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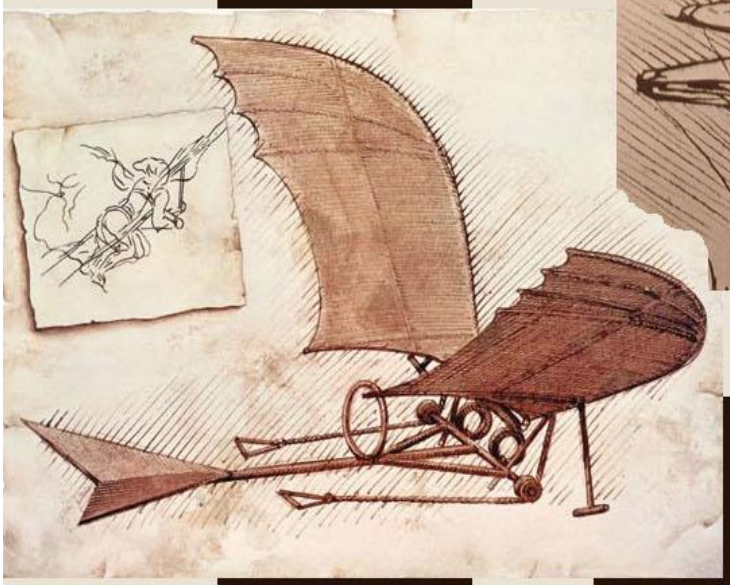
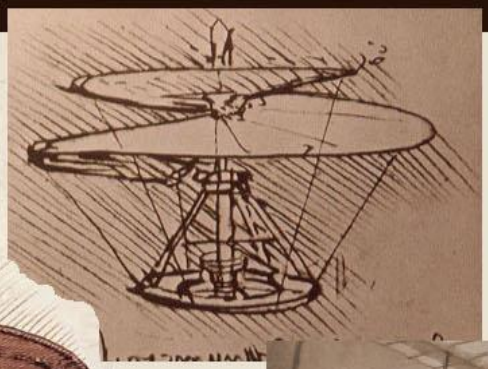
THEN, NOW & THEN





man's flight through the times...

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Student Editor and IEEE Chairperson

CSE 4th Year

Ramya Balasubramaniam

Student WIE Editor and WIE Chairperson

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CAFÉ LATTE

Rainbow Pots & Blessings

IEEE Chairperson and Student Editor

Over almost a 6000 year existence of human civilization, and at least another 6000 years more of existence of the Homo sapiens, lifestyle and thought has changed repeatedly. If I were to draw the timeline of every face of human activity since then, many lines would end, many new would start with progression, many would be repeated through history, while many others would appear hazy or turn yellow with age. The golden pot of new blessings at the end of every rainbow since the dawn of human existence has yielded diverse technologies, cultures and civilizations which have made us what we are today.

What we have become, what we were in the past and what we are to become in the future is something even another Nostradamus cannot predict. I will not waste my breath and ink trying to draw out comparisons between the world of the days bygone and that of today's. Still, they say, "Know thy past to know thy present"! The journey to the present has not been made without unearthing golden pots of rainbows; little or big, rainbows have appeared when civilizations went blind, when men lost their teachers, when cities and countries were razed in the name of religion, freedom, identity…

We passed the last milestone that said "A global world" with a subscript that said "Neo-colonialism". We do not know what the milestone at the next curb will say… for we cannot see ahead. What we know is what we write … how our environment has changed, how our women have changed, and how, most importantly has technology changed. Has technology been a catalyst or an inhibiter? Is the process reversible or irreversible? Are we stable? Quasi stable? How will innovation change the world? We only make an amateur attempt to answer these questions as we see them.

We don't know how far we are from the next curb on the road. But I do know, that there will always be rainbows with their vibrant seven colors and a golden pot below, whether we see it or not, for a rainbow is always there in sun or rain as pure as white light … we only see its colors after the rain when the sky has cleared!

MOCHA MUFFINS

WIE Chairperson and Student Editor

Dear readers, through the efforts of our editorial board and the articles contributed by the students we wish to catapult you to the past or to the future like an incredible journey into the oblivion set forth on the much fanaticized "time machine". The history of mankind from a mere quadruped with a prehensile tail into a well built biped with an ability to maneuver his thumb in order to replace the tail and eventually loose it as a vestigial organ , can be concisely molded into a Précis. The statements pertaining to our glorious past end with a definitive full stop. The statements pertaining to our eventful present with a comma in continuation and that of our promising future with a question mark. Even the people who claim to be gifted with the art of foretelling future accurately, the so called oracles cannot say with utmost certainty, what humanity has in store for itself. In the past we had a trifle of generalized branches in engineering. The kinetics and the kinematics relevant to the human beings circumscribed by mechanical engineering. The study of the bonds that keep the very basic components of our universe together enshrined as chemical engineering. The virtual world created by the polarized and petty entities moving under the influence of invisible forces perused under the name of electrical engineering. The sanctity of information and its restricted flow in the world, the variety of techniques used to process the same into something meaningful and useful for specialized applications all compiled into an independent branch of computer engineering. Women were like oasis in the desert or like the red-eyed individuals amongst the population of the more conspicuous black-eyed individuals. If branch of mechanical engineering was considered physically challenging, the branch of electrical engineering was deemed as intellectually challenging.

With more and more intellectual forces working round the clock in specified areas of these primordial engineering disciplines have only led to further diversification and creation of new branches. With the plethora of new branches in the field of engineering, we could now see female technocrats walking hand in hand with their male counterparts throwing slurry on the old myths that existed in minds of the conservatives who believed in the patriarchy that existed in the field of engineering, particularly in some of the branches of engineering at least. With women joining the brute forces, the approach has now become more specialized and goal oriented. All that mankind could ever imagine in the earlier fields of engineering, were ravenously sort after and studied with utmost clarity of mind and rechristened a suitable title by the pioneers whose marvelous achievements outnumbered the number of alphabets in their names. The simple and straightforward branch of electrical engineering diversified into electronics, electronics and communication; signal processing, microwave communication, telecommunication and similar interdisciplinary branches .These are all analogous to the hybrids created by father of genetics Mendel, who had a much unexpected start in his garden. Ironically , a mere effort to improve the quality of the seeds helped him to stumble upon the basics of Genetic engineering .The future beckons us like the sound of a foghorn beckoned the lost sailors in the sea . We know in which direction we all have to move forth but the path towards our destination remains murky.

GINGER ALE

Sustainable Development as Social responsibility

Ramya Balasubramaniam

There is one entity that is intrinsic for the myriad life forms existing on this planet. God has in fact been even-handed and made it an ultimate requirement for both the living and the non living entities. Energy! I might eloquently deliver even an extemporaneous speech explaining the significance of this entity, but I am forewarned that it might last several minutes and minutes can even run into hours and days. But the other inelastic entity, which is finite in every sense, would limit my speech. You guessed it right the patience of the listeners. Already there are other issues like global warming, sky rocketing fuel prices, global food shortages that plague us .All these florid phrases are known to each one of us. When we first come across these terminologies , the adrenalin starts surging and we start aggressively debating the age old argument of why the fate of so many units, living or non living is decided by a small group of avaricious individuals . But as we gradually become more accustomed to them we prefer a more laid back approach. We swallow all these and our system assimilates them without any adverse effects. There is indubitably an urge which can euphemistically take the shape of social responsibility that propel us to think even momentarily about the alternate ways of accomplishing our tasks that have been starving like the low priority processes in the stack waiting for the sparse resources to be allocated to them. This urge has fortunately metamorphosed into a quest, and I endeavour once in for all using all the resources under the sun to find out about the alternate ways of generating this invaluable entity.

I start with the automobile section that I surely put on the top of the stack of things that we all cannot forgo. This includes the very petite bicycle which we all frivolously learn to ride at the tender age of five or six and then we possibly use it only when the doctor advises us to lose a few pounds of accreted wealth (fat). But realistically speaking we cannot cycle across the Atlantic for attending a conference which is scheduled in the next week and is supposed to be held somewhere diametrically opposite on our globe. We need to think of more realistic solutions. So, we humans have come up with such ingenious ways of not only using alternate sources of energy but also using them more efficiently. Recently China came up with an aircraft driven by a special class of turbo engines, which are 60% more efficient and not to forget the Direct Fuel Injection (with Turbo charging/Supercharging) also called fuel stratified injection or direct injection stratified charge which are 11% more efficient than the existing ones. There is a humongous verity in the fuel section. We have the flex fuels, a concoction that cleverly mixes ethanol and gasoline and works as efficiently in terms of mileage as our conventional fuels. How can we ever condone the electric cars that our scientists have been working on practically since we developed our first model of the personal computer? They have overtaken all the contemporary models driven by gasoline and diesel in terms of energy efficiency, performance (lower maintenance costs and better acceleration) and reduced energy dependence. But don't start gamboling like an enthusiastic child shouting " Eureka " , as we still have to burn the matter carbonized from eons to get electricity in the first place . Thanks to the ongoing failed efforts of our government in getting the nuclear deal across the table, the nuclear power houses are running at 30 to 40 percent below the actual capacity.

But several Institutions of higher education across the globe have been working closely with the automobile industry in their arduous efforts to come up with an effectual solution. Cars powered by Solar energy, bio-fuels and alcoholic beverages are just a handful of the marvels that the pioneers in this field have come up with. Finally, we have the fuel cell, the organic power houses that would propel the cars of future. It's not fair to say that better alternatives are not available. We simply need to concentrate upon the cost –effectiveness of a particular technology, which has to be tuned in such a manner that it becomes easily affordable within the technology window designed specifically for it, much like the windowing techniques used to circumscribe a running sequence in DSP (Digital System Process).

Whenever our stomach grumbles we are reminded of a very basic yet universally accepted truth that we can lead a life of frugality with no palatial building to shelter us or with no limousine to drive us around the city, but there is one thing that would involuntarily manifest itself, hunger or our urge to have food. Food has not only been man's basic need, it has been the very reason for the development of civilizations. It is regretful for us to come in terms with the fact that there are millions in this world who still have no access to even shreds of the same fundamental requirement. If we want to portray ourselves as a country that has achieved sustainable development or growth, we need to grow in terms of the human development index. We love to flaunt our eight plus growth rate but we still are ranked very low in terms of human development index along with either newly independent countries or the war-torn African nations. There is virtually no food security and the population is steadily growing at a rate that ensures our hegemony in at least one aspect, happiness index / population size. The higher the number, greater is the effort required by us to feed the hungry mouths. At this juncture we cannot stop giving primary importance to agriculture. We cannot behave like a horse to which the harness has been tied.

We are at the verge of another green revolution. Our agriculturist and genetic engineers are working round the clock to acquire seeds that are not only high-yielding but are also less demanding as far as the water is concerned or the fertilizer is concerned. But the skepticism surrounding the effects of consuming GM food puts the future of these seeds in a mere oblivion. We would have to do intensive research on the exact repercussions of using the GM seeds; their ecological and anthropological effects have to be understood thoroughly. Impetuous decisions can not only put us in danger but any immutable change brought about by these exotic entities could alter the course of human history and cause imbalance in the ecosystem.

The present scenario demands our immediate attention. We are all sailing on a ship that sways violently under the influence of a gale, uncertain about its future. If we really want to see it reach the banks we need to act quickly. Acting merely with speed and no foresight could also land us in trouble. Hence, we need to be optimally fast, thoughtful, innovative and insightful while collaborating with one another in achieving sustainable development.

COFFEE SPILLS

What's up on the technical market?

Editorial board with contributions from Suman Bairak

The silicon based transistor could very well be replaced by a breakthrough innovation by a Rensselaer Polytechnic Institute student. Weixiao Huang, the son of a farmer in rural China has developed a transistor based on a new compound material known as GaN or Gallium Nitride which has shown remarkable material properties and can even act as an alternative to silicon transistors.

The reason for choosing GaN being that it performs better than silicon and also works well in extreme conditions. Engineers now have for a long time known that GaN has extremely good electrical properties even better than silicon. But Huang is the first person to develop a new GaN MOS interface. The new GaN based transistor could reduce energy consumption and improve the efficiency of various electronic systems which make use of silicon transistors such as household appliances, motor drives, hybrid vehicles, defence equipments etc.

Huang also says that GaN MOSFET is the first of its kind in the world and has already shown world-record performance. "This will significantly simplify entire electronic systems," Huang says. He also says, "Because it is so resilient, the device could open up the field of electronic engineering in ways that were not previously possible due to the limitations imposed by less tolerant silicon transistors."

Source: The Times of India, Inside Rensselaer

NASA's phoenix mars lander has confirmed presence of frozen water on mars. The robotic arm of the phoenix found frozen soil samples in a trench which was about 5 cm deep. The samples of soil so gathered are being tested for further information about mars soil and its water.

Graphene, one atom thick layer of normal graphite, is said to be the strongest materials on earth according to recent studies. So now apart from being the thinnest material, it is also the strongest material. Another important discovery was that graphene enables scientists to view single atoms of hydrogen and carbon. This is achieved using transmission electron microscope with graphene used as background material.

Beijing Olympics ceremony: Most of you must have watched the opening ceremony of the Olympics being held in Beijing and would have being impressed and spell bounded by the exceptional firework of giant footprints in the night sky from Tiananmen square to the bird nest stadium but the grapevine says that they were fake. They were nothing but a computer animation film that was telecasted on global television. This film was build in one year and the animators had added all the special effects to give it a 'live feed' look (camera shakes, haziness so that it looked as if it was filmed from a helicopter in the polluted sky of Beijing).
Organizers say that the fireworks happened for real but the animated film was telecasted for it would not have been safe to shoot them for real.

VW has two goodies for its fan and for automobile lovers. First, it has relaunched beetle, its first car. Beetle can now be seen in a new avatar, more stylish, sleeker and more irresistible. Its being sold in most of the Western nations but it hasn't reached Asia and there no plans to do that either. So folks those of you are planning to buy this beauty have to that with a lot of taxes and custom duties. Second, VW has introduced cars with auto parking system. You just have to key in the spot where you want the car to be parked and leave the rest to auto parking unit. Such cars have sensors that sense the distance from obstacles in its surrounding and park the car at the desired spot.

MyPicks Beijing 2008 was developed by Pramati Technologies using zembly, Sun's browser-based social application development environment. Choices will be tallied by player and their country, and the country with the highest point total based on correct predictions will be declared the winner of this virtual Olympics game. The eco-efficient, world-class performance of 160 Sun Fire X4450 and X4150 servers will drive NBCOlympics.com during the Beijing Summer Olympics. Olympic fans will have approximately 2,200 hours of live streaming broadband video coverage of 25 different sports on the site.

Bio-clip: Orkut Buyukkokten was born on Friday, February 06, 1976 in Konya and he is a famous computer programmer from Turkey. Being born on Feb 06, Orkut is an Aquarius. His ethnicity is White. Orkut Buyukkokten had studied at Konya Meram Anadolu Lisesi (in 1986-93) and then he attended the BS Information Engineering, Bilkent University, in Ankara, Turkey (in 1993-97). He is famous for having designed Google's Orkut social network.

Sun Microsystems, Inc. (NASDAQ: JAVA) announced the completion of the acquisition in February 2008, of MySQL AB, developer of the world's most popular open source database, for approximately $1 billion in total consideration. Sun also unveiled the immediate availability of MySQL's complete portfolio of products and enterprise services backed by its 17,000-strong global sales and services organization and its extensive international network of authorized distribution channels. Sun now provides a single, secure choice for customers and developers seeking to put MySQL into deployment on a global basis. Users can get started today with free downloads at dev.mysql.com/downloads.

The Next Big Thing Is 'Small'

Parul Raj

It was a fine night of 29th December, 1959 at California institute of technology where the annual meeting of American physics society was about to commence. This night became historic when a famous physicist Richard Feynman gave a talk on the topic – "there is plenty of room at the bottom". He asked a simple yet fundamental question – why can't we make things smaller, so small so as to fit them on the head of a pin. He talked of the immense unexplored space that exists at the atomic and the subatomic levels; of the possibilities of developing machines and devices at such small scales. It was this historic talk that paved the way for another industrial revolution but this time on atomic scale. This revolution gave birth to a new science – Nanotechnology.

Nanotechnology, a technology which has no realms; a technology which is both, small and big – small in size but big in opportunities and possibilities.

Figure 1: Richard Feynman

A formal definition of nanotechnology is – the science, engineering and technology related to the understanding and control of matter at the length scale of approximately 1 to 100 nanometers; research and development of materials, devices and systems that have novel properties and functions due to their nanoscale dimensions or components.

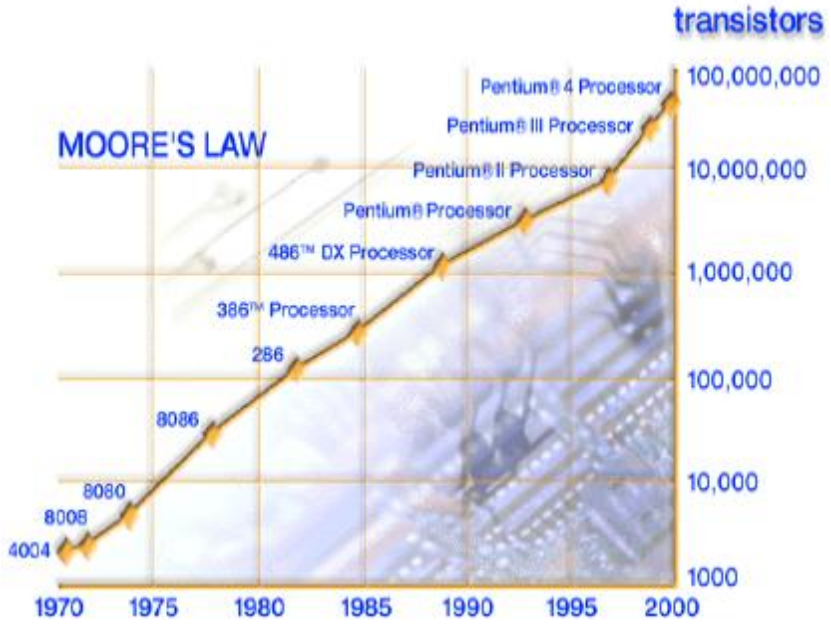
Origin of Nanotechnology

The origin of nanotechnology is many a time attributed to Richard Feynman but there had been others before and after him who talked on the same lines. Even before Richard Feynman gave his famous talk, this technology was there in form of science of miniaturization – science of making things smaller and smaller.

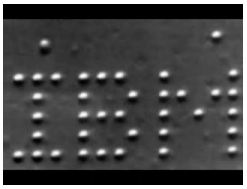
Miniaturization has played an important role in revolutionizing the space industry especially the instruments and devices that were installed in space shuttles.

The Moore's law is one of the best product of this science which states that the number of transistors on a chip would double every 18 months. This law was formulated at a time when there were 10-20 transistors on a chip and has been proven right till date when there are 1.7 billion transistors on a single chip.

Another important name in history of nanotechnology is K. Eric Drexler, a prodigy of MIT. He is often called as the godfather of nanotechnology, for he dreamt of molecular self assembling and replicating machines and did significant work in the same direction. But the credit of coining the term 'nanotechnology' goes to Norio Taniguchi, a Tokyo scientist who first used this term in his lecture entitled 'On the basic concepts of Nanotechnology' which he gave at the international conference on production engineering in Tokyo in 1974.



In 1980's, a chain of developments started taking place in this field, reason being the invention of the scanning tunneling microscope (STM). STM was invented in 1981 at IBM research center by Gerd Binnig and Heinrich Rohrer, who won the Nobel Prize for the same. This microscope made it possible to view atoms individually. It also provided researchers with the capability of moving and manipulating atoms. In 1990, with the help of STM, researchers at IBM laboratories assembled 35 atoms to spell out I-B-M. Other major developments were the discovery of carbon nano tubes and Bucky balls.



What's today's scenario??

By late 1900's, a firm platform was developed for research and experimentation in field of nano science. Such research resulted in discovery of new materials with unfamiliar and unseen properties due to nanoscale quantum effects and invention of new technology for potential use of such materials. These materials have enormous applications in every field. A brief overview of these materials and their potential applications is given below:

Carbon nano tube: - Carbon nano tubes rank among the most exciting new developments in modern science and engineering. A carbon nano tube is a cylindrical rolled up sheet of graphene, which is a single layer of graphite atoms arranged in a hexagonal pattern like a chicken wire mesh. Their hexagonal structure gives them great tensile strength and elastic properties. They can be made to perform as a metal or a semiconductor depending on the way they are rolled. Nanotubes have great potential to be used as nanoscale electronic devices such as field effect transistors, single electron transistors and nanoscale p-n junctions. A carbon nano tube is similar to a MOSFET in that a gate is used to control the flow of current through the device by varying the field through a channel. The innovation here is the mechanism of transport of electrons from source to drain. Instead of having a channel whose field can be controlled by a gate electrode, these devices have a tiny tubular structure known as Carbon nano tube.

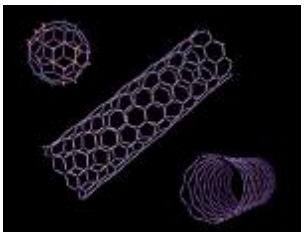


Figure 2: Carbon Nanotubes

Bucky balls

Discovered in 1985, it is the roundest and most symmetrical known substance to man. In C60, hexagons and pentagons of carbon link together in a coordinated fashion to form a hollow, geodesic dome with bonding strains equidistributed among 60 carbon atoms.

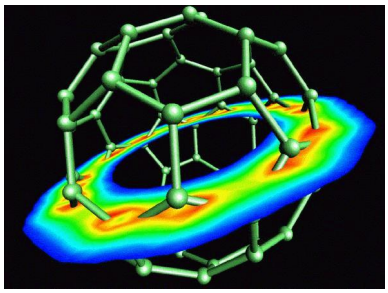


Figure 3: Bucky Ball (C60)

Possible applications of interest to industry include optical devices; chemical sensors and chemical separation devices; production of diamonds and carbides as cutting tools or hardening agents; batteries and other electrochemical applications, including hydrogen storage media; drug delivery systems and other medical applications; polymers, such as new plastics; and catalysts.

Nanocrystals

Nanocrystals is a wide range of composites manufactured at the nanoscale with unseen and spectacular properties. Example: Metal Nanocrystals might be incorporated into car bumpers, making the parts stronger, or into aluminum, making it more wear resistant. Metal nano crystals might be used to produce bearings that last longer than their conventional counterparts, new types of sensors and components for computers and electronic hardware. Another major application of nano crystals is quantum dots - semiconductor whose electrons are confined in all three spatial dimensions. As a result, they have properties that are between those of bulk semiconductors and those of discrete molecules.

Nanofilms

Different nanoscale materials can be used in thin films to make them water-repellent, anti-reflective, self-cleaning, ultraviolet or infrared-resistant, antifog, anti-microbial, scratch-resistant, or electrically conductive. Nanofilms are used now on eyeglasses, computer displays, and cameras to protect or treat the surfaces.

Nanowires

A nanowire is a wire of diameter of the order of a nanometer (10−9 meters). Alternatively, nanowires can be defined as structures that have a lateral size constrained to tens of nanometers or less and an unconstrained longitudinal size.

At these scales, quantum mechanical effects are important — hence such wires are also known as "quantum wires". Many different types of nanowires exist, including metallic (e.g., Ni, Pt, Au), semiconducting (e.g., Si, InP, GaN, etc.), and insulating (e.g., SiO_2, TiO_2).

Such nanowires can be used to remove constrictions in blood vessels and can also be guided by these blood vessels to specific sites to stimulate the neurons.

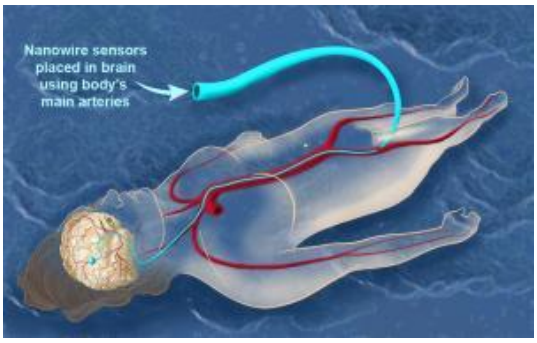


Figure 4: Potential use of nano wires

This technique can be used to cure many neural diseases like Parkinson's disease.

Nanoscale structures

Dendrimers are a type of nanostructure that can be precisely designed and manufactured for a wide variety of applications, including treatment of cancer and other diseases.

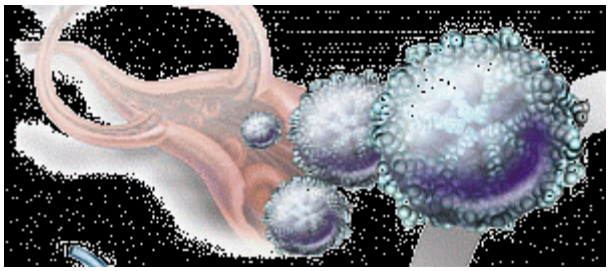


Figure 5: Dendrimers (nanostructures)

Dendrimers carrying different materials on their branches can do several things at one time, such as recognizing diseased cells, diagnosing disease states (including cell death), drug delivery, reporting location, and reporting outcomes of therapy.

The list of applications is endless. Nanotechnology has provided researchers with innumerable materials and devices that have spell bounding properties and applications.
This is just the beginning of the nanotech era and we are already seeing our world taking an entirely new shape. If this is the present then what does the future behold?

Future will be… Futuristic!

At present, most of the products of nanotechnology are not in commercial use. They are confined in the walls of research laboratories as scientists are still trying to figure out the impact of such substances on society and environment. When talking about the future and impact of products of nanotechnology, it is of utmost importance to figure out the kind of nanotechnology we are considering.

Study of the future of nanotechnology is carried out in three main classes – incremental nanotechnology, evolutionary nanotechnology and radical nanotechnology.

Incremental nanotechnology involves searching applications of already known substances. It gives less stress on discovery of new materials but gives more importance to innovative and proper usage of already known materials. Evolutionary nanotechnology, on the other hand, focuses on evolution of technology and its products. Its goal is to improve today's technology for tomorrow's betterment. For instance, speed of computers is being increased ten or even hundred folds with new logic circuits resulting from nanotechnology.

Such high speed computers will further aid in research and simulations of future technologies.

But the aspect of nanotechnology that must be taken care of is its radical nature. Radical nanotechnology is inspired from Drexler's vision of self replicating and evolving nano-machines. He had envisaged a 'grey goo' scenario where nano machines and nano bots are everywhere and threaten to replace the supremacy of humans on earth.

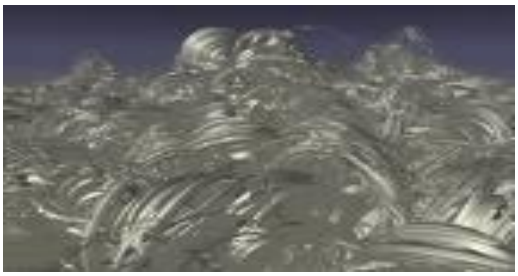


Figure 6: Drexler's Grey Goo scenario

All this is too ubiquitous, but its subtle form can be a part of our future. Research is already at high pace for making such nano machines but providing them with consciousness and making them capable to evolve is a hot topic of discussion in scientific community. Many scientists are predicting occurrence of a singularity in near future that will represent transfer of human consciousness to computers, where humans can live forever in digitized form in infinite virtual space.

Whether all these predictions will come true or they'll remain visions, is something to look out for. But whichever case forms our future; our lives will be revolutionized in big way by technology of small things. Hence, it won't be wrong to say that the next BIG thing is going to be really small!!!

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CHIPS & COFFEE

Multithreading in C/C++

U. Vineeli

One of the misnomers in the minds of many programmers is that the knowledge of more programming languages makes them a better programmer...but this thirst seldom leaves many still wandering in the novice programmer's zone. The day when a programmer's thinking perspective changes to incorporate multithreading in her program (when other counter intuitive ways don't work!) is the day she matures from a beginner to a rookie.

With chip multiprocessing and advances in VLSI integration, hardware support for multithreading is much more discernible than the software support.

This article uses the multiprogramming functionalities of Windows 32 Application Programming Interface that is exploited by C++. To implement the code snippets, you would need a Windows OS and a Visual C++ compiler.

A thread is a single dispatchable stream of instructions representing a logical unit and multi threading is the concurrent execution of different threads. C++ doesn't provide a built in support for multithreading as compared to Java and other programming languages. One reason is that C++ was developed to use for a range of applications and not just for efficient GUI based environment. In Java, there is a layer between your program and the OS hampering the process as an overhead. This is unacceptable in some real time applications. Adept C++ interfaces directly with the OS. A range of synchronization objects like mutex, critical section, semaphores are provided by Win32. This means you don't have any kind of restriction when it comes to synchronization. So, its low functionality facilitates high performance!

Before going into the details, you should know these prerequisites: What is multithreading? Is my application in need of a concurrent program design scheme or it could do with single threading?

The Darker Side

Multithreading can be both useful and nerve racking. The clear advantage of multithreading can be exploited only when it is implemented carefully and in the right situation. A right situation is when you want to increase the program's responsiveness by doing work apart from the user interface. While extracting information from a database, an unresponsive interface may make the end user impatient. Simultaneously, another thread could be processed for handling other events. For a rookie, whether to use a serial or a concurrent variation can be as daunting as making a choice between iterative approach and a recursive approach for a beginner.

But, it would be a pity to use your fancy CPU like an 8086 by sticking to single threading (Single thread? All programs start with the Main thread!) .

Programs that spend a lot of time waiting for events involving I/O operations are the most common examples of implementation. As, C++ doesn't provide an implicit garbage collector (Java does!), a garbage collector thread can be processed in the background. Multithreading is an optimal solution when the performance gained by achieving concurrency in tasks outshines performance lose in context switching of the threads. When your program is run on a multiprocessor environment, a distinct difference is visible. Multiple threads can run on multiple processors. But, in a single processor system, multithreading is virtual. Time slots are given to threads and threads are processed according to priority levels. Every time a thread is created, memory is consumed to hold the thread context information. This poses two problems: the number of threads you can create is limited by the memory and runtime overheads are involved in creating and destroying threads. A good option would be to use as minimum threads as possible.

Another dark side of threads is their unpredictable nature. The precise order of their execution is undetermined. Threads have separate stack area but share the heap. Same heap would mean same address space. This makes them complex. Improper usage of two threads using the same resources (open files, semaphores, dynamically allocated memory) results in data corruption or deadlocks or race conditions. Designing and debugging threading bugs involves resolving their concurrency problems. Proper synchronization plays a prime role in ensuring desired output (Should I use mutex or semaphore? What about critical section?). Play safe.

Sample Program:

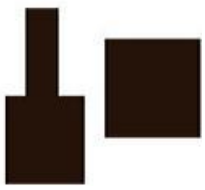
Creating Threads under Windows

The following program shows implementation of two threads – main() and second().

The threads are unsynchronized. _beginthread() function is used to create the second thread. In case, you want to set a C++ member function as thread entry function, you can use _beginthreadex(). Please, look for the prototypes of _beginthread(), beginthreadex(), WaitForSingleObject(), Sleep() in Help before you start with the code.

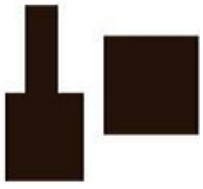
I have used Visual Studio 2005 for generating this code. So, the steps involved are...

- Open a **Win32 Console Program** from Visual C++ .NET 2005's **New Project Wizard**
- Then "Add a New item" which is a C++ source file (*.CPP* file) which holds this code



```
#include <windows.h>    // to use Win32 API
#include <conio.h>                  // header file for getch()
#include <process.h>    // header file for _beginthread()

void  second( void * );  // function prototype

int main()
{
   // The program begins with the main thread as all programs

   printf( "Hello! We are processing the main() function \n" );

   // Now, we move on to creating another thread - second() using _beginthread()
          // main() is creating second() but that doesn't mean that main() owns second()
          // Both, main() and second() are part of the process BUT when main() ends the process terminates


   _beginthread( second, 0, (void*)5 );

   // Whoopie! Now we have two threads
   second( (void*)0 );

          // The main() thread has called the second thread
   Sleep( 100 );
          // Try the program without sleep()
          getch();
}

void  second( void *arg )
{
          printf("Second function...");
   printf( "The second() function has %d\n", (INT_PTR)arg ) ;
}
```

- Select "Project" from the main Visual C++ menu and then select "Properties" . In the left hand column of this dialog, you will see "Configuration Properties", with labeled "C/C++", "Linker", etc. Select "C/C++". Then select "Code Generation". In "Runtime Library" ensure that the option is Multi-threaded Debug (/MTd)



In case, you don't want to the other threads to terminate when main() terminates, you can use the WaitForSingleObject() function.

The output of the above program varies because the threads are not synchronized. You can see the difference between the two outputs.

```
Hello! We are processing the main() function
Second function...Second function...The second() function has 5
The second() function has 0
```

```
Hello! We are processing the main() function
Second function...The second() function has 0
Second function...The second() function has 5
```

With this tutorial accomplished, you can now move on to learn more. Start with the prototypes of _endthreadex(), SuspendThread(), ResumeThread(), CreateMutex() functions. The references would be useful in creating more applications.

Links:

http://condor.depaul.edu/~dmumaugh/readings/handouts/CSC343/threadfuncs.html

http://msdn.microsoft.com/en-us/library/esszf9hw.aspx

Reference:

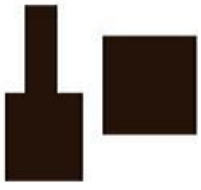
The Art of C++ by Herbert Schildt

Published by McGraw-Hill Professional, 2004

ISBN 0072255129, 9780072255126

http://www.codeproject.com/KB/threads/MultithreadingTutorial.aspx

http://msdn.microsoft.com/en-us/library/y6h8hye8(VS.80).aspx



GREEN BEANS

Before dawn goes down to day…

Somya Gupta, Kamakshi Sharma

Mark opened his history book to the chapter on Australian civilization "Ugh! Why do we have to read about these civilizations that don't even exist!" he grumbled. "Oh, yeah earth has two major landmasses- the Americanos and Eurasia the rest is tiny islands! Ms. Smith told us today in class" chipped in Sanya, Mark's 10 year old sister. "Go out and chat with your friends, don't bug me!" growled mark. She shrugged and hopped into her protection ball.

"Sanya! Did you switch on the UV protectors? Switch on the coolers too… and don't forget to switch on the germ-shield. We don't want to go to the hospital again!" said Nina, their mother. Inside her protection ball, Sanya switched on all the buttons dutifully. "Mom I am totally safe from all kind of disasters now, am I qualified to go out now?" she said.

"Don't chat too long, come back soon" "Yes Mom…." said Sanya as she left their one bedroom apartment.

"Mark, take your lunch pills and have greens today, take them right now, before you forget!" Nina said.

"Mom, why can't I take them with water like Sanya? It's so hard to gulp these pills just like that." Mark made a face before swallowing the green and wheat colored pills.

"Don't be a kid about it Mark. You know there is no water to spare, and it's expensive. So conserve it. And don't make me repeat these instructions, everyday!" said Nina. "Mom, father's been invited to the President's ball next month. Do we get to eat real food there…?" "You bet! Even I'm looking forward to that day," Nina smiled.

Wondering where all this comes from? Don't be. This may very well be the reality a hundred years from now if we don't curb "it". None of us would survive to see such days, but some of us may survive to see an even tougher phase- the transition.

"The monsoon has arrived early this year" "It's not been as cold as last year; we had to cancel our trip to X Land because there was practically no snowfall this time!" "Oh, it's so hot today! I feel encapsulated and suffocated"

Don't these phrases sound familiar? The rise in viral infections, the unpredictability of weather, the rise in extremes of temperatures, the sudden absence of sparrows are things we all saw happen in front of our eyes. We have known better days. What we are facing today is the Phase-1 of the transition that will unfold gradually. Believe me; it only gets tougher from here.

Here is Global Warming in a nutshell as researchers all over the planet have discovered…

Rise in Sea Level

There is an increase in mean earth surface temperature and thus melting of polar ice. There are frequent melt down of glaciers that result in floods and other natural calamities. Further increase in temperature may further melt the ice and lead to further increase in mean sea level, which will engulf low lying countries.

Extinction

There is shift in season cycle, as the summers are getting longer than the winters. This has affected the animals and made them to change their lifestyle accordingly, and those who failed to do so have perished or are on the verge of extinction.

Germ Yield

Introduction of some new diseases is expected. The bacteria are more effective and multiply much faster in warmer temperatures compared to cold temperatures. The increase in temperature has led to increase in the microbes that cause diseases.

Fall in Crop Production

Even a 1 degree Celsius rise in surface temperatures will see the nation's wheat production drop by 4-5 million tonnes. Small changes in temperature and rainfall are to impact quality of fruits, vegetables, medicinal plants and rice.

Extremes of Climate

The earth's atmosphere is getting more unpredictable with heavy rains in the areas, which have scanty rainfall or drought in the areas, which received good annual rainfall. The months of rainfall has also getting affected.

Human Health

Over the long term there is likely to be an increase in the spread of certain diseases; air pollution is likely to get worse and its associated ill-health effects exacerbated. Changes in the climate may see a surge and spread of mosquito-related diseases, including malaria, into newer areas.

These threats are indeed very perturbing and we are the malefactors!

"Hold on, behold, we aren't any "malefactors", we haven't been convicted of any crime, and more importantly, we haven't done anything! Global warming is because of the carbon emissions, green house gases, and large scale burning of fossil fuels, aerosols, chemical contamination, etc. etc. how does a common man like us do all that? The big industries are responsible for it. They release huge amounts of carbon dioxide, aerosols in the air, pollute water and land too. Go blame them.

And get us some good news please, like the XYZ murder case; AB marries AR and something like that. Global warming is too scientific a topic, it's not even been politicized and besides, little Johnny's debate topics at school are no more about ozone and environment, its passé!"

Those of us who think on these lines know they are lying to themselves.

Agreed that the major contributors to the carbon emissions are the industries, but that doesn't give us the liberty to adopt an indifferent attitude towards all this, to conveniently blame the government whilst enjoying all the luxuries at our homes.

For years we have heard so much about the causes of climate change, that we've missed the fact that there are simple, practical solutions that can slow this growing problem. Technologies that exist today can cut emissions of heat-trapping gases and make a real difference in the health of our planet. These practical solutions are very easy to implement and they don't eat up our oh-so-important-time in any way.

Here are 10 simple ways to make a difference:

Magic Bulb

Use energy efficient bulbs and appliances. Using Compact fluorescent (CFL) light bulbs instead of tube lights is a big contribution. And here is the good news, these lamps are cheaper than the tube lights we currently use.

Turn Them Off!

Switch off computers when not in use: Drop the lazy attitude of not turning off computer while you are busy having dinner or chatting on phone.

The Natural Light

Turn off lights/fans when you leave the room and no one is inside. That light is waste of electricity and contributes to global warming. Save electricity and reduce your own bill. Use the natural light of the sun wherever possible.

Walk!

Take your car only if it is absolutely needed. Walk, if it is a short distance. Take public transport, if it is convenient. Use car pools to office or other such places. Again a means to save money, stay fit (walking) and conserve energy.

Reduce, Reuse, Recycle

Buy recycled items as much as possible. Use paper bags. Revive the "Say no to poly-bags" drive you once were so passionate about in school.

Each One Teach One

Enlighten at least one soul about the ill effects of global warming. Tell it to your little brother, elder sister, mother, father, friend, neighbor or whoever you think would listen.

Blog About It

Take sometime out of your busy-orkutting-schedule to blog about issues which matter. It's got its own benefits too

Minimize the Use of Air Conditioners

Stop having the can't-do-without-an-air conditioner attitude. Use fans and coolers as much as you can.

Plant a Tree

Adopt a tree and take care of it. Gift a tree to your younger brother or sister and tell them about the positives of adopting a tree. You'll be surprised to see how enthusiastic they get about it.

Divide Your Waste

Use two dustbins instead of one. Put biodegradable waste in one and non-biodegradable in the other. Look for a recycling plant in your city and make it a point to dump your biodegradable waste there and not along with the non-biodegradable one.

Did that ring a bell? Do you really want to do something about global warming? Do you want to create a movement to spread awareness? If yes, then what better place is there to start than in the college! Let us create an Environment Club in IGIT. Those interested can send in their e-mails to igite.journalist@gmail.com giving in their ideas on how to start. Those who give good ideas and have the zeal to actually do something for the society will see their names in this section, next edition!

So keep your think tanks rolling!

And yes, before the dawn goes down to day, Go Green, Go Clean, Go Eco-friendly!

COFFEE BYTES

PC Fully Loaded!

Tips & Tricks to Create the Perfect Digital Fortress

(Read every bit of the title and the content to avoid long

dark nights reviving your 'compu')

I have been using computers for a good seven years now. I have seen them crash more often than I have fallen sick. I've been through the great family wars where no one would talk for days, where dad was on the verge of giving me a good thrashing courtesy: viruses.

Computers make life easy when they work and hell when they go berserk. Along the way, from being a complete fool to a partial one, I have discovered some rules which you may find useful. They might all be there on the net but you might have to spend quite a lot of time getting to them. And some of the tips can be useless if not outright dangerous! So, here's what I've learnt over the years…

The Basics

Usually you have no control over a virus when it starts spreading, but there are times when you can opt not to let it spread. You can do this by choosing not to click on an exe file/folder. A virus is at times an exe file that'll spread when you click on it. You can check the extension of a file either by checking its properties (right click and select properties) or by configuring your start menu to the details view. To configure your start menu to details view click on "Views" button which appears as the last option in the taskbar between the menu bar and address bar in the explorer, from the drop down list that appears select "Details" view. The details view allows you to see the extensions of the files on your system.

The virus (exe file) may not always be visible, so for each drive repeat these steps:

1. Right click on “start” in the taskbar at the bottom of your screen. Click on “Explore” choose a drive say ‘C:’ from the explorer menu.

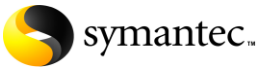
2. From the menu bar, select tools and go to Folder Options.

3. Go to the “View” tab and select “Show hidden files and folders” from the radio buttons that appear in the folder options window.

Repeat this for all the drives on your system. Now, if there is a virus you maybe able to see it and subsequently delete it.

It is advisable to access the drives by right dicking on start i.e. through the explorer instead of double clicking on drives in My Computer. A virus sometimes mimics drive letters – so when you double click on C: or D: or E:, you might actually be launching a virus attack through My Computer. The AMVO virus is a typical case. Even within the explorer prefer accessing files through the left hand side i.e. through the tree structure, it’s safer since you need to click it only once.

Anti Virus



Never leave your computer without an antivirus program. The minute you attach your computer to the internet or use CDs, USB’s, you are vulnerable. The good news is that their rates have dropped from 7000 or so (a few years ago) to Rs. 400 - 800.

So which One is the best?

I have tried Mc Afee, Avast, Norton Client Security, Nodd 32 and AVG. I have found Norton to be the best. Avast as a free ware is good but due to its limited range sometimes, it cannot detect viruses that are common these days. It may be good for those who don’t use a USB drive or exchange files with people.

Category A of antivirus software has Norton, McAfee and Trend Micro. Category B has Kaspersky, Avast, Nodd32 etc. Category A softwares are popular irrespective of countries and region. Category B might have software presence according to popularity.

Keep Updating!

Most of the antivirus software providers keep updating there database so as to fight more and more viruses. So, it is necessary to update the antivirus programs installed on the computer frequently.

That's a first…!

There was this one time when avast failed to detect a virus during a custom scan and as a result the virus piggy backed on the antivirus and infected almost every file it 'scanned', as a result my entire system got corrupt during the scan! That's h ow I realized an antivirus can actually be dangerous! So always use a good antivirus and more importantly- keep updating it!

Prefer deep scanning

Generally fast antivirus programs compromise on deep scanning. A slow antivirus like Norton carries out a deep scan but consumes resources. Though this rule usually applies it may not be true always.

Carry out periodic 'full scan'/ 'system scans' and for them to be more effective, run them in Windows Safe Mode. In this manner, many of the drivers on which these viruses ride, do not get loaded.

Anti Spyware & Fire wall

Why should you have one?

You must have an Antispyware installed on your computer. An antivirus program is good at detecting viruses while antispyware programs are good at spotting spyware. No program will have best of both.

These days more than viruses, spyware are rampant and antivirus programs are not good at detecting them. Spy programs slow down your computer because before you try to connect with the internet, they do. Why? To keep track of your computer activities and steal information like passwords etc. which they diligently report to the IP addresses that sent them to you. Webroot, Spydoctor, Lavasoft, Trend Mico Anti-Spyware are the best in antispyware programs.

So which one?

Webroot spy sweeper tops the list of best spyware's but it costs around 29-30 dollars so Lavasoft's Ad-Aware SE seems to be the current favorite. As a freeware it's quite good, it can easily be downloaded from www.lavasoft.com.

I've been using Spyware Doctor Antispyware for the past five or six months and I've found no reason to complain. It's bliss really, it takes around five minutes to scan your computer and automatically cleans the useless programs in memory, cookies, browsing history etc. I still remember the first time I scanned my system with it- it cleaned two Trojans which improved my computer speed remarkably!

Firewalls and all you need to know about them

Since by connecting to the internet you are virtually connected to every other machine that uses the internet it becomes necessary to use a firewall. A firewall is a means to protect the computer network from viruses, worms and hacking. A good firewall prevents the network traffic from passing between the internet and the internal network. Zone Alarm is best among the available free Firewalls.

While a firewall is certainly a great means to ensure security at times it can be quite a headache! The problem with firewalls is the need to change the defaults and answering the endless prompts the minute you want to carry out even the most basic actions. Plus the fact that they seem to slow down the speed of the computer is certainly frustrating, but putting up with all that will go a long way in ensuring security!

I have been using Symantec client firewall and surprisingly it's not a headache. Go ahead try it!

Site Advisors!

Immediately install Site Advisor from McAfee. This is free and indicates which sites are to be avoided by giving a red warning mark. When you Google for information you will be surprised to see how many sites which you would otherwise have visited blindly are marked as dangerous; dangerous because they can install spyware or virus on your machine by simply clicking on them.

Downloading

Beware this is how the worst virus creeps in!

Download freeware programs only from their parent companies or trusted sites (a Site advisor such as McAfee will be helpful here). Many sites 'offer' these free programs with a virus binding.

Remember there are no free lunches. Music, movie sites, free antivirus, antispyware from Bit Torrents or Azuerus and freeware from software sites (free software) all of these might contain hidden spyware and viruses. These sites earn money by selling information of your internet usage to other companies who in turn target their mails to you. Some of these sites may have hackers who can easily take information from your computer – bank account, credit cards, passwords etc.

How do you know it's a virus?

What should you do?

If your computer suddenly goes slow, takes too long to boot, refuses to open files on your system or keeps sending error messages that you don't understand then most probably there is a virus infection. Your virus scanner may not show it because it might be infected. This is the time to immediately back up all the data on your computer. If the infection spreads, you might lose your data completely. After taking the backup of your important files, scan your computer. If it does not show any virus then scan your computer with some antivirus program other than the one currently installed on your computer, borrow one from a friend if need be, I usually keep alternate antivirus programs on a CD for situations like these.

Once in 2 months go to Bit Defender site and run a free online scan to double check your system is not affected. The downside is that it takes about 3 hours to do its job and remove viruses. Run it and go to sleep before a holiday.

Check it out at: http://kb.bitdefender.com/scan8/ie.html

Did You Know?

Shortcut Keys You Create!

You can setup your own shortcut keys to open the most commonly used programs such as Word, Adobe and so on. This is how you proceed:

1. Go to the Start Menu move the cursor to the program whose shortcut you wish to create, say Microsoft Word.
2. Right click on it and choose “Properties” select the “Shortcut” tab in the Properties window.
3. Left click on the textbox that appears along the heading “Shortcut Key”.
4. Now, one after the other press Ctrl +Alt + W. Ctrl+Alt is essential the letter can be of your choice.
5. Press “ok” and go ahead try it out!

Must Buy

For those of you who still go behind the CPU to attach their pendrives, here is a solution. Buy a USB splitter. A USB splitter will reach your desk and what’s more you can access 4 pendrives at one go!, provided you opt for a four way splitter. A 4 way splitter costs around 40 bucks and is available at every computer hardware store.

Quick Tips

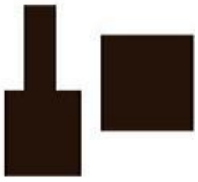
- Avoid cable guys for internet connections – they are cheap because they are painfully slow and they deliver headaches, line faults and yes VIRUSES! Remember as a student time is a resource you cannot waste. An Airtel connection might take 2 minutes for the same file that a cable connection downloads in 15.
- No antivirus program can help you if you double click on an exe file without checking it. You might be lucky once or twice but not always. Your computer security will be compromised for sure, unless you scan the file for a virus and spyware before you run it.
- Online movie sites, free music downloads might be exciting but are a definite breeding ground for viruses and spyware. Avoid them like you would a bad locality on a dark night!
- Do not accept files on chat. There's no way you can check them and you will be infected before you count 3. Use only Emails because your browser, antispywae, antivirus will get an opportunity to do their jobs.
- Never connect to the internet without the latest version of the web bowser you are using. Web browsers are frequently upgraded to block the chinks in their security.
- Any computer repair guy who suggests formatting drives as his first initiative to computer repairing doesn't know much about computers, discard him quickly. Most computer problems can be solved if identified.
- Never trust your friend, mother or even brother when it comes to exchanging files (Ahh!) Any one can have virus on them, even if they claim to be computer-wise. Check, check and recheck, USBs, CDs at least once before you exchange any files.
- If your computer problems are repetitive in nature then your software CDs might be infected. Check all of them at a different computer before you load programs from them.
- If your computer boots and runs but is slow, don't discard it if your computer vendor says it is outdated. It most probably has a virus, chip set file that is missing, a corrupt display driver or a small problem that can be removed. Most of us don't need high ended machines as we work on lightweight softwares like word etc.
- No need to be scared of the computer or internet. It is meant to be used, so use it freely, without fear. Take precautions but don't get paranoid. And if your computer dies, it can always be brought back to life! That's one thing I love about computers!
- Cheers!

PS: Stay tuned for

- A foolproof method to handle USB's, you'll never get a virus from a USB again and that's a guarantee!
- Tips to improve your processor speed and more…

Alright then see ya amigas same place same time next issue!

Till then stay connected, stay safe!



CAFÉ STREET

Another Apple out of Garden of Eden?

IEEE Membership and Web Team Chairperson, Student Creative Editor

Work culture has changed many faces in the 60 years of independent India. Change is necessary, definitely but this direction that we're headed in - led by Globalization, is it changing the most integral part of Indian culture?

Economic aspect

In the India of 50s & 60s our economy being labor intensive; nature of jobs mainly depended upon primary forces, there weren't many opportunities and people thus would stick to their organizations. While limited skills were demanded loyalty used to be a mutual agreement. Once employed a worker would remain with his organization for life. Sounds unrealistic? There is more: back then there was no concept of retrenchment!

The turning point came in early 90s. 1992, when liberalization took place and India opened to foreign markets, more and more opportunities made job shifts easy. Employees started experimenting and trying new avenues, which encouraged them to develop multiple skills.

Another important shift in the economy was in the market driving forces. Before liberalization took place, it was a suppliers' market that was true even in the job market. Post liberalization, with new skills in the industry, new industries coming up; it has now become a buyers' market. The power equation has shifted in the favour of employees.

Today with the result of a globalized world market and India as a part of it, all players- local, national and foreign want a slice of the same pie.

Financial aspect

Over the decades as dollar devalued and rupee became stronger, employers found it easy to throw money to rope in talent but with high paying packages come high stake targets. Employment today is mainly project based and project dependent. Sustaining company sales isn't good enough, a 15 % growth over last year or you lose your job. Employees are no more trusted to do a job well simply because of their desire and dedication. It's hard to tell which side of the loyalty equation faltered first.

In the past one-decade with India Inc on full throttle, the BPOs and KPOs mushrooming all over, employees have been introduced to the American culture. These MNCs are actually a mini America; following American culture, HR practices and financial policies. American business model has always been profit oriented (popularly understood as the hire & fire policy).The question is 'if the organizations are not loyal to their employees, how can it be expected of employees?'

Behavioral & Psychological aspect

India is now a developing country and on its way to become a super power. It is on the global map where all buying decisions are instant; instant coffee, instant food, instant jobs. The mindset is prevalent everywhere.

Today the purchasing power is in the hands of 18-25 yr olds, it is the age of youth brigade and when have the young been loyal? Whether job, brand of cola or relationships, with the power in their hands no different can be expected. It wasn't long ago that students would finish their post graduations and then too had to struggle their way up to their goals. Today before you step out as a graduate, lucrative jobs are lined up and with present job packages true goals blur in the background as money power rules our minds.

Loyalty. What does it mean for you? Now you are a part of the youth brigade. Is this how you feel about personal growth too?

Digital Homicide

Minoti Singh, CSE 3rd Year

Mention crime, and we think of robberies, murders and detectives examining the scene; however there is another kind of crime called cyber crime. Instances like hack attacks, cyber fraud, phishing, identity and data theft, all account as cyber crime. Their effects have the potential to disrupt life. Just imagine, if Indian Railway's ticket reservation system were to go down even for a day? In fact, a survey in UK concluded that people were more scared of their accounts being hacked or credit card details stolen over the internet, than they were of muggings and robberies.

Before we proceed, we need to know what cyber crime actually is.

The United Nations defines cyber crime as "illegal electronic operations that target the security of computer systems and data processed by them, or illegal behaviour that uses computers and networks."

One of the first questions that come to the curious mind is what is hacking?

Unauthorized attempts to bypass the security mechanisms of an information system or network is basically known as hacking.

What is the difference between a hacker and a cracker?

- A hacker is a person intensely interested in the arcane and recondite workings of any computer operating system. Most often, hackers are programmers. As such, hackers obtain advanced knowledge of operating systems and programming languages. They may know of holes within systems and the reasons for such holes. Hackers constantly seek further knowledge, freely share what they have discovered, and never, ever intentionally damage data.
- A cracker is a person who breaks into or otherwise violates the system integrity of remote machines, with malicious intent. Crackers, having gained unauthorized access, destroy vital data, deny legitimate users service, or basically cause problems for their targets. Crackers can easily be identified because their actions are malicious.

How did all this start?

It started with telephone technology. Originally, a handful of kids across the nation were cracking the telephone system. This practice was referred to as phreaking. Phreaking is now recognized as any act by which to circumvent the security of the telephone company. Telephone phreaks employed different methods to accomplish this task. Having made these modifications, they programmed in the sounds of quarters being inserted into a pay telephone. From there, the remaining steps were simple. Phreaks went to a pay telephone and dialed a number. The telephone would request payment for the call. In response, the phreak would use the red box to emulate money being inserted into the machine. This resulted in obtaining free telephone service at most pay telephones.

Phishing is the criminally fraudulent process of attempting to acquire sensitive information such as usernames, passwords and credit card details, by masquerading trustworthy entity in an electronic communication. Phishing is typically carried out by e-mail or instant messagins, and it often directs users to enter details at a website.

Now we'll examine the average toolbox of hacker or cracker. Here comes some of the internet weapons.

Scanner-In Internet security, no hacking tool is more celebrated than the scanner. It is said that a good TCP port scanner is worth a thousand user passwords. A scanner is a program that automatically detects security weaknesses in a remote or local host. By deploying a scanner, a user in India can uncover security weaknesses on a server in Japan without ever leaving his or her living room.

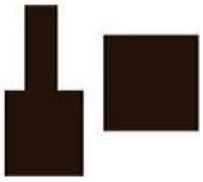
Password cracker-A password cracker is any program that can decrypt passwords or otherwise disable password protection. A password cracker need not decrypt anything. A more precise way to explain this is as follows: encrypted passwords cannot be decrypted. Most modern, technical encryption processes are now one-way (that is, there is no process to be executed in reverse that will reveal the password in plain text).Instead, simulation tools are used, utilizing the same algorithm as the original password program. Through a comparative analysis, these tools try to match encrypted versions of the password to the original.

Trojan-A Trojan horse is an unauthorized program contained within a legitimate program. This unauthorized program performs functions unknown (and probably unwanted) by the user. The unauthorized functions that the trojan performs may sometimes qualify it as another type of malicious device as well. For example, certain viruses fit into this category. Such a virus can be concealed within an otherwise useful program. When this occurs, the program can be correctly referred to as both a trojan and a virus.

Sniffers-A sniffer is any device, whether software or hardware, that grabs information traveling along a network. That network could be running any protocol: Ethernet, TCP/IP, IPX, or others (or any combination of these). The purpose of the sniffer to place the network interface into promiscuous mode (where all workstations on a network listen to all traffic, not simply their own) and by doing so, to capture all network traffic. Now this is all about the internet weapons.

So, what is our country is doing to prevent cyber crime?

In India, the primary statute is the IT Act 2000, although some sections if other laws like the Indian Penal Code can be applied to digital crime. However, the government and private sector have done their bit in trying to educate police and judiciary in new paradigms and technologies. NASSCOM has four cyber labs across the country, and is involved in a govt. project to train state police departments in state-of-the-art digital investigation techniques.



INSTANT COFFEE

The IGIT Sorting Hat!!

Sincerely,
Your aide de novice de carrière!

From TNP cell tnpcollege@gmail.com *hide details*

To <.....>

Dear students,

Please note the following points for Company placement procedure on March 25, 2008:

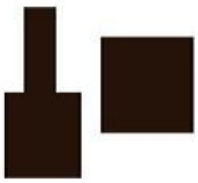
All students have to report at 8.30 AM after noting down their USER ID from the notice board .....

The browser window was closed, the computer put on stand-by and she picked up a huge volume on C/C++, turned ten pages, shut it with a bang, and picked up the red book on Operating Systems, turned the cover and then snapped it shut... Suddenly she broke into tears holding her head in her hands shaking vigorously, and finally after 15 minutes of bawling, picked up her phone and put through a call to her classmate to discuss nothing other than her source of grief: namely the aforementioned e-mail!

That's your average third-year-transit-fourth-year student in engineering hyper-reacting in the average way to placement news! As each company comes, sieves out suitably qualified candidates and leaves behind a train of heart-broken students, the batch starts to look affected by the jilted sweetheart syndrome! They stop eating, they cry over the companies gone by, and mourn their inability to grab a job that pays minimum professional wages and has nothing to do with their intellect at all. If nothing else, they cry over their lack of preparation for the upcoming company entrances, like our protagonist before!

To be honest, although I'm not expert enough to be judgmental here, the onslaught of mass recruiters looking for trainees get more attention from the student community than they deserve. The 9-5 pathetic desktop testing and integrating schedule six days a week is not what we're qualified for, or at least they're not fun jobs. It's easy to get bored and bail out of professionalism stuck in outdated detrimental *san*-original creativity.

Which is why the average (mostly disheartened) "not yet placed" category people (which thank god! Includes me) should read this column regularly, as should the "I'm placed, I'm better" type of folks and those who're anticipating the placement seasons in the years to come with bated breath...!!



I'm going to bring to you some of the weirdest and most exciting computer and electronic jobs on this column…and you know what?

The IGIT Sorting Hat I have is going to help me guide you to the right corporate house, except there's a problem….

My sorting Hat which usually tells me how to guide you has suddenly clammed up, and refuses to cooperate, unlike its cousin at Hogwarts. Mine, unfortunately cannot tell you what career house to choose unless it hears your choices and wishes… warped hat it is!! But if you really want to know more about jobs and careers, all you have to do is log in to our Live Tech!! at www.igitieee.com and talk to the edit board member about what careers you want to know more about, or e-mail what you think the next issue should talk about in this column to igite.journalist@gmail.com.

Then, my sorting hat promises, it will speak and help me guide you to your dream job!

Waiting breathlessly for your opinion on Live Tech!! …