria and various other vaccine-preventable diseases. Most of the children missing out are those living in the poorest, marginalised and conflict-affected communities," it warned.

Immunisation prevents illness, disability and death from vaccine-preventable diseases including cervical cancer, diphtheria, hepatitis B, measles, mumps, pertussis (whooping cough), pneumonia, polio, rotavirus diarrhoea, rubella and tetanus.

An estimated 169 million children missed out on the first dose of the measles vaccine between 2010 and 2017, UNICEF said.

# Celebrating the seasons



Youthful parade: Tiwa tribesmen take part in a dance during the Khelchawa festival in Karbi Anglong district of Assam on Thursday. The festival is held at the close of the harvest season. ■ RITU RAJ KONWAR

# Accidental 'spy': vulture arrested for espionage

Yemeni fighters mistook GPS tracker on a bird for an undercover device sent by Huthi rebels

AGENCE FRANCE-PRESSE  
SANAA

Griffon vulture Nelson crossed into war-torn Yemen in search of food but ended up in the hands of Yemeni fighters – and temporarily in jail for suspected espionage.

The sand-coloured bird came down in the country's city of Ta'ez, an unusual move for a young vulture that can soar for long distances across continents in search of food and moderate weather.

Nelson, approximately two years old, embarked on his journey in September 2018 from Bulgaria, where his wing was tagged and equipped with a satellite transmitter by the Fund for Wild Fauna and Flora (FWFF).



Hisham al-Hoot inspecting the vulture that had a satellite transmitter, inset, attached to it after rescue in Sanaa. ■ AFP

But he seemed to have lost his way, eventually coming down into Ta'ez – under siege by Huthi rebels but controlled by pro-government

forces, who mistook Nelson's satellite transmitter for an espionage device and detained the bird. Forces loyal to the govern-

ment believed that the GPS tracker attached to the bird may have been a spy device for the rebels.

Hisham al-Hoot, who represents the FWFF in Yemen, travelled from the rebel-held capital Sanaa to Ta'ez to plead with local officials to release the helpless animal.

**International support**

"It took about 12 days to get the bird," he said.

"The Bulgarian Foreign Ministry reached out to the Yemeni ambassador, who in turn contacted local officials [in Ta'ez] and told them to immediately give the organisation the vulture."

Mr. al-Hoot said that the bird migrated from Bulgaria, to Turkey, to Jordan, Saudi

Arabia and then Yemen – where the FWFF lost track of the bird.

Nelson was MIA until April 5, when the conservation group received hundreds of messages from Yemenis concerned about the creatures' welfare.

Today, the locally-famous vulture is being properly fed and getting stronger every day. "When we first took him, he was in very bad condition," said Mr. al-Hoot, adding that the bird was underweight.

Mr. al-Hoot said the bird will be released in two months when he believed Nelson will have regained his full strength and his wing – broken somewhere during his journey – will have healed. "We thought at first it

would take six months for him to heal, but now we don't think it will be more than two months," he said.

**Humanitarian crisis**

The four-year conflict in Yemen has unleashed the world's worst humanitarian crisis, according to the United Nations, with millions facing famine.

The war escalated in March 2015 when a coalition, led by Saudi Arabia and the United Arab Emirates, intervened to bolster the efforts of Yemeni President Abedrabbo Mansour Hadi.

Since then, at least 10,000 people – most of them civilians – have been killed and more than 60,000 wounded, according to the World Health Organization.

# Antarctic penguins suffer huge breeding failure

AGENCE FRANCE-PRESSE  
PARIS

The second largest Emperor penguin colony in the world has suffered a "catastrophic" breeding failure after nearly all chicks born over three years died as their icy Antarctic habitat shrinks, researchers said on Thursday.

The British Antarctic Survey (BAS) used satellite imagery to study the behaviour of the Halley Bay colony in the Weddell Sea due south of Cape Hope, which normally sees up to 25,000 penguin pairs mate each year. They found that in 2016, when abnormally warm and stormy weather broke up the sea-ice on which the penguins normally raise their young, almost all the chicks died.



Emperor penguins and chicks at Halley Bay in 2010. ■ AP

This pattern was repeated in 2017 and 2018.

The BAS said the colony at Halley Bay has "all but disappeared". "We have been tracking the population of this, and other colonies in the region, for the last decade using very high resolution satellite imagery," said BAS remote sensing specialist Peter Fretwell.