Star TECH

Dhaka Friday April 10, 2009

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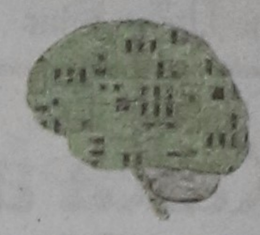
Artificial intelligence

Artificial Intelligence (AI) is the intelligence of machines and the branch of computer science which aims to create it. Major AI textbooks define the field as "the study and design of intelligent agents," where an intelligent agent is a system that perceives its environment and takes actions which maximize its chances of success. John McCarthy, who coined the term in 1956, defines it as "the science and engineering of making intelligent machines."

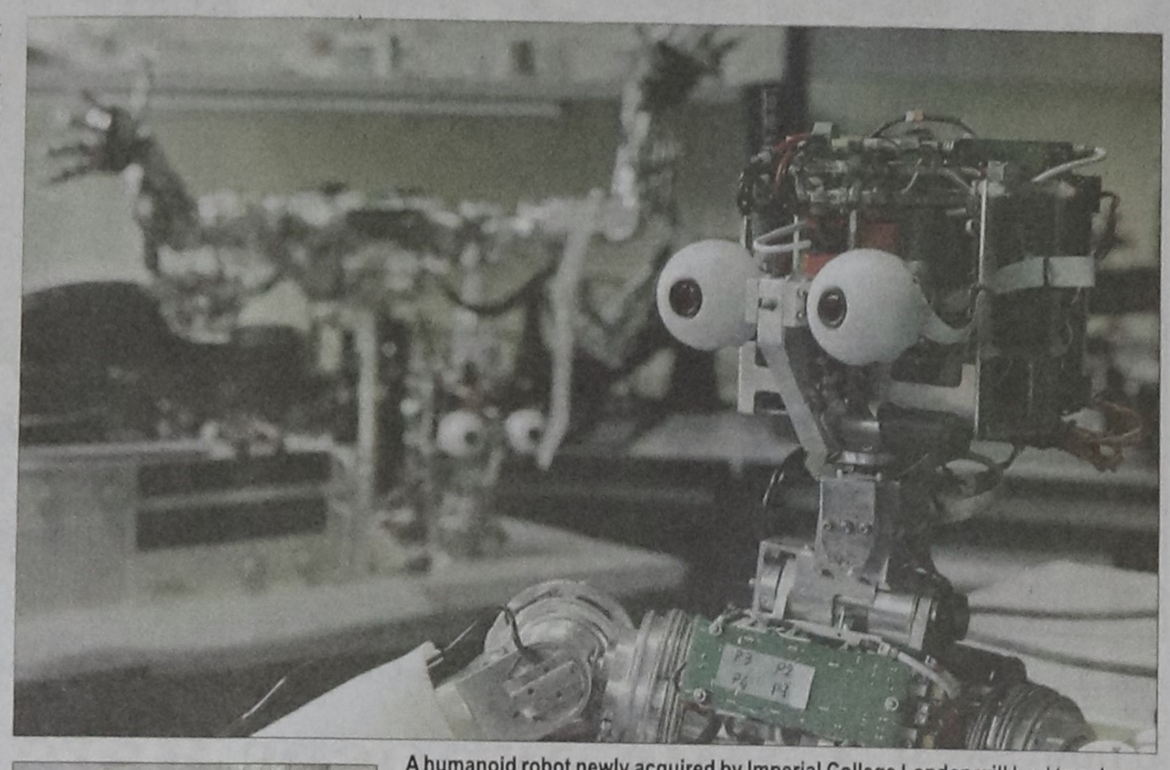


TECHVIEWS

Artificial Intelligence

The way forward

WHENEVER we hear about Artificial Intelligence (AI), many of us tend to think about a world where Robots would take over the entire world, or at least try to do so, as portrayed by sci-fi novels of Isaac Asimov or Hollywood blockbusters like Terminator-2 or i-Robot! Whether robots can ever be developed to that stage where it/they might plan to 'take over the world' is a completely different question, but some recent discoveries in the field of AI, has indeed left us flabbergasted, to say the least!



A humanoid robot newly acquired by Imperial College London will lead to a deeper understanding of human intelligence, *top*, researchers at Cornell adjust a double pendulum, *extreme-left*, and 'Adam' at Aberstwyth University at work.

Imperial College London, UK

The College's Departments of Computing and Electrical and Electronic Engineering believe that iCub, a humanoid robot the size of a three year old child, will further their research into cognition, the process of knowing that includes awareness, perception, reasoning and judgement.

Researchers want to learn more about how humans use cognition to interact with their world. They believe iCub's human-like body will help them to understand how this is done.

The iCub has mechanical joints that enable it to move its head, arms, fingers, eyes and legs similarly to the way that humans do. Professor Murray Shanahan, of the Department of Computing, says this is important because cognition is very much tied up with the way we interact with the world.

"Nature developed cognition for us in order to make us better at interacting with the physical and social world," he explains. "If we want to understand the nature of cognition better then we really need to understand it in the context of something that moves or interacts with objects. That is where iCub can help us."

The team will test their theories about cognition by creating a computer simulation of a brain, which will replicate how neurons in real brains communicate through short bursts of electrical energy. In people, this process helps us to interact with the physical world. For instance, the electrical signals sent by neurons control muscles that enable people to lift a cup to the mouth to sip on a drink.

The research team at Imperial will also link the computer simulation of a brain to iCub so that it can process information about its environment and send bursts of electrical energy to its motors to allow it to move its arms, head, eyes and fingers to carry out very simple tasks such as lifting a ball and moving it from one place to another.

If the researchers are successful, they will have made an important step in reproducing the way that humans use cognition to interact in their world.

In the long term, they believe their research could help develop a new generation of intelligent factory robots that have much more versatility and do a wider variety of jobs.

Cornell University, USA

If Isaac Newton had had access to a supercomputer, he'd have had it watch apples fall and let it figure out what that meant. But the computer would have needed to run an algorithm developed by Cornell researchers that can derive natural laws from observed data.

The researchers have taught a computer to find regularities in the natural world that represent natural laws -- without any prior scientific knowledge on the part of the computer.

The research is described in the April 3 issue of the journal Science by Hod Lipson, associate professor of mechanical and aerospace engineering, and graduate student Michael Schmidt, a specialist in computational biology.

Their process begins by taking the derivatives of every variable observed with respect to every other -- a mathematical way of measuring how one quantity change as another changes. Then the computer creates equations at random using various constants and variables from the data. It tests these against the known derivatives, keeps the equations that come closest to predicting correctly, modifies them at random and tests again, repeating until it literally evolves a set of equations that accurately describe the behaviour of the real system.

Technically, the computer does not output equations, but finds "invariants" -- mathematical expressions that remain true all the time, from which human insights can derive equations.

Once the invariants are found, potentially all equations describing the system are available: "All equations regarding a system must fit into and satisfy the invariants," Schmidt said. "But of course we still need a human interpreter to take this step."

Computers will not make scientists obsolete, the researchers conclude. Rather, they said, the computer can take over the grunt work, helping scientists focus quickly on the interesting phenomena and interpret their meaning.

Aberystwyth University, Wales, UK

The discovery of 12 new functions for genes in one of the most studied organisms in the world wouldn't be news, except that scientists didn't discover them. A robot named Adam designed, carried out and discovered the new gene functions.

"Our goal is to make science more efficient," said Ross King, a professor of biology and computer science at the University of Wales and author of a new paper in this week's issue of Science detailing Adam's work.

"If we had computers designing and carrying out experiments we could get through many more experiments than we currently can," said King, adding "robots don't need to take holidays."

The 10-year-old Adam, which is housed at Aberystwyth University in the U.K., might replace humans eventually, but it doesn't look like one. From the outside Adam is 45 cubic meters of elongated white plastic instruments. Inside Adam sits a biological library of more than 12,000 chilled petri dishes. Each dish contains a different yeast strain with various genes removed from them. With its various mechanical tools, Adam can grab the petri dishes, remove a sample of yeast, grow it, clean it and analyze the results of the experiment.

Adam actually discovered more than 12 new gene functions. When King and his colleagues compared the functions of all the genes Adam found, they realized that some of them had previously been described. So Adam had independently confirmed those results.

Adam is still a prototype, but King's team hopes their next robot, Eve, will help boost the search for new drugs to combat diseases such as malaria.

"This system is still a prototype," explained King. "The first car wasn't as efficient as a horse."

Adam and Eve not only have the hardware to physically manipulate objects, they also have advanced artificial intelligence systems that let them make their own decisions and then act on those decisions, without help from their human creators.

Information Source: Imperial College London Website, Cornell Chronicle and Discovery News

Compiled by Mahdin Mahboob

TECHREVIEW

Find your bus on mydigonto.com

StarTech Desk

DHAKA is now a city of 15 millions with majority of them travelling by bus. Bus is the most popular mode of transports in the city because it is cheaper and safer than all other modes.

Buses are not only cheaper, but also environment friendly. Over the past decade, Dhaka city saw many new routes for metro bus. Many luxurious bus ply on a few routes.

It made life of city commuters relatively better, safer, and comfortable.

But the key problem the city dwellers face is the lack of information about the routes and the approximate fare.

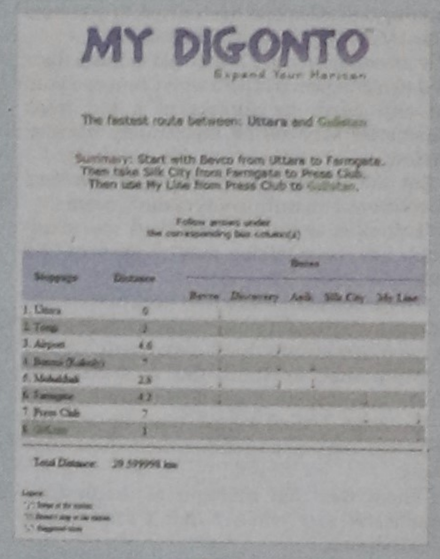
A US-based portal mydigonto.com recently surfaced on the World Wide Web with solutions of the problem of Dhaka. They have launched a web-based application called 'Bus Route Application'.

The 'Bus Route Application' provides point-to-point bus routes. The interface is very simple, easy to use, and intuitive.

It tells the commuters about the routes and the easier mode for them to travel. It suggests which bus one should use to travel from one place to another.

The portal provides commuters with a route plan as well. The users can get time based or distance based routing too.

But some problems still lie on the portal. The portal is yet to gather information about all the routes of the most populous city in the world. And some information available on the portal is outdated as well.



That is the reason why the site developers provided a tab on the site called 'Feedback'. It invites information from people about the bus routes not available on the website.

The most intriguing part of the portal is an interactive bus route map of Dhaka Metropolitan Area, which will definitely help the commuters to understand easily which way they are going to reach their destination.

TECHNEWS

Facebook to welcome 200 millionth user

AFP, *Washington*

HOT social networking website Facebook expects to welcome its 200 millionth user on Wednesday, co-founder Mark Zuckerberg said.

Zuckerberg, who created Facebook with two Harvard University roommates five years ago, announced the milestone in a post on the official Facebook blog.

"We will welcome our 200 millionth user to Facebook some time today," the 24-year-old chief executive said, describing it as a "really good start."

"We are working hard to build a service that everyone, everywhere can use, whether they are a person, a company, a president or an organization working for change," Zuckerberg said.

"At Facebook, we want to build the best service in the world for people to connect with and share everything that is important to them, whether day-to-day or world-changing," he said.

"There are still many more people and groups in the world whose voices we want to connect with everyone who wants to hear them," he added.

"So even as we celebrate the 200 millionth person and all of you using Facebook today, we are working to bring the power of sharing to everyone in the world."

To celebrate the 200 millionth user, Zuckerberg said Facebook had created a page, "Facebook for Good," for users to "share their stories about how Facebook has helped them give back to their communities, effect change or connect with a distant relative."

Facebook was also partnering with 16 charitable and advocacy groups to create gifts for users to share, he said, with 90-95 percent of the proceeds going to the organizations and the rest to administrative costs.

Zuckerberg, Dustin Moscovitz and Chris Hughes launched Facebook in February 2004 as a platform to connect their fellow Harvard students.

It quickly spread to other schools around the United States and has since blossomed into a worldwide network that has dwarfed rival MySpace.

While the number of users has grown at an amazing clip, the Palo Alto, California-based Facebook, unlike other Web giants such as Amazon, eBay, Google and Yahoo!, is yet to prove how it is going to translate traffic into cash.

US software giant Microsoft bought a 1.6 percent stake in Facebook in 2007 for 240 million dollars, valuing the social network on paper at 15 billion dollars.

PHOTOTECH

SAY HELLO TO CB2

A child robot "Child-robot with Biomimetic Body" or CB2 (CB square), equipped with 51 air actuators, 5 motors and 197 tactile sensors under soft silicone skin on its child sized body, measuring 130cm tall and weighing 33kg at his laboratory in Osaka University in Suita city in Osaka prefecture on March 10. Professor Minoru Asada's team is trying to teach the android to think like a baby that evaluates its mother's countless facial expressions and 'clusters' them into basic categories, such as happiness and sadness. The CB2, say it's slowly developing social skills by interacting with humans and watching their facial expressions, mimicking a mother-baby relationship.

PHOTO: AFP

TECHNEWS

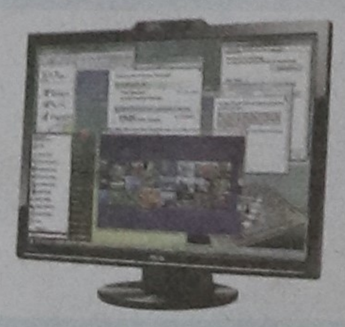
Asus unveils 26" LCD monitor

StarTech Desk

ASUS, leading manufacturer of computer hardware, has launched the VK266H LCD monitor in the local market, says a press release.

The LCD monitor comes with high resolution of 1920x1200 and it also features full HD 1080p video playback via an HDMI input, a high 20000:1 contrast ratio, 2ms (gray-to-gray) response time and Asus' exclusive Splendid Video Intelligence Technology.

The Splendid video technology utilises a color engine that analyses the properties of video content being played back, and automatically optimises image quality for the best visual results.



The Asus VK266H is also equipped with a rotatable 2.0mega pixel webcam with Smart EV (Exposure Value) Control technology.

This monitor is said to be a perfect solution for users demanding high definition visuals for their personal entertainment needs. The product has a price tag of Taka 32,000.