
iT UNLIMITED
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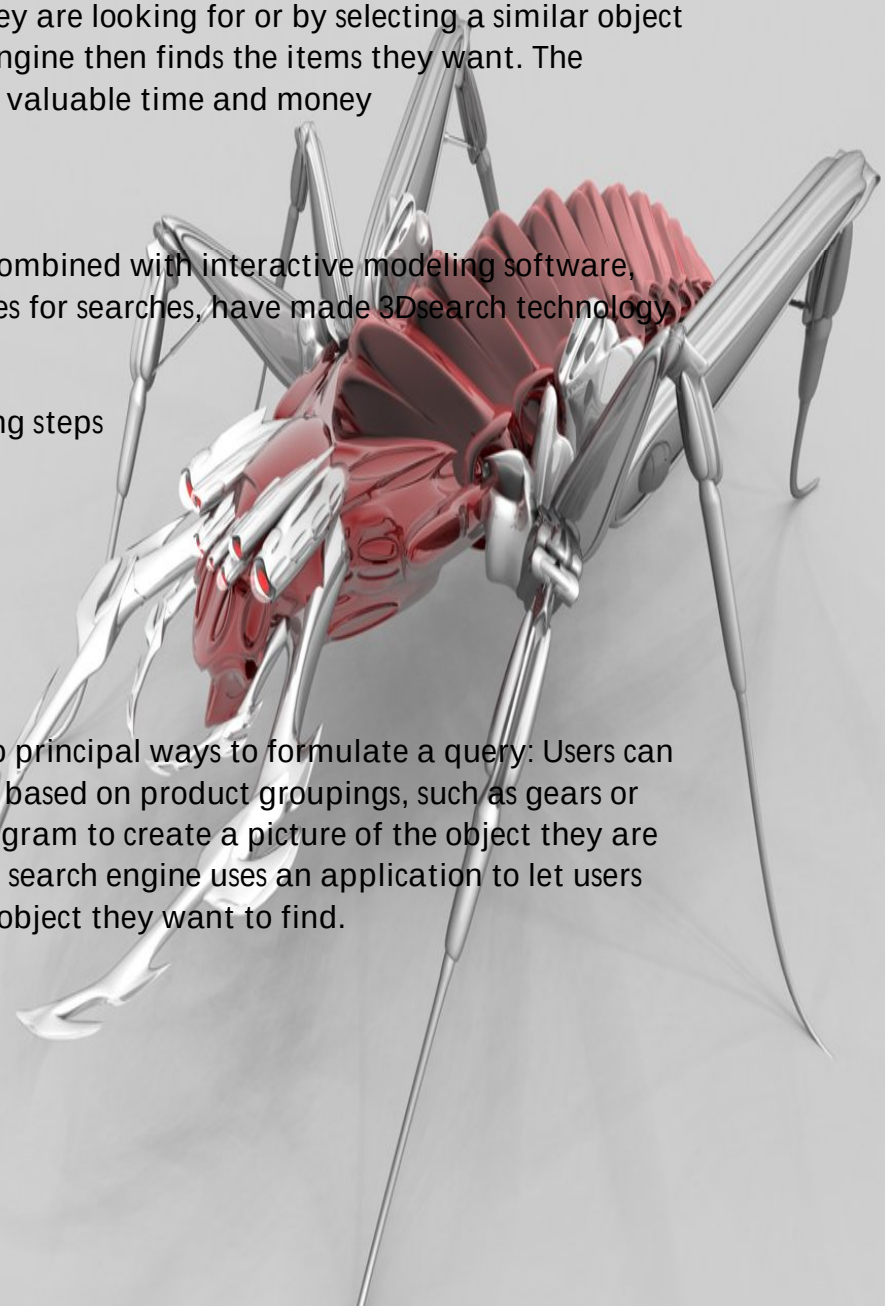
3D Searching

Definition

From computer-aided design (CAD) drawings of complex engineering parts to digital representations of proteins and complex molecules, an increasing amount of 3D information is making its way onto the Web and into corporate databases.

Because of this, users need ways to store, index, and search this information. Typical Web-searching approaches, such as Google's, can't do this. Even for 2D images, they generally search only the textual parts of a file, noted Greg Notess, editor of the online Search Engine Showdown newsletter.

However, researchers at universities such as Purdue and Princeton have begun developing search engines that can mine catalogs of 3D objects, such as airplane parts, by looking for physical, not textual, attributes. Users formulate a query by using a drawing application to sketch what they are looking for or by selecting a similar object from a catalog of images. The search engine then finds the items they want. The company must make it again, wasting valuable time and money



3D SEARCHING

Advances in computing power combined with interactive modeling software, which lets users create images as queries for searches, have made 3Dsearch technology possible.

Methodology used involves the following steps

" Query formulation
" Search process
" Search result

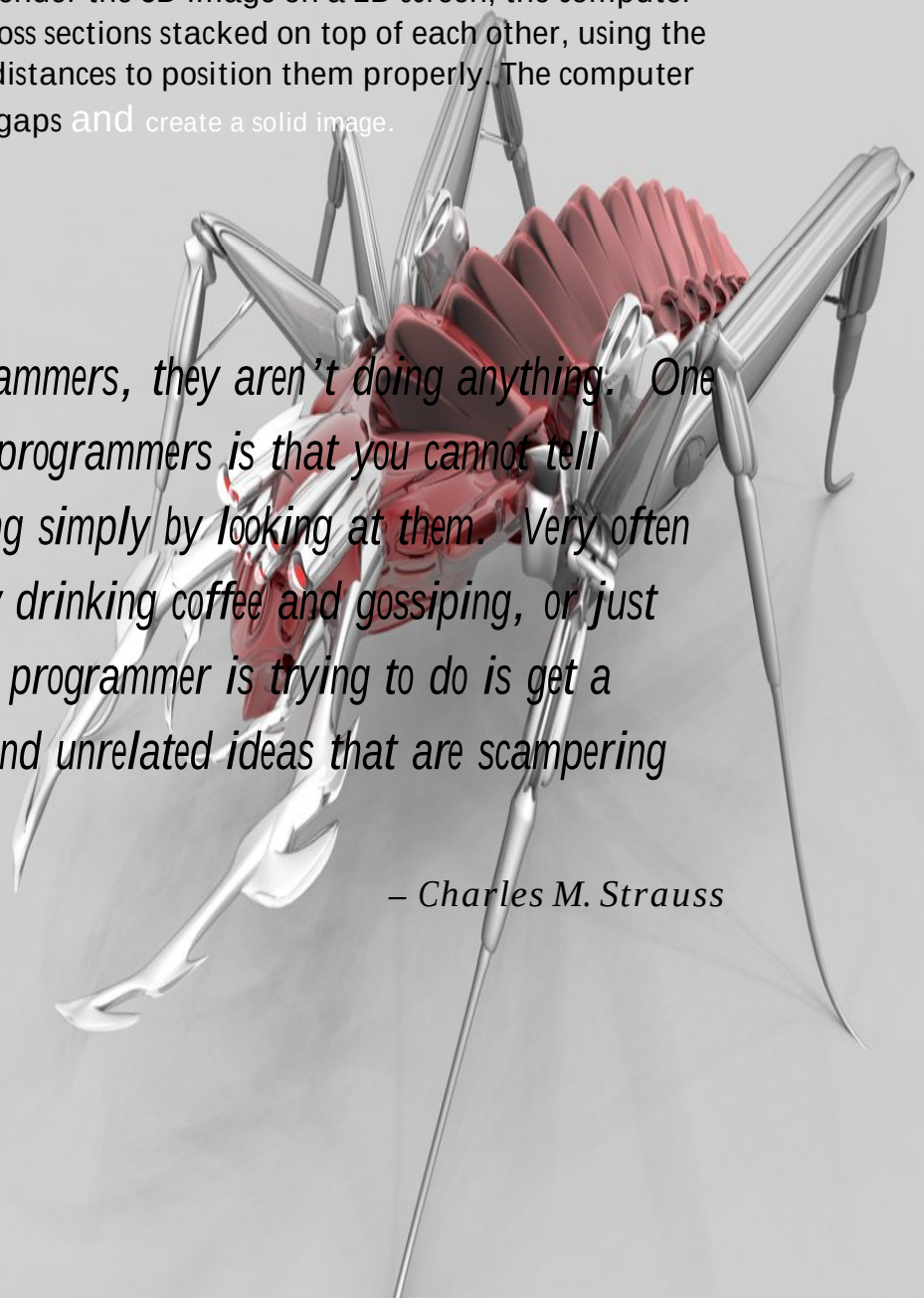
QUERY FORMULATION

True 3D search systems offer two principal ways to formulate a query: Users can select objects from a catalog of images based on product groupings, such as gears or sofas; or they can utilize a drawing program to create a picture of the object they are looking for. or example, Princeton's 3D search engine uses an application to let users draw a 2D or 3D representation of the object they want to find.

SEARCH PROCESS

The 3D-search system uses algorithms to convert the selected or drawn image-based query into a mathematical model that describes the features of the object being sought. This converts drawings and objects into a form that computers can work with. The search system then compares the mathematical description of the drawn or selected object to those of 3D objects stored in a database, looking for similarities in the described features.

The key to the way computer programs look for 3D objects is the voxel (volume pixel). A voxel is a set of graphical data-such as position, color, and density-that defines the smallest cubeshaped building block of a 3D image. Computers can display 3D images only in two dimensions. To do this, 3D rendering software takes an object and slices it into 2D cross sections. The cross sections consist of pixels (picture elements), which are single points in a 2D image. To render the 3D image on a 2D screen, the computer determines how to display the 2D cross sections stacked on top of each other, using the applicable interpixel and interslice distances to position them properly. The computer interpolates data to fill in interslice gaps and create a solid image.



"Mostly, when you see programmers, they aren't doing anything. One of the attractive things about programmers is that you cannot tell whether or not they are working simply by looking at them. Very often they're sitting there seemingly drinking coffee and gossiping, or just staring into space. What the programmer is trying to do is get a handle on all the individual and unrelated ideas that are scampering around in his head."

– Charles M. Strauss

Rain Technology

INTRODUCTION

Rainfinity's technology originated in a research project at the California Institute of Technology (Caltech), in collaboration with NASA's Jet Propulsion Laboratory and the Defense Advanced Research Projects Agency (DARPA). The name of the original research project was RAIN, which stands for Reliable Array of Independent Nodes. The goal of the RAIN project was to identify key software building blocks for creating reliable distributed applications using off-the-shelf hardware. The focus of the research was on high-performance, fault-tolerant and portable clustering technology for space-borne computing. Two important assumptions were made, and these two assumptions reflect the differentiations between RAIN and a number of existing solutions both in the industry and in academia:

1. The most general share-nothing model is assumed. There is no shared storage accessible from all computing nodes. The only way for the computing nodes to share state is to communicate via a network. This differentiates RAIN technology from existing back-end server clustering solutions such as SUNcluster, HP MC Serviceguard or Microsoft Cluster Server.
2. The distributed application is not an isolated system. The distributed protocols interact closely with existing networking protocols so that a RAIN cluster is able to interact with the environment. Specifically, technological modules were created to handle high-volume network-based transactions. This differentiates it from traditional distributed computing projects such as Beowulf.

In short, the RAIN project intended to marry distributed computing with networking protocols. It became obvious that RAIN technology was well-suited for Internet applications. During the RAIN project, key components were built to fulfill this vision. A patent was filed and granted for the RAIN technology. Rainfinity was spun off from Caltech in 1998, and the company has exclusive intellectual property rights to the RAIN technology. After the formation of the company, the RAIN technology has been further augmented, and additional patents have been filed.

The guiding concepts that shaped the architecture are as follows:

1. Network Applications

The architecture goals for clustering data network applications are different from clustering data storage applications. Similar goals apply in the telecom environment that provides the Internet backbone infrastructure, due to the nature of applications and services being clustered.

2. Shared-Nothing

The shared-storage cluster is the most widely used for database and application servers that store persistent data on disks. This type of cluster typically focuses on the availability of the database or application service, rather than performance. Recovery from failover is

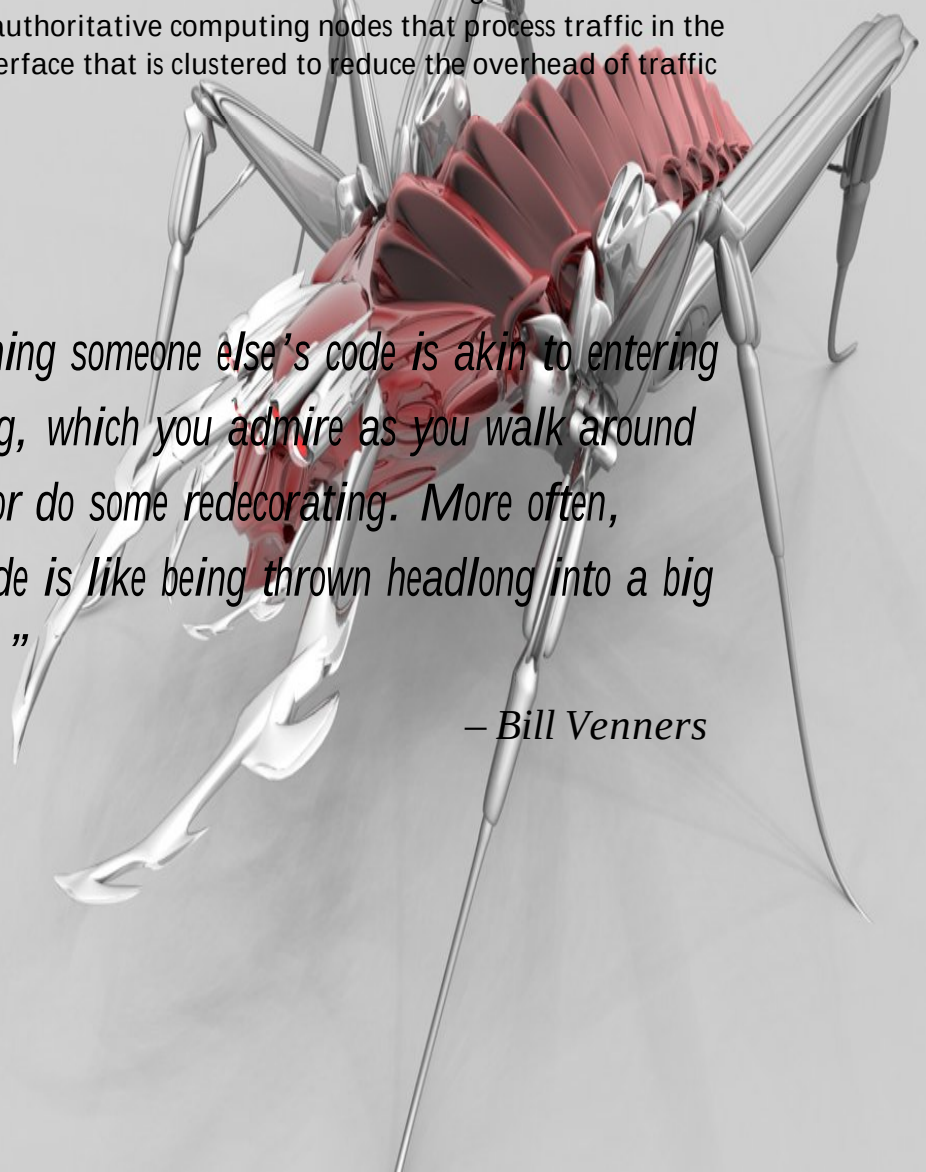
generally slow, because restoring application access to disk-based data takes minutes or longer, not seconds. Telecom servers deployed at the edge of the network are often diskless, keeping data in memory for performance reasons, and tolerate low failover time. Therefore, a new type of share-nothing cluster with rapid failure detection and recovery is required. The only way for the shared-nothing cluster to share is to communicate via the network.

3. Scalability

While the high-availability cluster focuses on recovery from unplanned and planned downtimes, this new type of cluster must also be able to maximize I/O performance by load balancing across multiple computing nodes. Linear scalability with network throughput is important. In order to maximize the total throughput, load load-balancing decisions must be made dynamically by measuring the current capacity of each computing node in real-time. Static hashing does not guarantee an even distribution of traffic.

4. Peer-to-Peer

A dispatcher-based, master-slave cluster architecture suffers from scalability by introducing a potential bottleneck. A peer-to-peer cluster architecture is more suitable for latency-sensitive data network applications processing shortlived sessions. A hybrid architecture should be considered to offset the need for more control over resource management. For example, a cluster can assign multiple authoritative computing nodes that process traffic in the round-robin order for each network interface that is clustered to reduce the overhead of traffic forwarding



"How rare it is that maintaining someone else's code is akin to entering a beautifully designed building, which you admire as you walk around and plan how to add a wing or do some redecorating. More often, maintaining someone else's code is like being thrown headlong into a big pile of slimy, smelly garbage."

– Bill Venners

Windows of hope: MS picks 8 from IIMA

Media firms and realty majors scoop out IIMA talent

Is the recession over? If recruitments at IIMA and salaries offered to its pass-outs is any indicator than the answer is affirmative.

The fourth day of the summer placements at IIMA saw software major Microsoft back with a bang on the campus recruiting interns for two months in the summer of 2010.

After a remarkable stint last year, MS has taken eight students this year. While the IT major reflects hope of the international markets, the other good news comes from dynamic industries like realty and media. Recruiting for the first time from IIMA, realty majors Oberoi Construction and Ramky Infrastructure chose to recruit at IIMA for the first time this year.

Global media conglomerate Walt Disney recruited for the first time at IIMA this year. Companies from the media sector like HT Media and Star TV recruited for Marketing roles. Astra Zeneca, Johnson & Johnson and GSK Pharma were some of the firms from the healthcare and pharmaceutical sector that recruited this year.

The recession fears not withstanding, financial consulting remained the top choice of students for the summer internship. Consulting sector, represented by Cognizant and Synergy Consulting offered roles in IT consulting taking six students for internships. Students are also joining niche consulting companies specialising in financial services consulting and carbon finance consulting.

The fourth day of the placement process saw representation from a variety of sectors on the campus. Regular recruitment partners for marketing profiles that came to recruit again this year included Dabur, Asian Paints, Cadbury and Renault. Airtel and Starcom MediaVest offered roles in branding and sales and marketing. Five students will be joining Starcom MediaVest across locations in South-East Asia. Vivek Jain, a Placement Committee coordinator said, "As we near the end of summer placements, there is a sense of buoyancy and cheerfulness on campus among students. We hope they have a great experience during their internships."

"Looking at code you wrote more than two weeks ago is like looking at code you are seeing for the first time."

– Dan Hurvitz

Ten Amazing Brain Facts

What part of you is only 1% to 3% of your body's mass, yet uses 20% of all the oxygen you breathe? Your brain! Here are ten more brain facts.

- Your brain needs a continuous supply of oxygen. A 10 minute loss of oxygen will usually cause significant neural damage. Cold can lengthen this time, which is why cold-water drowning victims have been revived after as much as 40 minutes - without brain damage.

- Your brain uses a fifth of all your blood. It needs it to keep up with the heavy metabolic demands of its neurons. It needs not only the glucose that is delivered, but of course, the oxygen.

- Your brain feels no pain. There are no nerves that register pain within the brain itself. Because of this, neurosurgeons can probe the brain while a patient is conscious (what fun!). By doing this, they can use feedback from the patient to identify important regions, such as those used for speech, or visualization.

- The cerebellum is sometimes called the "little brain," and weighs about 150 grams (a little over five ounces). Found at the lower back side of your brain, you need your cerebellum to maintain posture, to walk, and to perform any coordinated movements. It may also play a role in your sense of smell.

- The human brain weighs an average of a little over three pounds, or 1.4 kilograms. Albert Einstein's brain may have been smaller than yours, because he was smaller than average. There is a general correlation between body size and the size of our brains.

- An elephant's brain is huge - about six times as large as a human brain. However, in relation to body size, humans have the largest brain of all the animals, averaging about 2% of body weight. A cat's brain? It weighs about one ounce, a little over 1% of

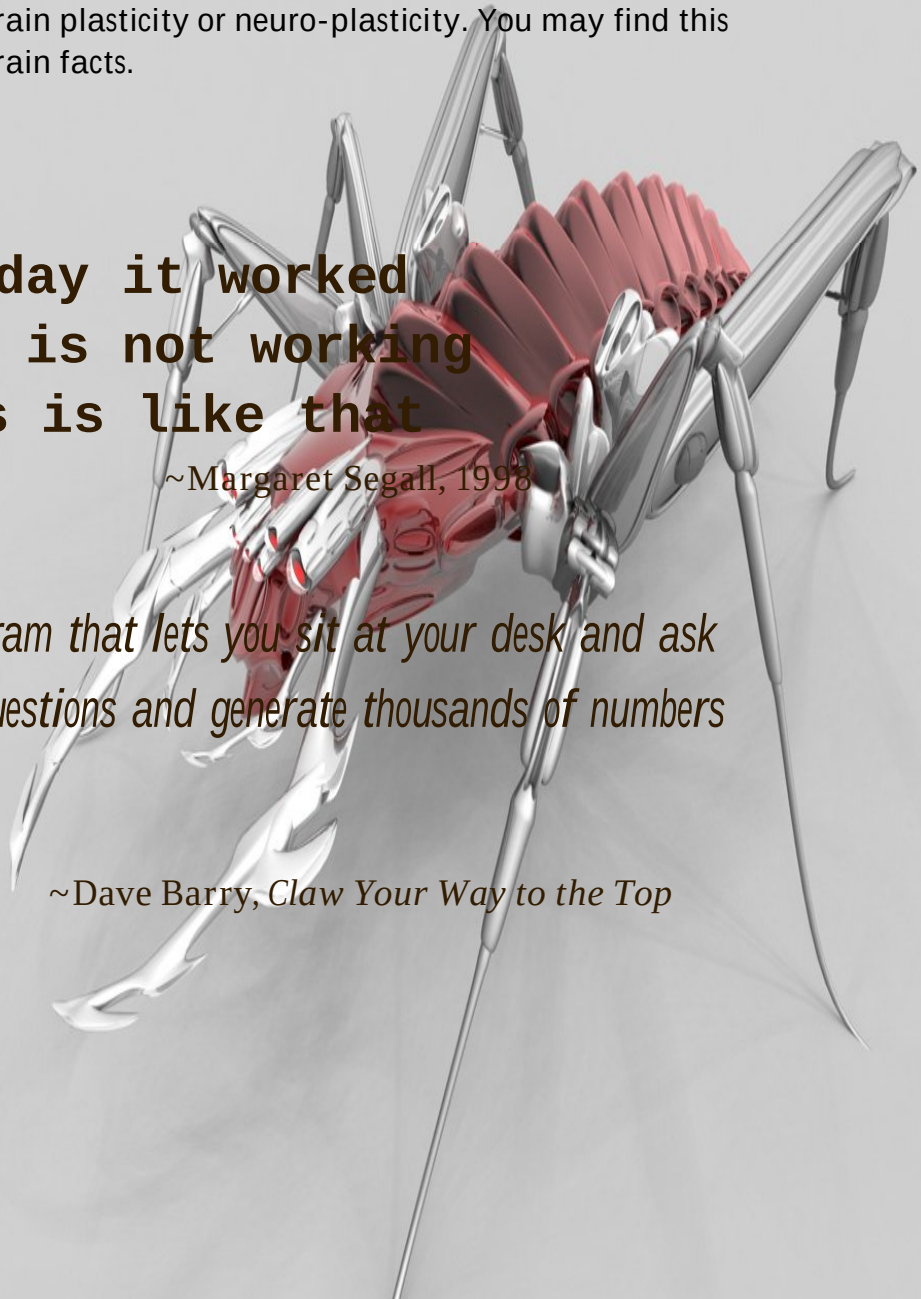
body weight.

- There are about 100,000 miles of blood vessels in the brain. If they were stretched out (there's a nice thought!) they would circle the earth more than four times.

- If you have an average sized brain, you have about 100 billion neurons up there. You'll be happy about that after reading the next item.

- Approximately 85,000 neocortical neurons are lost each day in your brain. Fortunately, his goes unnoticed due to the built-in redundancies and the fact that even after three years this loss adds up to less than 1% of the total. Oh, and look at the next item.

- Recent research proves that your brain continues to produce new neurons throughout your life. It also proves that it does so in response to stimulation (do those brainpower exercises). Scientists refer to this as brain plasticity or neuro-plasticity. You may find this one the most encouraging of these brain facts.



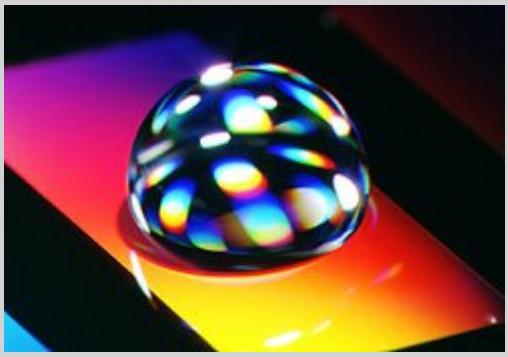
Yesterday it worked
Today it is not working
Windows is like that

~Margaret Segall, 1998

Spreadsheet: a kind of program that lets you sit at your desk and ask all kinds of neat "what if?" questions and generate thousands of numbers instead of actually working.

~Dave Barry, *Claw Your Way to the Top*

Scientists discover Nanograss



Bell Labs is the leading source of new communications technology. It has generated more than 30,000 patents since 1925 and has played a pivotal role in inventing or perfecting key communications technologies, including transistors, digital networking and signal processing, lasers and fiber-optic communications systems, communications satellites, cellular telephony, electronic switching of calls, touch-tone dialing, and modems. Bell Labs scientists have received six Nobel Prizes in Physics, nine U.S. National Medals of Science and eight U.S. National Medals of Technology."Scientists at Bell Labs, the research and development arm of Lucent Technologies have discovered an entirely new method to control the behavior of tiny liquid droplets by applying electrical charges to specially engineered silicon surfaces that resemble blades of grass. The new technique of manipulating fluids has many potential applications, including thermal cooling of integrated circuits for powerful computers, novel photonic components for optical communications, and small, low-cost "lab-on-a-chip" sensor modules.

"Once in a while, we get a research breakthrough that has wide applicability across many fields," said David Bishop, vice president of nanotechnology at Bell Labs and president of the New Jersey Nanotechnology Consortium. "The techniques resulting from this research might be applied to fields that range from optical networking and advanced micro batteries to self-cleaning windshields and more streamlined boat hulls."

The advance that made this possible was a breakthrough technique that Bell Labs scientists developed for processing silicon surfaces, so that these surfaces resemble a lawn of evenly cut grass, with individual "blades" only nanometers in size. (A nanometer is a billionth of a meter, roughly one hundred thousand times smaller than the diameter of a human hair).

This new capability to process silicon surfaces to produce "nanograss" lets liquids interact with surfaces in a novel way, thereby providing a way to precisely control their effects. In everyday experience, fluids tend to wet surfaces and stick to them. For example, a raindrop sticks to a car's windshield; when water is spilled, it splatters every which way. The individual blades of the nanograss are so small, however, that liquid droplets sit on top and can be easily maneuvered.

"Physically, this technique reduces the surface area that the droplet feels, and reduces the interaction between the liquid and the substrate by a factor of a hundred to a thousand," said Tom Krupenkin, the Bell Labs scientist who led the research.

Krupenkin and his team coated the nanograss with a non-stick, water-repellent material, and when the droplets are put on the surface, they can move about without wetting it. By applying a small voltage, however, the team could tailor the behavior of droplets, making them sink in and wet the surface as directed. The droplets also respond to a change in temperature, allowing for thermal cooling applications.

"Such behavior may be harnessed to cool computer chips," Krupenkin said. "A droplet could be sent to a hot spot on the chip, where it would sink in and absorb the heat, and then go on its way, avoiding the expense and inefficiency of applying a coolant or a heat sink to an entire chip."

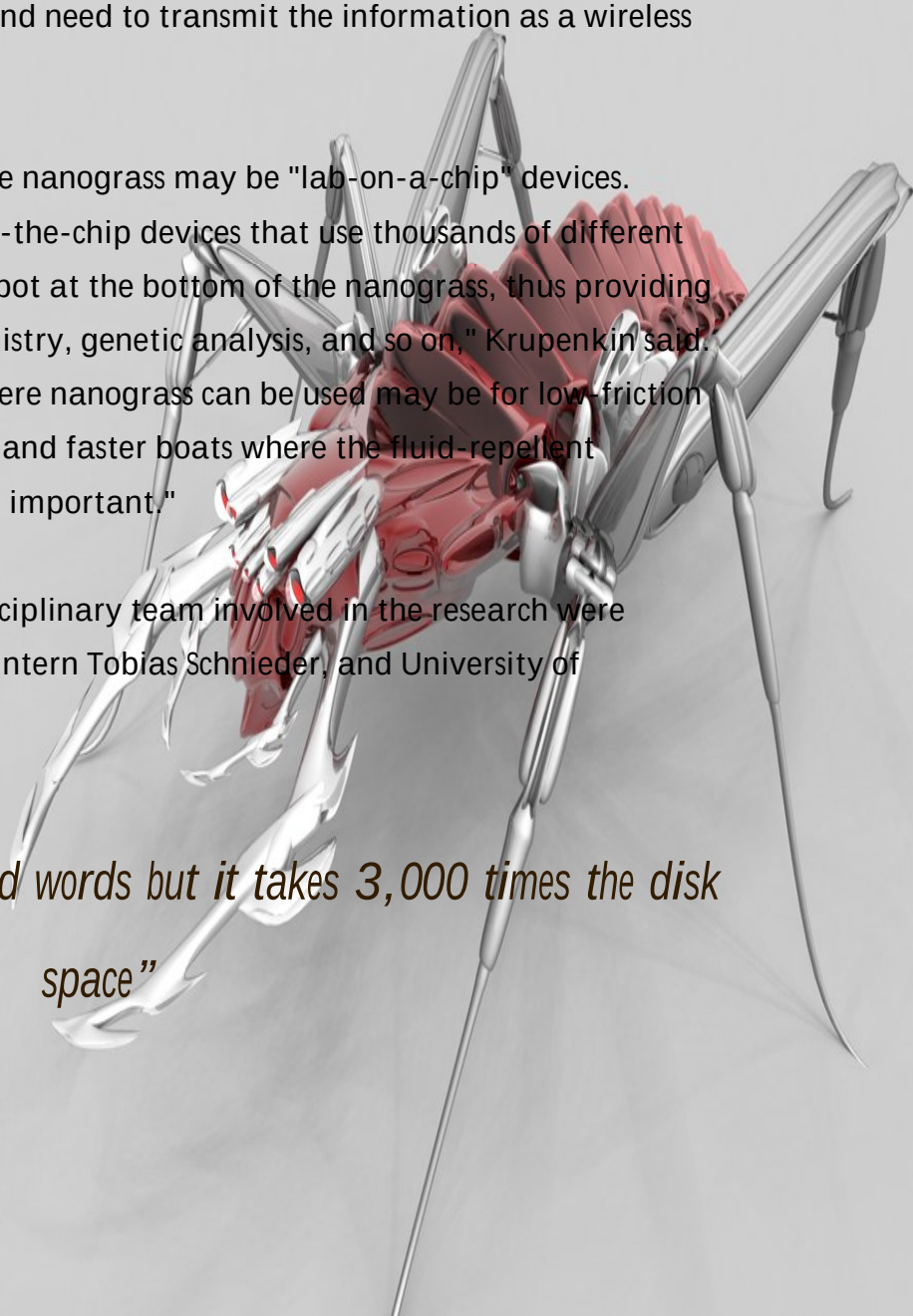
Another application for this technique may be in optical networking. For example, moving a droplet of fluid into a nanograss surface can alter the physical properties of the transmitting medium through which light signals are sent, and this may lead to better methods for optical switching. Novel optical components, such as

filters, could be created by moving the fluid into and out of nanograss areas, Krupenkin said.

Bell Labs and the New Jersey Nanotech Consortium are also exploring using the technique to create powerful, next-generation reserve micro batteries. Conventional batteries have electrochemical reactions proceeding at some level all the time, even when batteries are not being used. Over time, the batteries degrade. By using the Bell Labs technique to isolate the liquid electrolyte so that electrochemical reactions do not take place until power is actually needed, nanograss-based micro batteries may be ideal for long-term, higher capacity battery applications, especially where bursts of power are needed. Examples would be sensors out in the field that only need a lot of power when they detect something and need to transmit the information as a wireless signal.

Yet another application for the nanograss may be "lab-on-a-chip" devices. "Potentially, one can envision lab-on-the-chip devices that use thousands of different reagents, each deposited in a small spot at the bottom of the nanograss, thus providing novel devices for combinatorial chemistry, genetic analysis, and so on," Krupenkin said. "Some other possible applications where nanograss can be used may be for low-friction torpedoes, self-cleaning windshields, and faster boats where the fluid-repellent properties of the nanograss would be important."

Other members of the interdisciplinary team involved in the research were Ashley Taylor of Bell Labs, Bell Labs intern Tobias Schnieder, and University of Pennsylvania professor Shu Yang.



“A picture is worth a thousand words but it takes 3,000 times the disk space”

i-Cybie

i-Cybie is an intelligent, interactive robotic cyber dog specifically designed to react and respond like a real dog. Made of 1,400 parts and over 90 feet of wire, Tiger's latest canine friend will happily wander around your house, greet you, wag his tail and give you his paw. The ideal pet for the 21st century, i-Cybie has all the love and entertainment of a real dog but without the fuss. He will happily perform and play for you, keeping you constantly entertained.

With a choice of metallic blue or gold, streamlined body and legs, i-Cybie is the ultimate hi-tech hound with a fantastic personality. Displaying four main emotions, i-Cybie shows you when he is happy, sad, hyper or barking mad! His behaviour will reflect these changing moods. 16 motors drive i-Cybie's joints, giving him total flexibility and realistic movement. With smooth and slick manoeuvrability, i-Cybie has 14 doggie actions all activated by remote control, voice or sound commands. He will sit, beg, rollover, shake his head, act as a guard dog and even cock his leg up! His eyes will also reflect his mood with 6 different eye patterns, for example when he is hyper both eyes will be red!

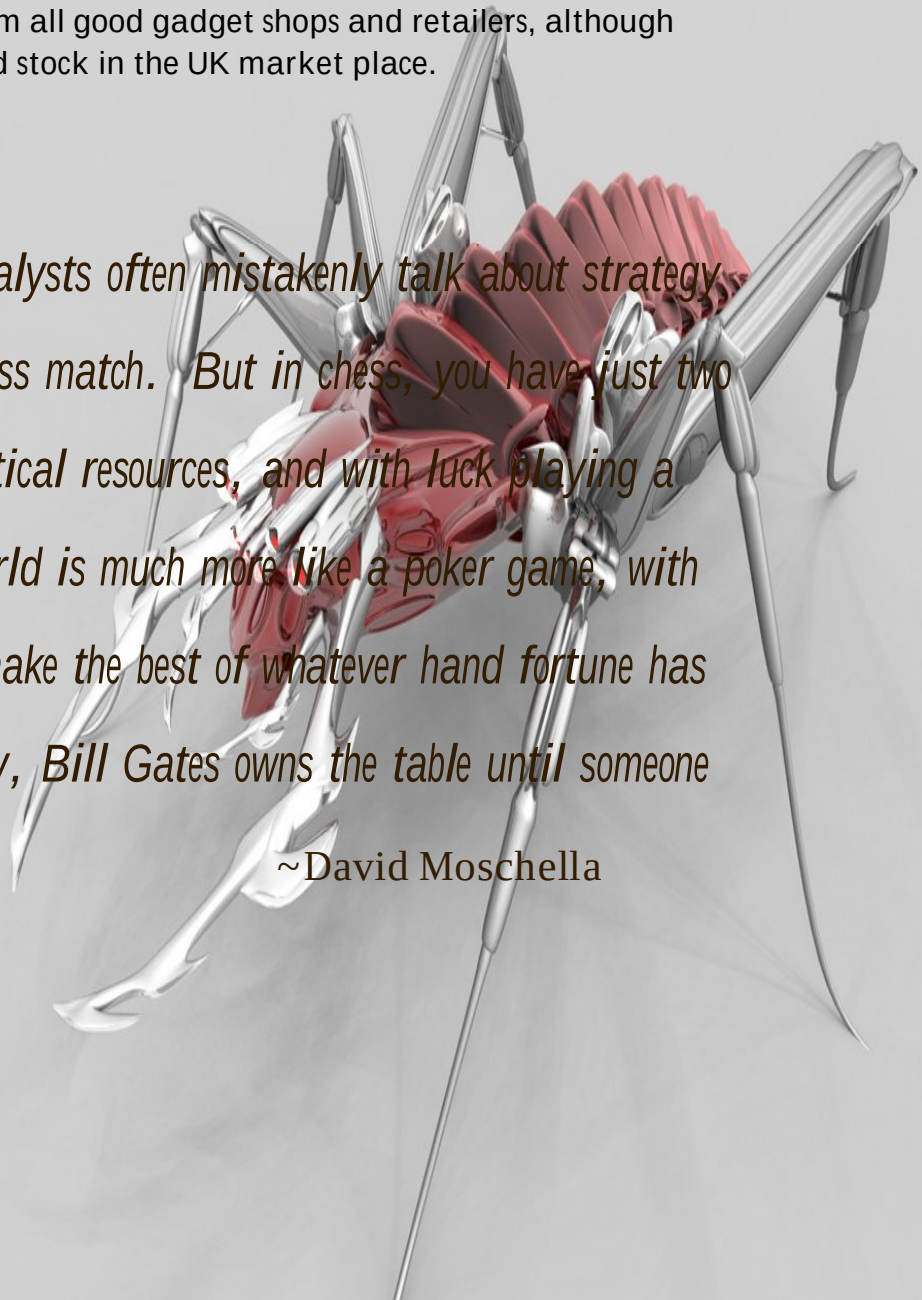
Advanced voice recognition technology allows i-Cybie to recognise your voice, he will respond to eight commands including 'Good Boy,' 'Bad dog,' 'Sit down,' 'Stay,' and 'Guard.' Clapping can also be used to command i-Cybie. Special sequences of 8 claps are included with your i-Cybie. When in trick mode there are 8 clap additional clap commands that tell i-Cybie to entertain you. Fully flexible and amazingly agile i-Cybie can perform a number of different tricks and acrobatic movements. Marvel as he does a

headstand, falls back into a crab position, dances, wags his tail, gives paw and scratches his ear. He's a real show-off!

A clever canine, i-Cybie has a series of intelligent sensors that allow him to react to sound, light, touch and his physical surroundings. Watch him rub his head into his owner's hands when his head is patted! He is able to stand up if he falls over, avoid walls, the edges of tables and other elevated surfaces. Watch him navigate a route, avoiding obstacles in his way!

To make i-Cybie perform simply press the correct sensor command button. These are located on different parts of his body, his head button tells i-Cybie to listen, his orientation/balance sensor tells him he has fallen over and his back button tells i-Cybie to sit or stay. And, he is so smart that when his batteries are running low, he'll let owners know!

i-Cybie's is available now from all good gadget shops and retailers, although please be aware that there is limited stock in the UK market place.



"Industry executives and analysts often mistakenly talk about strategy as if it were some kind of chess match. But in chess, you have just two opponents, each with identical resources, and with luck playing a minimal role. The real world is much more like a poker game, with multiple players trying to make the best of whatever hand fortune has dealt them. In our industry, Bill Gates owns the table until someone proves otherwise."

~David Moschella

Early Windows 7 sales 234% higher than Vista's

Early sales of boxed Windows 7 copies in the US are 234 per cent higher than Windows Vista's post launch sales according to NPD group's weekly sales tracking figures.

Actual sales revenue wasn't quite as impressive though, with figures 82 per cent higher than Vista in the same period. This is because Microsoft offered many early discounts and pre-order offers to build some momentum ahead of the 22 October launch.

"Microsoft's program of early low-cost pre-sales, high visibility marketing, and aggressive deals helped make the Windows 7 software launch successful," said Stephen Baker, vice president of industry analysis at NPD.

The research firm said that PC sales didn't get the same bump as they did when Vista launched, but it was the highest growth week recorded during the back-to-school period. Total sales were up 49 per cent year-on-year and 95 per cent week-on-week, which compares to Vista's 68 per cent and 170 per cent sales spur; overall, sales of PCs with Windows installed were down six per cent compared to the Windows Vista launch.

Baker said that there were a number of factors which impacted Windows 7 PC sales, but admitted that "the trajectory of overall PC sales is very strong leading into the holiday season."

From our perspective, it looks like consumers are hanging onto their existing machines and upgrading the operating system instead of buying a completely new PC. After all, Windows 7 hasn't increased the hardware requirements and, in some respects, it has reduced them.

"The real danger is not that computers will begin to think like men, but that men will begin to think like computers."

~Sydney J. Harris

Boot It !!!

(to the tune of Beat It)

You're processing some words when your keyboard goes dead,
Ten pages in the buffer, should have gone to bed,
The system just crashed, but don't lose your head,
Just BOOT IT, just BOOT IT.

Better think fast, better do what you can,
Read the manual or call your system man,
Don't want to fall behind in the race with Japan,
So BOOT IT,

Get the system manager to
BOOT IT, BOOT IT,
Even though you'd rather shoot it.
Don't be upset, it's only some glitch.
All that you do is flip a little switch.
BOOT IT, BOOT IT,

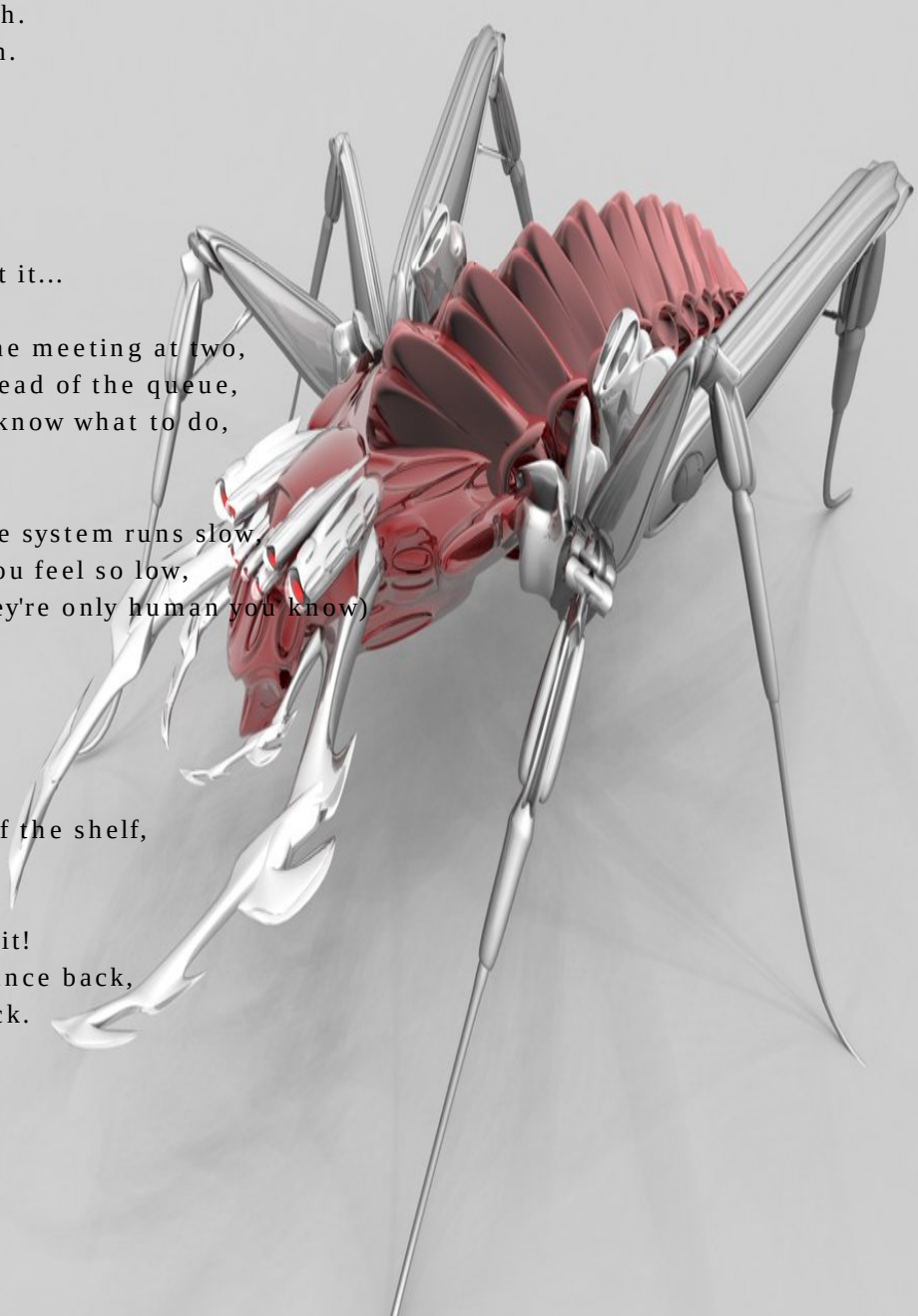
Get right down and restitute it.
Don't get excited, all is not lost.
CP/M, UNIX or MS/DOS
Just BOOT IT, boot it, boot it, boot it...

You gotta have your printout for the meeting at two,
The system says your jobs at the head of the queue,
Right then the thing dies but you know what to do,
BOOT IT.

You always get so worried when the system runs slow,
And when it finally crashes, man you feel so low,
But computers make mistakes (they're only human you know)
So BOOT IT,

Call the local guru to
BOOT IT, BOOT IT,
Go ahead re-institute it.
If you're not lucky, get the book off the shelf,
But if you are, it'll do it itself.
BOOT IT, BOOT IT,
Then go find the guy who screwed it!
Operating systems are built to bounce back,
Whether it's a Cray or a Radio Shack.

BOOT IT! BOOT IT!



Beware of another Facebook spam!.

Have you been hit like millions of Facebook users by a new phishing scam that can result in crashing your computers or mobile phones and steal your passwords? If not, beware, do not open the files ending with '.at' or '.be.'

The phishing scam is being run through the spam messages which steals the sensitive information of the Facebook users. In the attack, the messages are circulated with a subject line of 'Hello' and a prompt to check out areps.at or other URLs ending in '.at.'

The mails with the subject line Look at This and links like -- goldbase.be, greenbuddy.be, silvertag.be, picoband.be -- leads to some malicious Web sites, which if visited, could secretly download malware onto computers through a drive-by download application.

The URL connectivity, before being blocked directs the visitor to a fake Facebook page and the mail ID and password are stolen as soon as it is logged-in again.

According to the All Facebook blog.Facebook, the password in such cases should be changed immediately and the same message should be sent across to one's Facebook acquaintance.

'Whoever is behind the scam has been steadily amassing a large number of e-mail addresses and passwords over the past few weeks,' the blog says.Though, Facebook spokesman Barry Schnitt said: 'The impact of this attack or the previous ones are not widespread and only impacted a tiny fraction of a per cent of users.

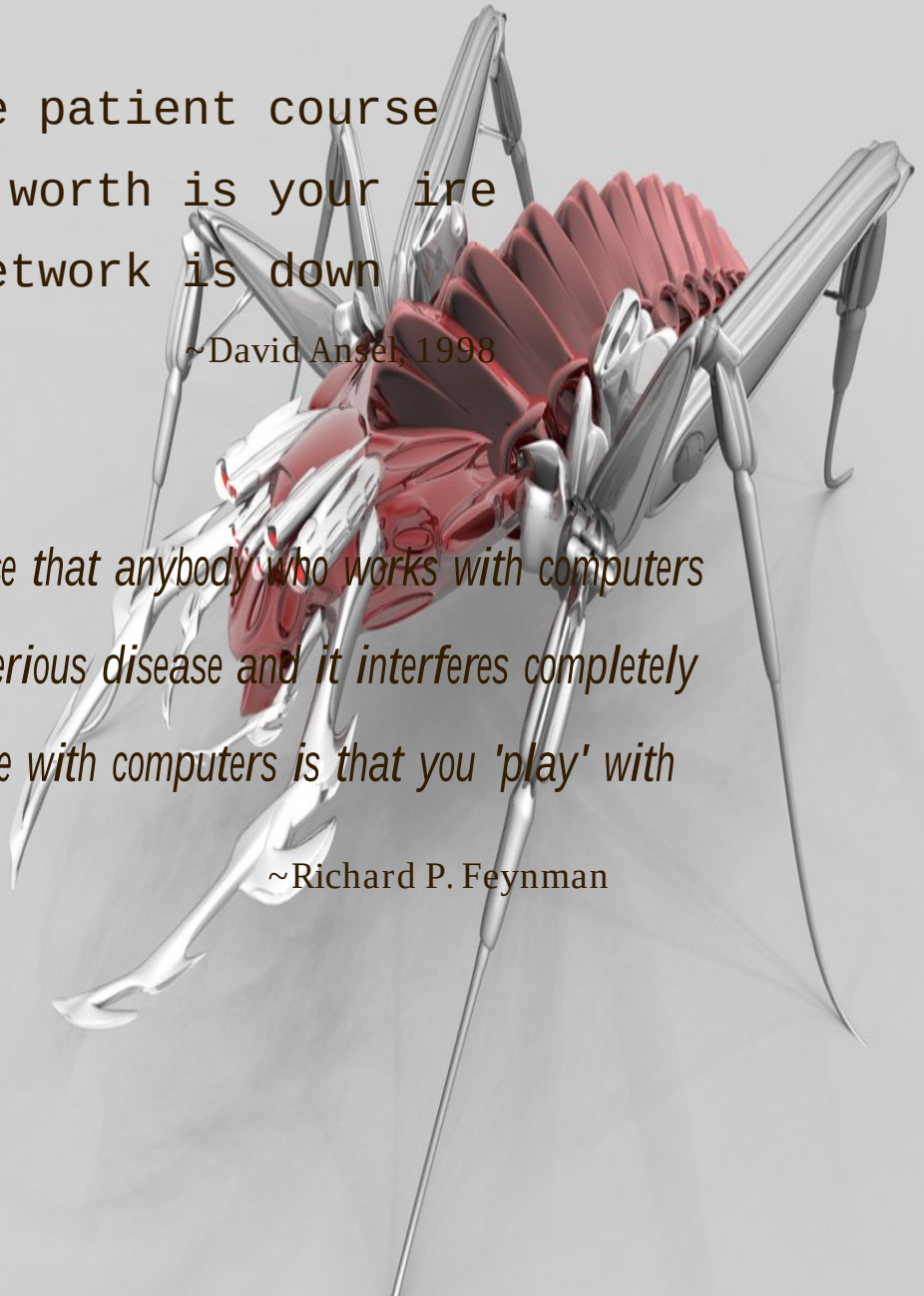
'We've been updating our monitoring systems with information gleaned from the previous attacks so that each new attack is detected more quickly,' he said.

The site has blocked links to the new phishing sites from being shared on Facebook and has added them to the block lists of the major browsers.

The social networking site is working with partners to have the sites taken down completely, he said adding Facebook is also cleaning up phony messages and wall posts and resetting the passwords of affected users.

'We believe the bad guys here are phishing an account and then trying those credentials on webmail providers,' Schnitt said.

So, for example, if a user is compromised on Facebook and has the same login and ID password for their Gmail, the attacker may be able to intercept the Facebook password reset and compromise the account again in the future, he added.



Stay the patient course
Of little worth is your ire
The network is down

~David Ansel, 1998

"There is a computer disease that anybody who works with computers knows about. It's a very serious disease and it interferes completely with the work. The trouble with computers is that you 'play' with them!"

~Richard P. Feynman

Google CEO offers advice to ailing newspaper industry

Google chief executive Eric Schmidt has told worried US newspaper owners that they need to work with the Web giant as they struggle to find a new business model for the ailing industry.

Speaking to a meeting of the Newspaper Association of America in San Diego, California, Schmidt yesterday praised the role the press plays in a democratic society and stressed that newspapers should see Google as a partner not a rival.

Schmidt said Google, which has been criticised by some US newspaper owners for linking to their websites without sharing advertising revenue, focuses on the user experience and newspapers need to do the same.

'If I were involved in the digital part of a newspaper I would first and foremost try to understand what my reader wants,' the Google CEO said. 'These are ultimately consumer businesses and if you piss off enough of them you will not have any more,' he said. 'If you make them happy you will grow them quickly. We try really hard to think that way.'

Schmidt said newspapers need to improve their websites. 'I think the sites are slow. They literally are not fast,' he said. 'They're actually slower than reading the paper.'

Schmidt addressed the newspaper executives a day after the US news agency the Associated Press announced plans to take legal action against websites that publish stories from the AP or its member newspapers without permission.

"Jesus saves! The rest of us better make backups."

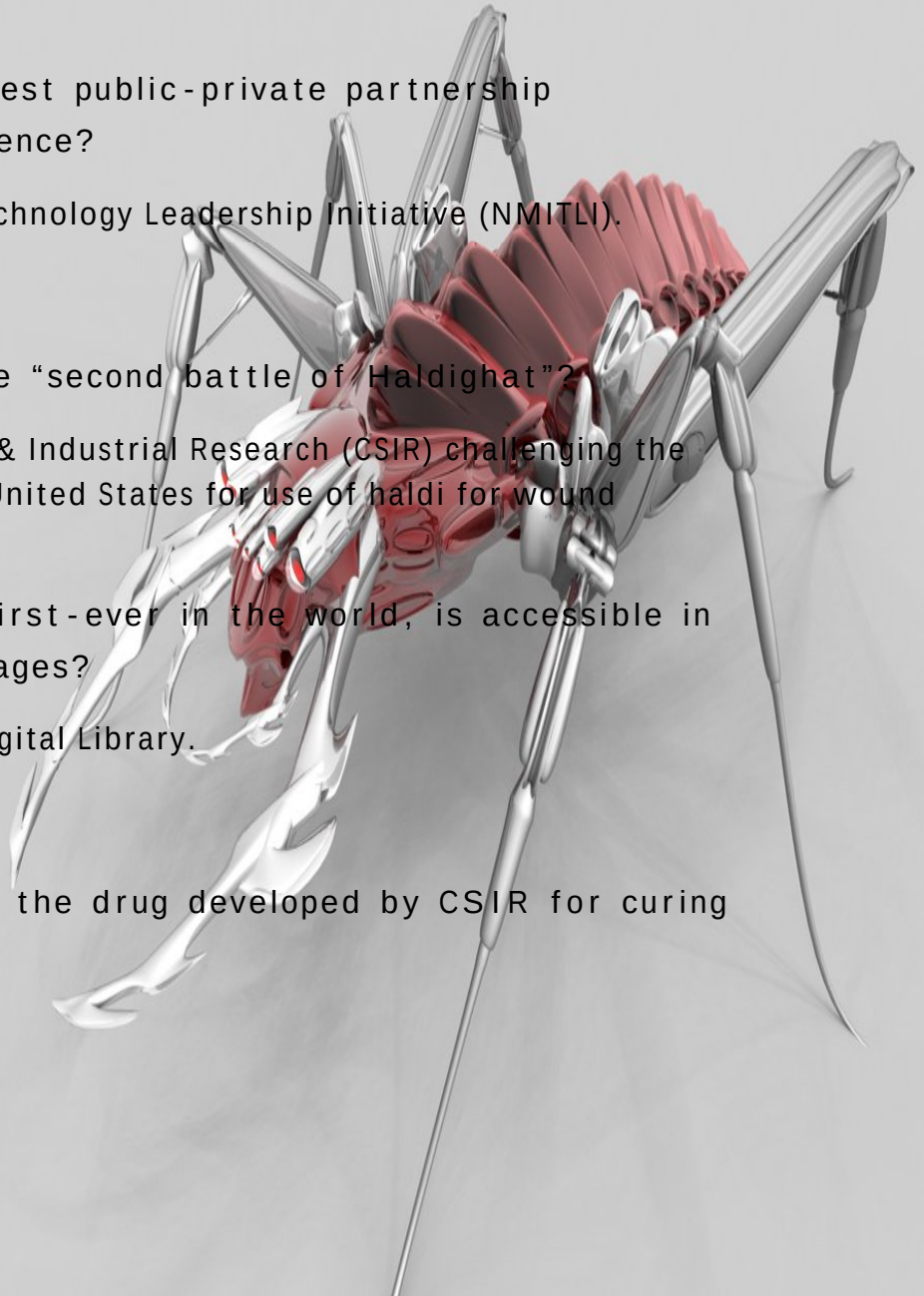
QUIZZZ!!!

1. What is “Flosolver”?

‘Flosolver’ is a parallel processing computer

2. In which hi-tech area(s) has India effected reverse transfer of technology to Europe and USA?

Catalysts



3. Which is India’s largest public-private partnership initiative since Independence?

New Millenium Indian Technology Leadership Initiative (NMITLI).

4. What is known as the “second battle of Haldighat”?

The Council of Scientific & Industrial Research (CSIR) challenging the grant of a patent in the United States for use of haldi for wound healing.

5. Which library, the first-ever in the world, is accessible in eight international languages?

Traditional Knowledge Digital Library.

6. What is the name of the drug developed by CSIR for curing anti-cerebral Malaria?

E-MAIL

7. What is achieved when “Saheli” is used once a week?

‘Saheli’ is a non-steroidal family planning pill.

8. What special technology is used for crime detection, paternity disputes and wildlife preservation?

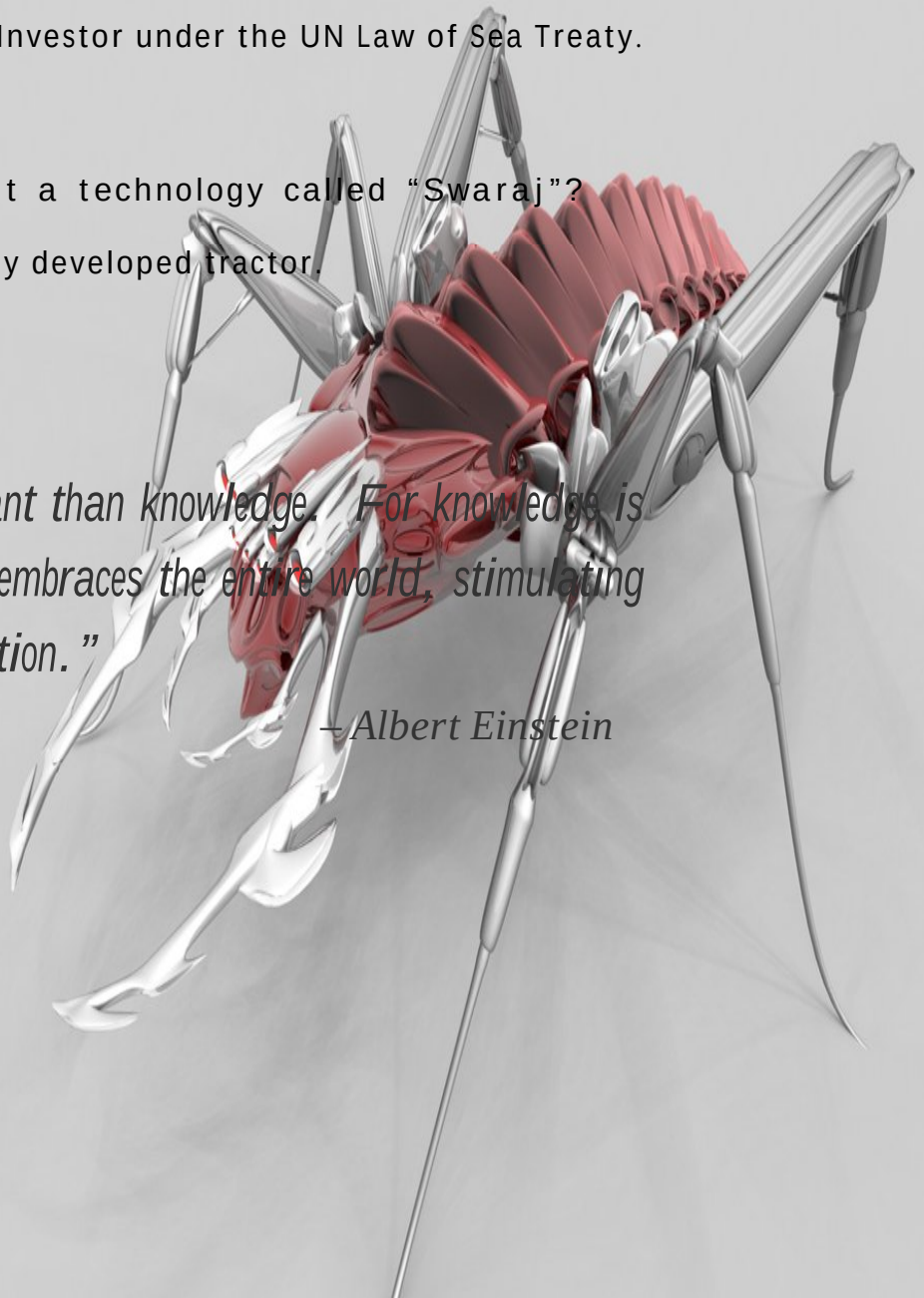
DNA finger printing.

9. What is India’s special status with reference to the United Nations Law of the Sea Treaty?

India is the first Pioneer Investor under the UN Law of Sea Treaty.

10. What is special about a technology called “Swaraj”?

‘Swaraj’ is an indigenously developed tractor.



“Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world, stimulating progress, giving birth to evolution.”

–Albert Einstein

Track your mobile through the ticks

At a time when mobile phones have become an integral element in everybody's life and losing them would cost dear, an ex-IITian and the winner of international Green Apple award, has come out with an idea to prevent this.

The gist of the idea is to incorporate a bluetooth device in wrist watches and link it up to the mobile phone's bluetooth so that alarm can be triggered if the mobile phone 'moves away' from the person.

Explaning his idea Prakash Vaithyanathan, a post graduate in Physics from IIT Madras, said the same idea could also be used to prevent credit card thefts.

'If the credit cards are bluetooth-enabled and linked to the bluetooth device in our wrist watch, an inbuilt feature can be designed so that the card becomes deactivated when it moves away a particular distance from its owner.'

Justifying his logic to place the bluetooth device in wrist watches, Prakash says this would keep off the radiation at a safe distance from vital organs like heart and brain. This feature could be activated or deactivated when desired.'

It can be noted that Prakash had won the International Green Apple Award for Best Environmental Practice from the Green Organisation, United Kingdom for his idea on how to save water in rail coaches.

He appealed to mobile manufacturers and watch manufacturers to come forth to implement the idea.With the availability of very low-cost bluetooth devices in the market, Prakash hopes that this feature can be incorporated at minimal cost. He can be contacted at 95000 79411 and pvaithyanathan@gmail.com..

4G Wireless Communications

Fourth generation (4G) wireless was originally conceived by the Defence Advanced Research Projects Agency (DARPA), the same organization that developed the wired Internet. It is not surprising, then, that DARPA chose the same distributed architecture for the wireless Internet that had proven so successful in the wired Internet. Although experts and policymakers have yet to agree on all the aspects of 4G wireless, two characteristics have emerged as all but certain components of 4G: end-to-end Internet Protocol (IP), and peer-to-peer networking. An all IP network makes sense because consumers will want to use the same data applications they are used to in wired networks. A peer-to-peer network, where every device is both a transceiver and a router/repeater for other devices in the network, eliminates this spoke-and-hub weakness of cellular architectures, because the elimination of a single node does not disable the network. The final definition of "4G" will have to include something as simple as this: if a consumer can do it at home or in the office while wired to the Internet, that consumer must be able to do it wirelessly in a fully mobile environment.

4G technology is significant because users joining the network add mobile routers to the network infrastructure. As people congregate and create pockets of high demand, they also create additional routes for each other, thus enabling additional access to network capacity. Users will automatically hop away from congested routes to less congested routes. This permits the network to dynamically and automatically self-balance capacity, and increase network utilization. So instead of carriers subsidizing the cost of user devices, consumers actually subsidize and help deploy the network for the carrier. With a cellular infrastructure, users contribute nothing to the network. They are consumers competing for resources. Thus, as the service gains popularity and the number of users' increases, service likewise improves for all users. And there is also the 80/20 rule. With traditional wireless networks, about 80% of the cost is for site acquisition and installation, and just 20% is for the technology. Rising land and labour costs means installation costs tend to rise over time, subjecting the service providers' business models to some challenging issues in the out years. With wireless peer-to-peer networking, however, about 80% of the cost is the technology and only 20% is the installation. Because technology costs tend to decline over time, a current viable business model should only become more profitable over time. The devices will get cheaper, and service providers will reach economies of scale sooner because they will be able to pass on the infrastructure savings to consumers, which will further increase the rate of penetration.

"The more you know, the more you realize you know nothing."

Screenless video

Screenless video describes systems for transmitting visual information from a video source without the use of a screen.

Screenless computing systems can be divided into three groups: Visual Image, Retinal Direct, and Synaptic Interface.

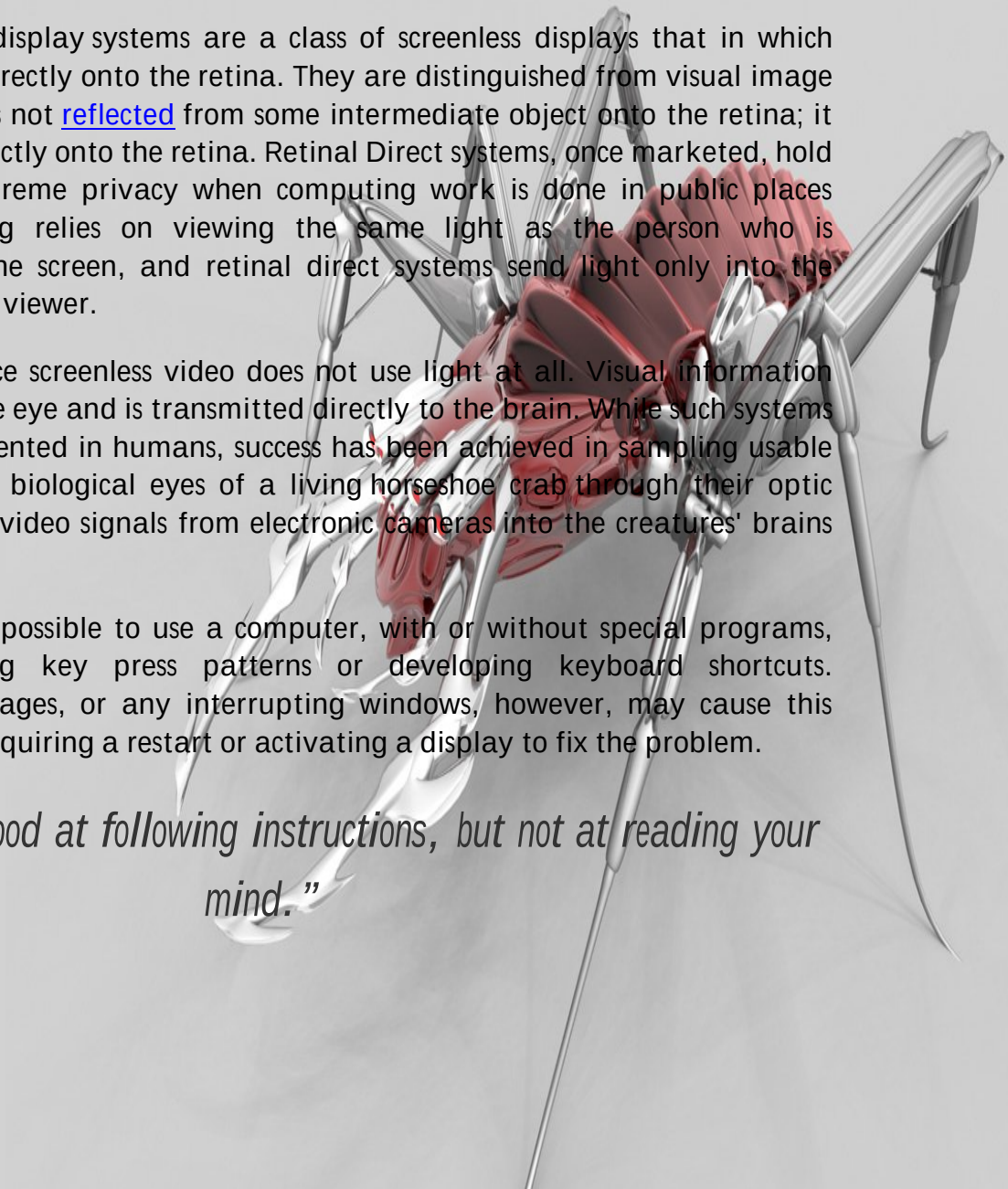
Visual Image screenless display includes any screenless image that the eye can perceive. The most common example of Visual Image screenless display is a hologram. Arguably, virtual reality goggles (which consist of two small screens but are nonetheless sufficiently different from traditional computer screens to be considered screenless) and heads-up display in jet fighters (which display images on the clear cockpit window) also are included in Visual Image category. In all of these cases, light is reflected off some intermediate object (hologram, LCD panel, or cockpit window) before it reaches the retina.

Virtual retinal display systems are a class of screenless displays that in which images are projected directly onto the retina. They are distinguished from visual image systems because light is not reflected from some intermediate object onto the retina; it is instead projected directly onto the retina. Retinal Direct systems, once marketed, hold out the promise of extreme privacy when computing work is done in public places because most snooping relies on viewing the same light as the person who is legitimately viewing the screen, and retinal direct systems send light only into the pupils of their intended viewer.

Synaptic Interface screenless video does not use light at all. Visual information completely bypasses the eye and is transmitted directly to the brain. While such systems have yet to be implemented in humans, success has been achieved in sampling usable video signals from the biological eyes of a living horseshoe crab through their optic nerves, and in sending video signals from electronic cameras into the creatures' brains using the same method.

It is also simply possible to use a computer, with or without special programs, simply by memorizing key press patterns or developing keyboard shortcuts. Unexpected error messages, or any interrupting windows, however, may cause this method to fall apart, requiring a restart or activating a display to fix the problem.

"Computers are good at following instructions, but not at reading your mind."



Go: Google's new open source programming language

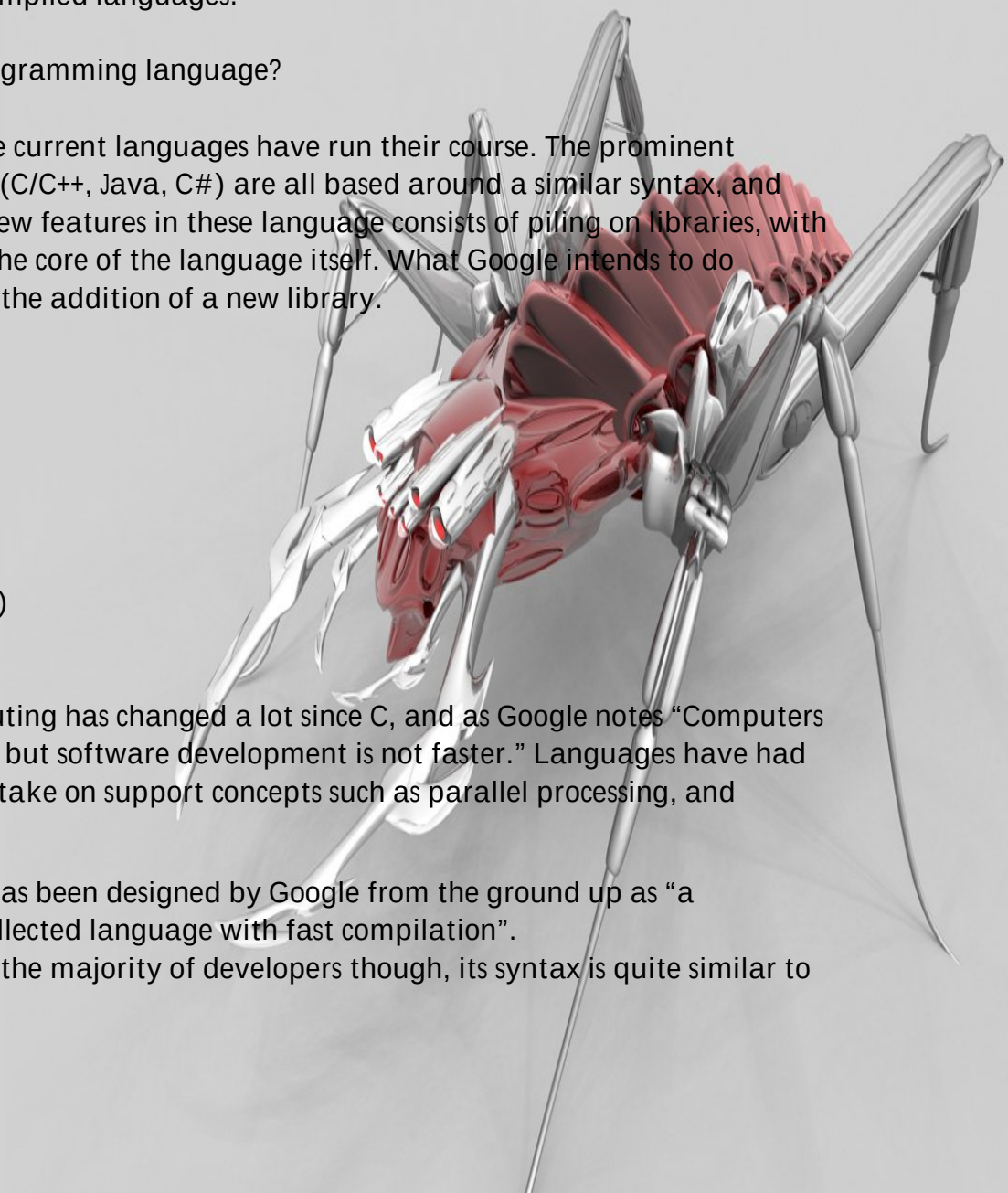
Google never seems to just be satisfied with the status quo, and when they run out of fields to compete in they create their own! Google's new "Go" programming language is one of their newest ventures, a language which is an amalgamation of Python and C++.

The Go language, in development since September 2007, has been unveiled by Google along with the release of a free and open source compiler. In fact, Google has released both a stand-along compiler implementation with cryptic names such as 6g (amd64 compiler), 8g (x86 compiler), and 5g (ARM compiler) and one which is a front-end for GCC (gccgo).

Born out of frustration with existing system languages, Go attempts to bring something new to the table, and mix the ease of dynamically typed and interpreted languages with the efficiency of compiled languages.

So why make a new programming language?

Google believes that the current languages have run their course. The prominent languages in use today (C/C++, Java, C#) are all based around a similar syntax, and updating and adding new features in these language consists of piling on libraries, with little or no upgrade to the core of the language itself. What Google intends to do requires more than just the addition of a new library.



Hello World in Go

```
package main

import "fmt"

func main() {
  fmt.Printf("Hello, ??n")
}
```

The landscape of computing has changed a lot since C, and as Google notes "Computers are enormously quicker but software development is not faster." Languages have had to morph quite a bit to take on support concepts such as parallel processing, and garbage collection.

Go, on the other hand has been designed by Google from the ground up as "a concurrent, garbage-collected language with fast compilation".
In order to not alienate the majority of developers though, its syntax is quite similar to

C, and would not take much time for a developer to catch on to.

Go has accomplished some impressive feats. The language is designed to compile fast and Go can compile a “large" program in a few seconds on a single computer. It is designed to simplify the creation of application which can better utilize today’s multi-core processors.

The language supports concurrent execution and communication between concurrent processes natively, and is fully-garbage collected.

Go routines allowed are Google’s answer to threading in Go, and any function call which is preceded by the go statement runs in a different go routine concurrently. A feature called channels allows for easy communication and synchronization between such routines.

Unlike other object oriented languages, Go has a much “simplified” type structure, which disallows sub-classing! Go offers a different flavor of object oriented programming using interfaces, which Google believes will simplify use.

By using interfaces, explicit type hierarchies need not be defined, instead, a type will satisfy all interfaces which are subsets of its methods. The relationships between types and interfaces need not be defined explicity! This can have some interesting implications as people can add interfaces to connect unrelated types even later in the development of an application.

Go seems inspired by Python as well. Python has been one of Google’s favoured languages and was the sole language supported on Google’s AppEngine when it launched. Like Python, Go supports “slices”, which allow you to refer to parts of arrays using a simple syntax. Thus for an array “a” with 100 elements, a[23,42] will result in an array with elements 23 through 42 of a. Go also tracks the length of arrays internally, further simplifying array usage. Additionally, Maps in Go allow you to create “arrays” with custom index types, and are a native feature of the language.

One consistent point in the features of Go is that it is better to have one excellent implementation of commonly used features such as garbage collection, strings, maps etc. rather than have them rethought and re-implemented in each program.

As nearly all Google products, Go is “beta” and not yet suitable for production use. By releasing it early Google hopes to garner a community around it and hopes that enough people will be interested in it to justify continued development

Careers in Network Security and Ethical Hacking

Corporations need trained professionals to ensure that their Internet, Intranet, VPN, network and database systems are safe.

Government agencies , including military and law enforcement , need security specialists to keep their own systems safe. In addition, in the ongoing battle against cyberterrorism and cybercrime, security specialists are needed to track down and prosecute hackers, fraud artists and terrorists. Places like the Central Intelligence Agency , the National Security Agency and the Federal Bureau of Information need trained agents who are savvy in computer science.

Consulting firms need security specialists, engineers and technicians to provide professional expertise for corporations and government agencies. Or think about going into business for yourself as an independent security consultant.

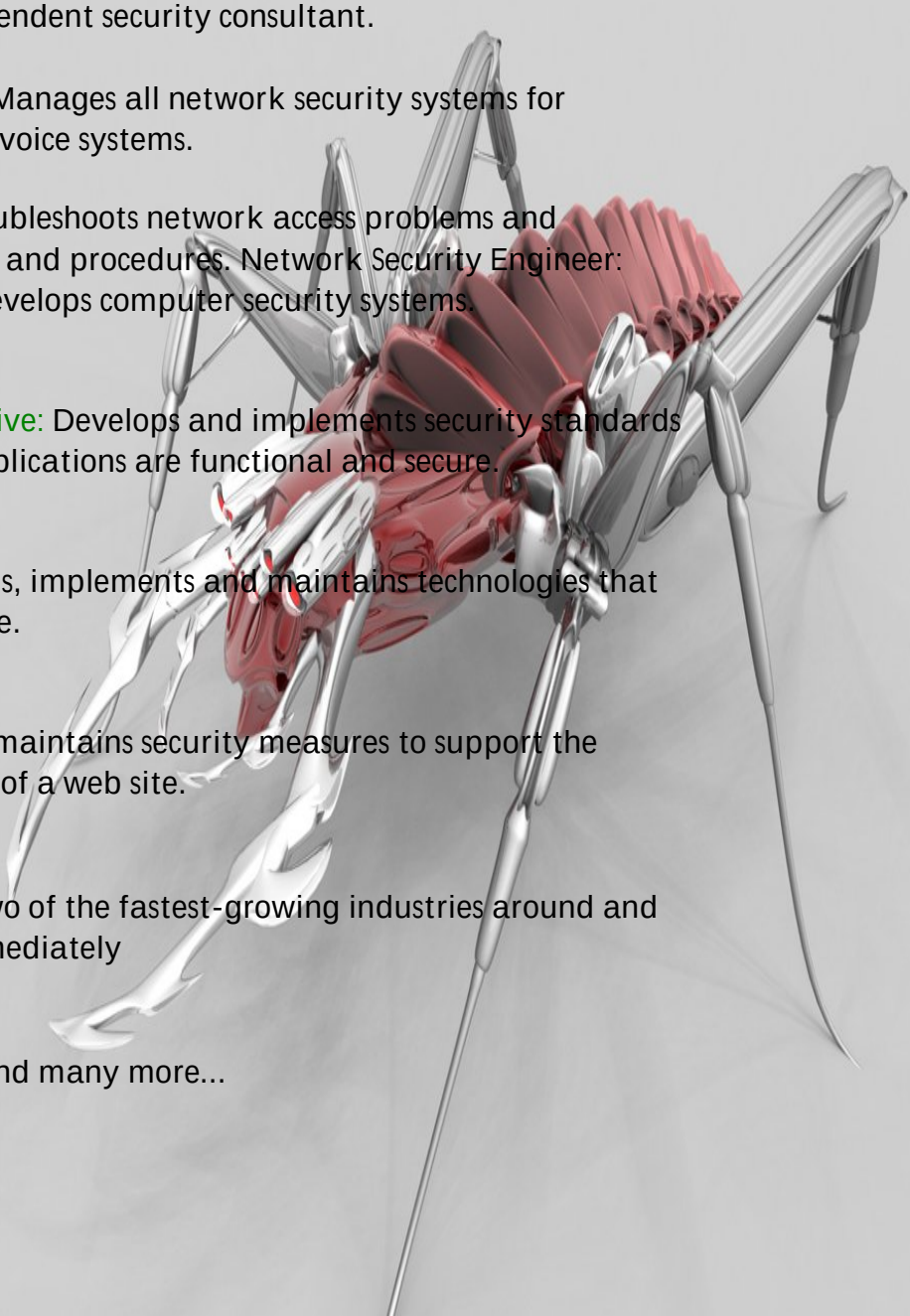
Network Security Systems Manager: Manages all network security systems for LAN/WAN, telecommunications and voice systems.

Network Security Administrator: Troubleshoots network access problems and implements network security policies and procedures. Network Security Engineer: Evaluates, designs, integrates and develops computer security systems.

Systems/Applications Security Executive: Develops and implements security standards and procedures to ensure that all applications are functional and secure.

Web Security Administrator: Develops, implements and maintains technologies that keep an organization's website secure.

Web Security Manager: Creates and maintains security measures to support the information and data security needs of a web site.



High Salaries in IT Security Careers

Network and Internet security are two of the fastest-growing industries around and they need technology graduates immediately

Certifications in Network Security:

CEH, CISA, CISSP, CHFI, MSS, SCNP and many more...

Dell Releases Adamo XPS: World's Thinnest Laptop

Dell officially launched the Adamo XPS, the highest-end version of its designer ultra portable. Dell says it expects to "begin taking orders and shipping the Adamo XPS in time for the holidays." The ultra thin luxury laptop starts at $1,799.

The system is championed as the thinnest notebook ever and measures just 0.39 inches at its thickest point. Dell accomplishes the feat by tucking most of the computer components into the display section and relying on a unique hinge that opens underneath and acts as a built-in prop . In spite of its slimness, the notebook still has a removable battery, two USB ports and DisplayPort output but also weighs slightly more than its MacBook Air rival at 3.2 pounds.

When fully opened, the keyboard sits at maybe a 20-degree angle. It's an unusual setup, but one that provides a more ergonomic typing experience than the average flat laptop keyboard. We also liked the keyboard's metal keys and the reasonably large touchpad.

"Let us change our traditional attitude to the construction of programs: Instead of imagining that our main task is to instruct a computer what to do, let us concentrate rather on explaining to human beings what we want a computer to do."

– Donald E. Knuth

Intel 32-NM Chips released

Washington: Intel has announced to release 32-NM Chips now. All of the dual-core processors have the CPU and graphics processor integrated on a single die, with the memory controller on a separate chip.

According to the reports, a total of 17 new CPUs, along with three new chipsets and seven chips providing Wi-Fi and WiMax support, will be available early next year.

All the new products are built using Intel's next-generation 32-nanometer technology, codenamed West mere, and are based on the Nehalem micro architecture.

Previous generations had each of the three components on a separate die.

InformationWeek.com writes that the brands are Core i3 for low-end systems, Core i5 for mainstream PCs and Core i7 for the highest end computers used in video editing and playing top-of-the line video games.

"The most likely way for the world to be destroyed, most experts agree, is by accident. That's where we come in; we're computer professionals. We cause accidents."

– Nathaniel Borenstein

MOBILE WIFI.

What is mobile wifi?

Using a small, portable wifi modem, you can connect to the 3G mobile broadband network. But unlike a standard mobile broadband dongle, which needs a USB port to connect, devices connect to your wifi modem wirelessly - it's just like having your own portable wireless hotspot.

It works in a similar way to current mobile broadband routers that allow you to connect your mobile USB modem stick and share your mobile broadband connection.

What's the difference between mobile wifi and mobile broadband?

Using a mobile wifi modem you can connect any wireless-enabled device to your 3G mobile broadband signal - not just laptops and netbooks that have USB ports to plug your dongle into.

This means that you can connect devices like the iPod Touch, the Sony PSP or a wireless-enabled digital camera as well as being able to share your connection with friends if you want.

Download limits : If you do decide to share your mobile wifi connection with multiple devices, or with friends, make sure that you keep a close eye on your download allowance. In the same way that regular mobile broadband customers will be charged if they exceed their limit, you'll have to pay extra for any data you use over your mobile wifi allowance - and costs can soon add up.

Virtual Keyboard

A virtual keyboard is a software and/or hardware component that allows a user to enter characters. A virtual keyboard can usually be operated with multiple input devices, which may include an actual keyboard, a computer mouse, a headmouse, and an eyemouse.

On a desktop PC, one purpose of a virtual keyboard is to provide an alternative input mechanism for users with disabilities who cannot use a physical keyboard. Another major use for an on-screen keyboard is for bi- or multi-lingual users, who continually need to switch between different character sets and/or alphabets. Although hardware keyboards are available with dual layouts (for example Cyrillic/Latin letters in various national layouts), the on-screen keyboard provides a handy substitute while working at different stations or on laptops, which seldom come with dual layouts.

The standard on-screen keyboard utility on most Windows systems allows hot-key switching between layouts from the physical keyboard (typically alt-shift but this is user configurable), simultaneously changing both the hardware and the software keyboard layout. In addition, a symbol in the sys-tray alerts the user to the currently active layout. Although Linux supports this fast manual keyboard-layout switching function, most popular Linux on-screen keyboards such as gtkeyboard, Matchbox-keyboard or Kvkbd do not react correctly. Kvkbd for example defines its visible layout according to the first defined layout in Keyboard Preferences rather than the default layout, causing the application to output incorrect characters if the first layout on the list is not the default. Activating a hot-key layout switch will cause the application to change its output according to another keyboard layout, but the visible on-screen layout doesn't change, leaving the user blind as to which keyboard layout he is using.

Until these deficiencies are corrected, Linux on-screen keyboards remain of limited usefulness for multi-lingual / multi-alphabet users.
On devices which lack a physical keyboard (such as personal digital assistants ortouchscreen equipped cell phones), it is common for the user to input text by tapping a virtual keyboard built into the operating system of the device. Virtual keyboards are also used as features of emulation software for systems that have fewer buttons than a computer keyboard would have.
Virtual keyboards can be categorized by the following aspects:

- physical keyboards with distinct keys comprising electronically changeable displays integrated in the keypads
- virtual keyboards with touchscreen keyboard layouts or sensing areas[1]
- optically projected keyboard layouts or similar arrangements of "keys" or sensing areas[2][3]
- optically detected human hand and finger motions[4]
- virtual keyboards to allow input from a variety of input devices, such as acomputer mouse, switch or other assistive technology device.

An optical virtual keyboard has been invented and patented by IBM engineers in 2008[4]. It optically detects and analyses human hand and finger motions and interprets them as operations on a physically non-existent input device like a surface having painted keys. In that way it allows to emulate unlimited types of manually operated input devices such as a mouse or keyboard. All mechanical input units can be replaced by such virtual devices, optimized for the current application and for the user's physiology maintaining speed, simplicity and unambiguity of manual data input.