BYTE QUEST

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Contents:

Byte Quest is the article published by the CSE dept of Vasavi College of Engineering regarding the latest innovative Technologies and Software that have been emerged in the competitive world. The motto of this article is to update the people regarding the improvement in technology. The article is designed by the active participation of students under the guidance of faculty coordinators.

- Good ,bad or indifferent if you are not investing in new technology , you are going to be left behind.

  -Philip Green

- Once a new technology rolls over you, if you're not part of the steamroller, you're part of the road.

  -Stewart Brand.

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DEEP LEARNING

Deep learning is a topic that is making big waves at the moment. It is basically a branch of machine learning (another hot topic) that uses algorithms to e.g. recognize objects and understand human speech. Scientists have used deep learning algorithms with multiple processing layers (hence “deep”) to make better models from large quantities of unlabeled data.

It’s one kind of supervised machine learning, in which a computer is provided a training set of examples to learn a function, where each example is a pair of an input and an output from the function.

Very simply: if we give the computer a picture of a cat and a picture of a ball, and show it which one is the cat, we can then ask it to decide if subsequent pictures are cats.

The computer compares the image to its training set and makes an answer. Today’s algorithms can also do this unsupervised; that is, they don’t need every decision to be pre-programmed.

P.Amulya (CSE-A 3/4)

SCIENTISTS THINK THEY’VE FIGURED OUT WHY YOU’RE AWAYS THIRSTY BEFOR BED.

Canadian researchers have found evidence that why we get thirsty right before bed. They say that a better understanding of the process behind this sleepy-time thirst could give us insight into other odd – and annoying – aspects of daily life.

From previous research, it was known that mice increase their water intake before they sleep. To get to the bottom of what was going on, they first restricted the mice’s access to water before sleep, which made them much more dehydrated when they woke up hours later.

This means that the pre-sleep water intake is largely there as a pre-emptive measure to keep the mice hydrated all the way through their sleep cycle.

The team said that the suprachiasmatic nucleus (SCN) also have a way to communicate with the 'thirst neurons' that trigger the mice to seek out water. As soon as the SCN was triggered, the sniffer cells lit up, verifying that vasopressin is released in high quantities when the body’s biological clock is electrically stimulated. To see if vasopressin can trigger thirst neurons, they used genetically modified mice to turn neurons on and off, allowing them to observe what the neuropeptide does when released by the SCN.

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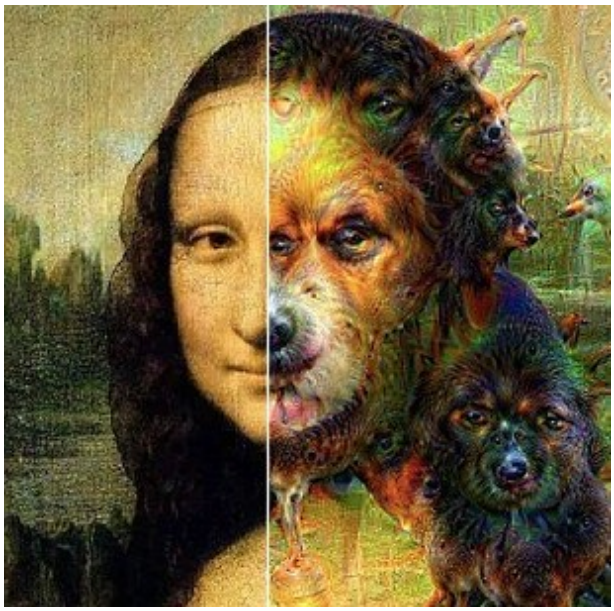
GOOGLE'S DEEP DREAM



Deep Dream is computer program that locates and alters patterns that it identifies in digital pictures. Then it serves up those radically tweaked images for human eyes to see. The results veer from silly to artistic to nightmarish, depending on the input data and the specific parameters set by Google employees' guidance. Google made its dreaming computers public to get a better understanding of how Deep Dream manages to classify and index certain types of pictures.

In general, visual data is cluttered and messy and unfamiliar, all of which makes it difficult for computers to understand. To make Deep Dream work, Google programmers created an **artificial neural network** (ANN), a type of computer system that can learn on its own. These neural networks are modeled after the functionality of the human brain, which uses more than 100 billion neurons (nerve cells) that transmit the nerve impulses enabling all of our bodily processes.

According to Google's official blog, the training process is based on repetition and analysis. The artificial neurons in the network operate in stacks. Each layer picks up on various details of an image. The initial layers might detect basics such as the borders and edges within a picture. Another might identify specific colors and orientation. Other layers may look for specific shapes that resemble objects like a chair or light bulb. The final layers may react only to more sophisticated objects such as cars, leaves or buildings.

Deep Dream doesn't even need a real image to create pictures. If you feed it a blank white image or one filled with static, it will still "see" parts of the image, using those as building blocks for weirder and weirder pictures.

At the current pace of advancement, you can expect major leaps in image recognition soon, in part thanks to Google's dreaming computers.

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