

Research Area In Computer Science

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Abstraction- I would like to discuss the various area in computer science, some of them is ,Abundant-data applications, algorithms, and architectures are connected with the specific classes of problems and their solutions. The performance of algorithms and the data of the organization is need to be different access requirements , and this the major components of it. in that it include data mining for loosely structured data, machine learning for mathematical models, and also hardware architectures for big data. Also we define other area of computer science is multimedia for graphics, audio, video by SW and HD architectures. Multi-channel for meeting purpose in the company which is operate by one server and that communicate via multimedia signals to other media in the company. Also there is other area is included is the security of computer system and support for digital democracy which is the use for security purpose and protect from the attacker. There we can also describe the different network level security using the firewall , intrusion detection, etc. also include OS-level security which is effect on the our system and made crash the system which is prevented by CORBA, on the other side there is also some network is allowed to us to keep secure our data through the using of cloud computing which is prevent our data from outside hacker. When we talk about the vote then there is also some issue is occur with electronic voting with the use of punching card in to the Votomatic system for the voting purpose.

I. INTRODUCTION

Area in the computer science are allows us to make analysis ,do some research in that ,aply the operation and prove that base on the graphic and computer network or some real world object. There are many kind of area are available. now I want to define the meaning of multimedia ,it is combination of more then one media. Which include the video, text, audio etc for the use of animation, creating the movie etc. hear also I want define the scene analysis means it describe the how the picture is shown by deterring the pixel in the pitcher and also how distance the camera is set to tack the digital image or photos to get the best clarity of pitcher. Each and every movement of the camera it individually determine the pixel of image or graphics.

To preventing our system or network from the outside attacker by the using of firewall , antivirus its called security of network .there are also some operating level security is necessary which is prevent by MyDoom , CORBA etc, MyDoom is also prevent us from access of without extension note in the our system , it is look like same as txt format but it is not actually txt file , so it also help tu prevent such kind of virus in the operating system.

Data mining is useful us to doing separation the useful data from the unuseful data. And make this data is being useful in the data structure. it is work like loosely couple. There is also a matching learning language which Is build the mathematical model and also work as a human in the system . through the using of machine learning we can save our time and get the resulted data in the very convenient way.

II. MULTIMEDIA

First I want to talk about the meaning of media, media is the source or medium from where we can get everything in the form of image, video, text, audio, animation, etc.. and the meaning of multimedia is more then one media means combination of more then one media .It is the source where we can easily catch what we want. Now a days there is huge use of media in our real life. Each and every person can use the media for there daily base.

A. HW and SW architectures for graphics, audio

We can also use the multimedia at the education level. For example we have GO-To-MEETING., Blackboard system, it is also a part of multi media. Through it we can doing study at the home without going to school or college. There is some advantage of it like we can save our time. And through recording we can learn particular thing again and again. Also we can do presentation on multimedia . for Example, in power point we can use animation, slide show we can also make audio, and video on it and make our presentation very impressive. For written document,powerpoint presentation, web sites and report we can also use the simple type of text media.

If we use audio in presentation then it is more visual presentation. Sound help to make presentation more memorable, While hearing the main point of information for the listeners focus. Audio is also use in radio broadcast or online audio file.

Now, Multimedia is hugely use in video conference, for example in Skype, face book video cheating, even now in whatsapp there is also video conference is introduced. Company people can use it for a meting purpose, whoever is work on remote-work, also they use for interview purpose who want to select employee on video call base interview . we can also use the you tube for watching the video . video is also useful for create a movie.

Images, photographs, are all ,digital or analog and important part is, it is concept with clarity .Digital image are captured directly by the digital camera and indirectly by the scanning the photo image by the scanner. Animation are motion, graphics,

images, symbol that move base on the format on the page and, accompanied by audio effects.

Media player is multimedia software which is use for multimedia file, where we can store the media file like audio or video, download the video ,music, audio also we can edit it and record the audio. For the editing or recording there are digital media ,which is used for a interactive training session for employees . also in the Mobile there are file manager file, it is the multimedia file which we can use for storing, accessing and playing a video, audio, and recording , downloading the movie , music.

B. multi-channel communication of multimedia signals.

Multiple channel is responsible to accept the degree of format may represented multi channel audio, which is represent the end user at least two ways. First way is sound file or aural space. And second way is our presentation consists of two or more signal stream which give us alternate content or surround sound, for example sound effects separate from music. processing multichannel signals is used the digital signal process techniques and accept increased attention by late into its importance application. For example telecommunication and multimedia technologies.

C. Scene analysis

Now the question is that how to analyze the perceptual input, mainly in the visual and auditory domains. Because perception need to describe the physical world, or scenes with objects which is located in physical space, and this perceptual analysis is also known as scene analysis. It's goal is to produce a computational description of the objects and their spatial locations in a physical scene from sensory input.

III. ABUNDANT-DATA APPLICATIONS, ALGORITHMS, AND ARCHITECTURES:

In abundant data application is interconnected with problem of class and give the impressive solution for that problem, using the various data through data mining, machine learning to make module on that data and after that generate the architecture of big data

A. Data mining

meaning of data mining is to collect the information from the large amount of data. in short we separate the useful data from unuseful data, Means we need to extract the useful data from the huge amount of row-material. Means that we need to mining the knowledge from data. in the data mining is doesn't mean to separation only but for the separation we need to do some process on the row material or on the huge amount of data such as first we need to analyze customer requirement, need of consumer, demand on the real world after that decide by the manager like what kind of data they have , what additional data they need, how they use additional data into there activity to achieve a goal and after that they do such kind of process on the data like, Data Cleaning means that , first we need to examine data and separate it from the huge amount of data into the small group, after that Data Transformation which is made a transformation from the big group of data to small group of data ,after we need to observe the data and then just mining the use full data from small amount of data which is we are collected from the huge data, which is the Data Mining, after that we mine the data or finally separate the

data from row material we need to do Pattern Evaluation for that data like in which pattern now we use that data so we get impressive result and also rich to our goal and , after that there is a Data Presentation where we can present oue data and also use for some evaluating process.

For Example I have a huge amount of database for the company and like employee id, employee name, employee address, employee contact number, admin id, admin name, admin contact number, admin address, admin password, employee and admin email id . and I just want to make data set for only admin login process , so I separate this all data in to two part one is for admin and other is for employee. After that separation I again mining the data and tack only admin id, admin password and admin email id for the login purpose from the admin data. So this call the data mining in the simple way.

B. Machine learning

Now a day, whatever data is generated by humans on the computers, it is now generated by the machine it is call the machine learning . in short matching can do same work which is human can do. In the company or on the computer larger amount of data are automatically generated by device and sensors which are available in the real world. for example escalator and sensor door they both are work on machine learning environment through sensor. Because in the sensor data is fix and they immediately catch when there are any person or any thing is going to be pass then it automatically start or give the reaction. However Automation of the interplay between data analysis and control can lead to new types of applications that use fully autonomous optimization loops and base on that they determine if there is any real world object can pass then they generate automatically.

C. Hardware architectures for Big Data

Now for hardware I want discuss on fog nodes It is a collection of more then one modular hardware and software elements that can be configured to perform the specific functions. from the hardware point of view fog node is divided into two big cluster which is single board configuration platforms and second-one is high capacity modular platforms. And on the traditional network element it is implemented as a ancillary function or as stand-alone fog boxes. It is also configurable with different option for main processors, networking and it include, solid state drives, and rotating disks into the storage.

Fog nodes are also scalable and adaptable for the many different deployment environments. And This scalability is also include dimensions of processor performance, network capacity, memory, and persistent storage size. it is typically versatile with its ability to support deployment with various power sources, and for cooling purpose cooling strategies, .

IV. SECURITY OF COMPUTER SYSTEM AND SUPPORT FOR DIGITAL DEMOCRACY

In this security purpose area I would like to discuss about some network level , OS level attacker issue and also I would like to discuss about some thread and how to prevent about that using some preveting antivirus in our system or inside the network.

A. Network-level security

Security means we need to secure and protect our file, data, important document on the network. It is not only based on the file or document but it is protection of everything such as if we track mobile then we keep screen-guard to keep the screen secure.

But for the network or internet or in our personal computer we use the firewall, antivirus or intrusions detection system for continuous watching network boundary on individual unauthenticated access or countless logs. Between the network IT manager is always focused on the outside attacker and hacker but very few technology is available to protect against the inside network.

It is not necessary that attacks are also done by outside the network but some time it is also done by inside the network. Reason for that is the misunderstanding trust relationship, hostility architecture then issue is done by inside network.

Nowadays such antivirus are available which come with very high integrated development architecture is CORBA which is design to distribute system and often unconsidered trust relationship. However MyDoom relies on user and react on delegate trust to user who can act to determine security. And such e-mail like "Mail Transaction Failed".

B. OS-level security

Now I want to discuss on software attack, so, everyone can know that small line of software is always free of bugs but if there is a more line then there is a more bugs. Because our system can communicate with internet and more code is added then it is becoming with more complex. And complexity is unsafe programming language which is not protect against the simple attack for example buffer overflow. The when there is a high degree of connectivity then it is possible to make failures to propagate and cause massive security.

Physical attacks have been used to break the security of embedded systems such as smart cards. Physical attacks at the chip level are very hard to use because of their expensive infrastructure.

C. Support for personal privacy

Security for the personal privacy there is cloud storage is available for that, which is very user friendly and in there our personal data is to be kept secure. In cloud storage we store our file, important document, and audio, video too, there are our data is stored in the encrypted format, so, end-user cannot decrypt it without the decrypted key which is sent by the encrypted. Hear for more security we can also use our thumb for a security purpose, eye, and also we can record our voice and use it for the security purpose. So, basically it is very user friendly and very trustable for the preventing purpose to keep secure our data from the hacker.

D. Issues related to electronic polls and voting

Other problem with electronic polls and voting is that, they use alternative punched card technologies which is determine most of the problems with the Votomatic system, and they need to be make improvements to the Votomatic voting machine and punching style.

E. Security for embedded systems and the Internet of Things

If there is any infrastructure which makes such objects that is remotely accessible and connects to them, then it is called the Internet of Things (IoT). In IoT there are a billions of connected physical things, crossing borders of different types of networks poses new challenges to Internet's technologies and communication protocols. This is why the IoT was called the first evolution of the Internet.

Reference:

- [1] Pitas, A. N. Venetsanopoulos, "Order statistics in digital image processing", *Proceedings of IEEE*, vol. 80, no. 12, pp. 1893-1923, 1992.
- [2] Power, R. 2002 CSI/FBI computer crime and security survey. *Computer Security Issues and Trends VIII*, 1 (Spring 2002).
- [3] S. Ravi, A. Raghunathan, N. Potlapally, and M. Sankaradass, "System design methodologies for a wireless security processing platform," in Proc. ACM/IEEE Design Automation Conf., pp. 777-782, June 2002.
- [4] A. Buczak and E. Guven. A Survey of Data Mining and Machine Learning Methods for Cyber Security Intrusion Detection. IEEE Communications Surveys & Tutorials, 2015.
- [5] Argonne National Laboratory. The Message Passing Interface (MPI) standard. <http://www.mcs.anl.gov/research/projects/mpi/>, 2015. [Online; accessed 2015-12-15].
- [6] Andy Noronha, Robert Moriarty, Kathy O'Connell, and Nicola Villa.
- [7] Mayer, Richard E. *Multimedia Learning*. Cambridge: Cambridge University Press, 2001.