

sci-tech.



DID YOU KNOW?

Georges Cuvier is considered the father of palaeontology thanks to his 1796 paper where the French naturalist compared the skeletal remains of Indian and African elephants, and mammoth and mastodon fossils. Establishing the difference between the creatures for the first time led to the wide spread acceptance of the reality of extinction, and the onset of its study

RunBot, Run

A new robot that teaches itself how to walk and run could tell scientists how humans move; research could help in developing better prosthetics and therapy for mobility

A walking robot, RunBot, that adapts to different terrain is helping scientists understand how humans move and could one day lead to improved treatment for spinal cord and other injuries, German researchers said on Friday.

Previously, the robot's inventors said the 30-centimetre-tall machine could only walk forward on flat surfaces and would topple over when encountering a slope.

But using an infrared eye, the robot can now detect an incline in its path and adjust its gait after four or five attempts to navigate up the slope, researchers said.

The machine, which simply falls over until it learns to walk uphill, takes 3-4 stride lengths per second, a touch faster than the normal human gait of about 1.5 to 2.5 stride lengths per second.

"It is trial and error learning," said Florentin Woergoetter, a researcher at the University of Goettingen who helped design RunBot.

"It needs about four or five falls to learn this."

Woergoetter, who published his findings in the journal *Computational Biology*, compared the process with the way a child learns to walk. He said, just like humans, RunBot leans forward slightly and uses shorter steps

to navigate uphill.

A key is the robot's "brain"—in this case, the infrared eye connected to the control circuits—which directs the machine to change its gait when needed.

Previous research suggests the motor control system in humans consists of a hierarchy of levels where interactions between muscles and the spinal cord work largely on their own until a higher level of control—the brain—is needed.

This relationship can help explain how some paraplegics are able to use their legs on a treadmill while suspended in a harness, and was key to the research, Woergoetter said.

Studying a robot to gain a better understanding of how different parts of the body work when walking could have practical applications to improve health care for humans, he added.

This could include designing better prosthetics for amputees or helping therapists work with patients with spinal cord and other severe injuries with a goal of getting them mobile again.

"The robot is essentially a model of the human biped walking and can be used to improve understanding and for better treatment methods," Woergoetter added.

REUTERS



website



TIPNUT.COM

We all have them. Those mile high piles of tips and life hacks that we've collected over the years. But our collections are often messy, disorganised and once they've been 'filed', can never be found again. Well, today's resource offers a simple way of checking them all out at one single place. Browse through a large collection of tips, and even add your own, on this immensely helpful site.

gadget

SANDISK CRUZER CONTROL

SanDisk recently launched its new USB flash drive, the Cruiser Contour. The device, with a sliding USB connector, boasts of a write speed of 18MB/s and a read speed of 25MB/s. It supports Windows Vista's ReadyBoost feature, which uses free space on the drive to boost your machine's RAM. If that's not enough, the password-protected gadget, which comes in glossy black as well as silver metallic bodies, is pre-loaded with a host of useful software. The 4GB version is available at Rs 2,750, while the 8GB one costs Rs 5,250. For details on the device, visit www.sandisk.com



No bones about it: The rock star of palaeontology

BEIJING: Xu Xing doesn't know how many new species of dinosaurs he has discovered, saying he has lost count.

"Three years ago someone said to me: 'You are in the top three in history in terms of how many new species you have named'," Xu said. "I had more than 20 then, I think. Over the past three years I have named a few more. I guess the total may be closer to 30. Maybe I am number one now."

In the unsexy world of palaeontology, Xu is perhaps the closest thing the science has to a rock star.

At a recent unveiling of perhaps his most spectacular discovery—a chicken-like creature as big as a Tyrannosaurus—camera crews clamoured to picture him next to the huge bones he had stumbled upon in the rich fossil reserves of the northern Inner Mongolia region.

In front of the gathered media, Chinese officials meandered through the implications of such a discovery, with proposals of theme parks. Soon, even the translators stopped paying attention.

But when the first question was directed at Xu, his description captured both the significance of the find and the childlike joy of discovery.



Dinosaur hunter Xing Xu briefs the media on the fossilised bones of a gigantic theropod dinosaur, Gigantoraptor Erlanensis. The Chinese palaeontologist has discovered and named around 30 new dinosaur species and is famous for his vivid descriptions of the creatures

"If you saw a mouse as big as a pig, you would be very surprised. It is the

same when we found the Gigantoraptor," he said.

Palaeontology was never a life-long passion for the 38-year-old. "I spent more time with computers and wanted to be a software designer," he said.

"It was only in my last year of my Masters that I started to seriously study fossils. I discovered my first species and became more and more interested in dinosaurs. Now it is part of my life."

Xu, now at the Chinese Academy of Sciences, has enjoyed huge success in exploring China's rich legacy of fossils, but his reputation took a battering when he was embroiled in a scandal when a new discovery he had verified was exposed as an elaborate fake.

Xu had authenticated the find in 1999, but was also part of the team that eventually exposed the error.

He put the mistake down to a mixture of naivety and natural human excitement at discovery, but insisted it made him a better scientist: "I am more careful when I draw conclusions now."

Xu's skill has gained him international prominence, according to Eric Buffetaut, a French academic and author of the *History of Palaeontology*.

"Xu is a brilliant representative of the new generation of palaeontologists, who

combines great ability in the field with an excellent command of palaeontological research theory," said Buffetaut.

"He has gained an outstanding international reputation by his discoveries and descriptions of remarkable dinosaur fossils, including some of the most spectacular feathered dinosaurs."

While Xu put his success down to hard work and a little luck, his recent discovery shows his priceless ability to find fossils.

Xu discovered the first femur of the Gigantoraptor in 2005 while shooting some background footage for a documentary about one of his previous finds.

The crew asked him to demonstrate how he searches for fossils...

"We randomly picked up a bone on the surface," Xu said. "We initially thought it was from the same species as we had discovered before, but minutes later we realised it was from a meat-eating dinosaur."

The remains of the animal, thought to have weighed 1,400 kgs, was named the *Gigantoraptor erlanensis*, and is the biggest bird-like dinosaur ever found, measuring 17 feet in height, Xu said.

Just another addition to his list. AFP