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KNOW THE TRENDS OF YOUR DOMAIN



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It is very important to know the pulse of one's own domain. It is all the more important in Information Technology where the fast pace of conceptual and technological changes necessitate need for continuous and close tracking to keep us up to date and not to become obsolete.

To update the trends in industry, we have to read technical/business magazines, trade publications, visit websites, use search engines and other sources. Once we regularly start doing these things, we will be in a position to predict what is in store for the future or what areas are going to give maximum potential for growth or which area is giving more employment or which should be the career direction or where we have more scope for technical advancement and scope for research. By developing a passion for understanding the pulse of our field we will get many insights that will help in identifying our interest and areas to focus on.

If you have already developed this passion, you might know the following trends that are going to revolutionize IT.

- Windows OS is about to lose its prominence to web based OS like CHROME OS
- Notebook is losing and Net-book is gaining
- Cloud computing will change the way we use PCs and Servers
- Mobile phones became a convergence platform

Knowing the industrial trends can help you in following ways

To exploit the opportunities as an Entrepreneur

To be a service provider of emerging technologies

A knowledgeable / informed person in your field or a subject expert/consultant to decide your career direction.





YXE TROJAN

The Yxe Trojan is a new trojan, the first of its kind, is affecting users of the Symbian mobile operating system by spreading itself via text messages sent to all numbers in the phone's address book. Yxe collects data about the phone and starts automatically when the phone boots. Yxe attempts to terminate the "AppMgr". It also attempts to avoid debugging and terminates the processes of many third party file/process viewing utilities like ActiveFile, TaskMan, TaskSpy and the Y-Tasks.

It will attempt to open an HTTP connection in order to upload the data and keeps the connection open at all times. The domain list to which Yxe attempts to connect is encrypted within the code of Yxe. Once connected it starts writing a log file called mr.log. It creates a sis file named "c:\data\root.sisx". Yxe modifies the file C:\system\data\System.ini. The trojan also downloads fresh message templates, which has caused it to be called a 'mobile botnet' by some researchers. It is not known whether the trojan has any further payload.

These messages contain a link, clicking on which will attempt to install an application Sexy Space, which in fact is a copy of the trojan. Because it has been signed by Symbian, the user will not get a security warning before installing the application. Apart from attempting to spread itself, the trojan, dubbed Yxe, Sexy Space or Sexy View, sends information about the phone to a control center.

Yxe does not utilize a hidden interface. If the App manager is available, Yxe can be removed. Anyway the log file (mr.log) and the SISX file (root.sisx) will not be deleted during uninstallation. SymbOS/Yxe variants are compiled for S60 3rd Edition phones. The installation file will not install on older Symbian phones.

Symbian, which owns almost half of the smartphone OS-market, has admitted it made a mistake in not manually checking the malware. It has revoked the certificates, but the revocation is not immediately distributed to the hundreds of millions of Symbian users

Variants of Trojan:SymbOS/Yxe include:

- Trojan:SymbOS/Yxe.A.
- Trojan:SymbOS/Yxe.B
- Trojan:SymbOS/Yxe.C

While the impact of the trojan is not very big and mainly concerns customers in China and the Middle East, it shows that users of smartphones, many of whom do not have anti-virus software installed, should not consider themselves safe from malware.



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MEMBRANE COMPUTING



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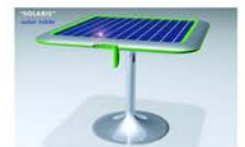
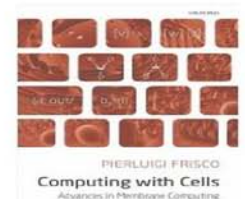
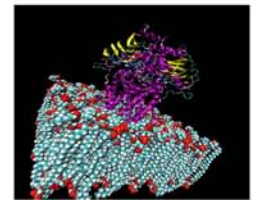
It is a branch of natural computing which investigates computing models abstracted from the structure and functioning of living cells and from their interactions in tissues or higher order biological structures.

Briefly, a membrane system is a distributed computing model processing multisets of objects either in the compartments of a cell-like hierarchical arrangement of membranes (hence a structure of compartments which corresponds to a rooted tree), or in a tissue-like structure consisting of "cells" placed in the nodes of an arbitrary graph. Both the objects of the membranes, the membranes, and the links among them evolve according to some rules. For instance, the multisets of objects evolve mainly by means of rewriting rules, which have the form of usual chemical equations (several objects "react" and get transformed into some product objects). A crucial aspect of this processing is the resulting communication of objects through membranes, between regions of the same cell, between cells, or between cells and their

This research area was initiated recently, at the end of 1998 with the aim of learning ideas, tools, techniques, and models from the biology of the cell that could turn out to be useful (or at least interesting) for the purpose of computing.

The new field has flourished during the last five years. The membrane systems are also called P systems. Many classes of P systems, inspired by either biological or mathematical considerations, were introduced, and their power (in comparison with various classes of Turing machines) and efficiency (the possibility to address/solve computationally hard problems) were extensively investigated. Moreover, especially in recent years, it has turned out that membrane computing has significant potential to be applied to various problems of biology as well as to linguistics, theoretical computer science and applied computer science (computer graphics, cryptography, approximate algorithms for optimization problems).

Applications of the membrane computing, organized in three main categories Biology, Computer science and Linguistics. Before looking at these applications, let us discuss the attractiveness of membrane computing as a modeling framework, with an implicit reference to applications in biology. First, there are several essential features genuinely relevant to membrane computing that are of interest for many applications:





MEMBRANE COMPUTING

- Distribution (with important issues related to system-part interaction and emergent behavior nonlinearly resulting from the composition of local behaviors)
- Discrete mathematics (continuous mathematics, especially systems of differential equations, has a glorious history of applications in many disciplines, such as astronomy, physics, and meteorology, but has failed to prove adequate for linguistics, and cannot cover more than local processes in biology because of the complexity of the processes and, in many cases, because of the imprecise character of the processes; a basic question is whether the biological reality is of continuous or discrete nature, as languages proved to be, with the latter ruling out the usefulness of many tools from continuous mathematics)
- Algorithmicity (by definition, P systems are computability models of the same type as Turing machines or other classic representations of algorithms, and, as a consequence, they can be easily simulated on computers), Scalability/extensibility (this is one of the main difficulties of using differential equations in biology)
- Transparency (multiset rewriting rules are nothing other than reaction equations as customarily used in chemistry and biochemistry, without any "mysterious" notation or "mysterious" behavior)
- Massive parallelism (a dream of computer science, a commonplace in biology) Nondeterminism (let us compare the "program" of a P system, i.e., a set of rules localized in certain regions and without any imposed ordering, with the rigid sequences of instructions of programs written in typical programming languages)
- Communication (with the astonishing and still not completely understood way in which life is coordinating the multitude of processes taking place in cells, tissues, organs, and organisms, in contrast with the costly way of coordinating/synchronizing computations in parallel electronic computing architectures, where the communication time becomes prohibitive with the increase in the number of processors).

Concerning applications reported till now, they are carried out at different levels. In many cases, what is actually used is the language of membrane computing, which involves (at least) three different aspects: (i) the long list of newly formulated concepts, (ii) the mathematical formalism of membrane computing, and (iii) the graphical way to represent membranes, cell-like structures, tissue-like structures, and so on.

Concerning graphical representation, we want to point out that not only the standard features (such as the hierarchical or tissue-like arrangements of membranes, the objects inhabiting the compartments, and the flow of information through communication channels), but also the evolution rules of the systems are part of the graphical representation. This makes visualization of the "evolution engine" transparent. Another level of application is to use tools, techniques, and results obtained through research on membrane computing. These applications may aim at either solving problems already formulated by biologists, albeit informally or within a different model, or suggesting entirely new problems (problem areas) that become (more) transparent and interesting through the insights provided by the model of membrane computing.

The applications to biology in most cases follow a standard scenario. One examines a piece of reality, e.g., from the biochemistry of the cell, one writes a P system modeling the respective processes, one writes a program simulating this P system (or uses one of the existing programs for this purpose), and one performs a large number of experiments with the program (this is much cheaper than conducting laboratory experiments), tuning certain parameters and observing the evolution of the system (usually, following the population of certain objects)

This is quite natural in view of the fact that the theory of membrane systems as a model of computation originated in biology as an abstraction of the structure and functioning of biological membranes. This supports our optimism about the (potential) success of these applications in modeling various aspects of biological reality, and should be contrasted with various models transferred by force" from one area of science to another, where the original model was meant for totally different and incompatible phenomena.





WIRELESS COMMUNICATION AT 60GHZ TO GET MORE BANDWIDTH

The new technology, being used in every field of human life has become indispensable and have been trying to create a room for improvement in the already improved world. The discovery of the use of blue tooth as early as 1990s led to the development of Wi-Fi a public given name for Wireless local area network (WLAN), standardized under the IEEE 802.11 series, the latest of the series is ultra wideband systems.

The most important use of having these technologies is the decreased need of cables and wires to connect electronic equipments, and the increased speed at which transmission can take place. Even with so much speed and bandwidth at hand, scientists are looking for options to utilize even more bandwidth.

Wireless network have had a significant impact on the world as far back as world war II. Cellular phones are part of huge wireless network system people and businesses use wireless networks to send and share data quickly whether it be in a small office building or across the world. Compatibility issue also arise when dealing with wireless network. Different components not made by the same company may not work together, or might require extra work to fix these issues. Wireless network are typically slower than those that are directly connected through an Ethernet cable. A wireless network is more vulnerable, because anyone can try to break into a network broadcasting a signal. Many networks offer WEP- Wired Equivalent Privacy or WPA- Wi-Fi Protected Access. The use of firewalls will help with security branches which can help to fix security problems in some wireless networks that are more vulnerable.

In order to acquire a larger bandwidth, scientists have turned their attention to infra red light. As of now, this new technology is used in electronic equipments requiring remote control, but the situation has changed with the increase in demand of the ultra wideband

system which has led to much research and studies to utilize 60GHz frequency. Wireless HD is another recent technology that operates near the 60 GHz range. They are characterized by highly directional "pencil beam" which permits the system in these bands to be engineered in close proximity to one another without causing any interferences.



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WIRELESS COMMUNICATION AT 60GHZ TO GET MORE BANDWIDTH

In order to materialize this 60ghz wireless communication, study on semiconductors is also in progress. Most of the silicon chips are being replaced by the gallium-arsenide semiconductors. This would be more cost effective and if the designs are successful, the electronic equipments would be working much faster.

In addition to the increased speed and the size of the chips, the antennas also can be decreased, with the help of this new technology. The antennas and transceivers can be put together, as the size of the antennas decrease. This also would lead to the lack of need of cables to transfer the data from the antenna to the chips and from chip to chip which was one of the primary reasons leading to development of wireless communication. Also, the antistatic devices used during assembly to prevent the electrostatic discharge, can be avoided as there are no more open outputs or inputs

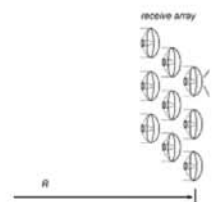
With every new technology, difficulties also appear. The 60GHz wave gets obstructed by any object in its path, it also travels proportionately to the distance between the transmitter and the antenna. This would considerably decrease the power transmitted by the wave, as it reaches the antenna. These bands are extremely prone to atmospheric attenuation, making them of very little use over long distance. In particular, signals in 57-60 GHz region are subjected to a resonance of oxygen molecule and severely attenuated. Even over relatively short distances, rain fade is a serious problem, caused by rain which reduces signal strength

In order to solve these problems high power, multiple transceivers etc have being considered. The use of multiple transceivers is considered a good option, but to make it possible, the design of the transceiver would have to be changed. The transceiver which is used at present might be inadequate to meet the increased demands. And the cost of manufacturing these transceivers also has to be considered. There are bipolar transmitters offering good speed, but at increased cost of production and there are CMOS chips with low speed and low manufacturing cost. Engineers and scientists debating over the use and disadvantages of both these, now aim at improving the CMOS chips.

The use of adaptive antennas is also under evaluation. These would create a beam which would be directly received, considered a solution of the loss of power occurring at the present stage. In this new technology, a lot of emitters are to be used to reduce the loss of power. If this works out, more energy efficient antennas would be manufactured. At the same time, off chip antennas are also under consideration. This would decrease the amount of power lost after it is received at the antenna

Operating the technique might be difficult, but not impossible. Scientists are also considering the use of 40GHz along with 60GHz. In the United States, the band 38.6 - 40.0 GHz is used for licensed high-speed microwave data links, and the 60 GHz band can be used for unlicensed short range (1.7 km) data links with data throughputs up to 2.5 Gbit/s. It is used commonly in flat terrain. The WiMedia Alliance is looking at using the 60 GHz range in their road map.

A lot of effort is going into the development of the new technology so that the use of electronic equipments is made more easy, fast and cheap.





DATA MINING

What is data mining?

Data Mining is an analytic process designed to explore data (usually large amounts of data - typically business or market related) in search of consistent patterns and/or systematic relationships between variables, and then to validate the findings by applying the detected patterns to new subsets of data. It can be defined as the process of getting hidden information from the piles of databases for analysis purposes. Data Mining is also known as Knowledge Discovery in Databases (KDD). The ultimate goal of data mining is prediction - and predictive data mining is the most common type of data mining and one that has the most direct business applications. The process of data mining consists of three stages: (1) the initial exploration, (2) model building or pattern identification with validation/verification, and (3) deployment (i. e., the application of the model to new data in order to generate predictions) ..

→ Exploration :- This stage usually starts with data preparation which involves cleaning data, data transformations, and selecting subsets of records and - in case of data sets with large numbers of variables ("fields") performing some preliminary feature selection operations to bring the number of variables to a manageable range. Then, depending on the nature of the analytic problem, this first stage of the process of data mining may involve anywhere between a simple choice of straightforward predictors for a regression model, to elaborate exploratory analyses using a wide variety of graphical and statistical methods in order to identify the most relevant variables and determine the complexity and/or the general nature of models that can be taken into account in the next stage.

→ Model building and validation:- This stage involves considering various models and choosing the best one based on their predictive performance (i.e., explaining the variability in question and producing stable results across samples). This may sound like a simple operation, but in fact, it sometimes involves a very elaborate process. There are a variety of techniques developed to achieve that goal - many of which are based on so-called "competitive evaluation of models," that is, applying different models to the same data set and then comparing their performance to choose the best. These techniques - which are often considered the core of predictive data mining - include: Bagging (Voting, Averaging), Boosting, Stacking (Stacked Generalizations), and Meta-Learning.

→ Deployment: - That final stage involves using the model selected as best in the previous stage and applying it to new data in order to generate predictions or estimates of the expected outcome.

The concept of Data Mining is becoming increasingly popular as a business information management tool where it is expected to reveal knowledge structures that can guide decisions in conditions of limited certainty. However, Data Mining is more oriented towards applications than the basic nature of the underlying phenomena. Due to its applied importance, however, the field emerges as a rapidly growing and major area (also in statistics) where important theoretical advances are being made.



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THE POWER OF INFORMATION TECHNOLOGY

What is IT?? Information Technology.....The backbone of today's World Economy. Any field in this era has its head and tail in IT. Whether it be science or medicine, education or industries IT has its hand placed on it. In short the world revolves around IT. Globalization is strengthening with IT as foundation. Let us examine what technically is IT....

Information technology (IT), as defined by the Information Technology Association of America (ITAA), is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware. IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information.

Today, the term information technology has ballooned to encompass many aspects of computing and technology, and the term has become very recognizable. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering computer hardware, database and software design, as well as the management and administration of entire systems.

When computer and communications technologies are combined, the result is information technology, or "infotech". Information technology is a general term that describes any technology that helps to produce, manipulate, store, communicate, and/or disseminate information. Presumably, when speaking of Information Technology (IT) as a whole, it is noted that the use of computers and information are associated.

At present when the recession is on everyone has a wrong notion that IT is down. No. It's not. Even though the wind is against IT, it still is moving against this wind in full speed to energize the recession-hit economy. IT is evergreen. IT is the field of challenge, creativity, manipulation and perfection of any branch of society. For those who push away IT with reason of Recession, the only advice is in this down time only IT can stand against it and lead the society. That is what is the POWER OF IT...



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Congratulations for Winning III Rank MG University Exams - May - 2009

Ms. SHEHAZEEN SIYAD



Moments of ITRAX Inauguration

on 17th July, 09



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