GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY
(AUTONOMOUS)
Gangavaram (V), Kovur (M), S.P.S.R. Nellore – 524137
Accredited with NAAC 'A' Grade & NBA (B. Tech - ECE, EEE & MECH)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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GEETHANJALI INSTITUTE OF SCIENCE AND TECHNOLOGY

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Editorial Message

Well-written technical articles contribute to the total body of knowledge for the engineering community and will potentially help many engineers. Articles do not need to be detailed “academic-level” work. In fact, some of the most popular articles are “down to earth” practical applications of existing or new technology.

Editorial Board

VISION-MISSION

VISION

To evolve as a leading computer science and engineering centre producing competent technocrats to meet the demands of ever-changing industry and society.

MISSION

DM1: Imparting quality education through innovative teaching learning processes

DM2: Motivating students to upgrade their technical expertise by promoting learner centric activities.

DM3: Inculcating ethical values and interpersonal skills in the learners.

DM4: upgrading knowledge in cutting edge technologies keeping pace with industrial standards.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

Graduates of B. Tech in Computer Science and Engineering program shall able to

PEO1: Outperform in professional career or higher learning by upgrading skills in Computer Science and Engineering stream.

PEO2: Competent Provide computing solutions for complex problems to meet industry demands and societal needs.

PEO3: Offer ethical, socially sensitive solutions as professionals and as entrepreneurs in Computer Science and other engineering disciplines.

PEO4: Leverage new computing technologies by engaging themselves in perpetual learning.

The education sector is considered to be highly vulnerable to cyber threats. The 2018 Education Cyber security Report, suggests that education institutions are struggling with various things like application security, endpoint security, and patching cadence. With this, the education industry is ranked the worst at cyber security out of 17 major industries. This implies that there is a need for preventive measures to Improve Cyber security in the Education System.

According to a report by the U.S Education department, students browsing the internet for information and such learning purposes are prone to dangerous cyber attacks. Educational institutions are facing huge pressure to safeguard the sensitive information of students with the rising issue of cyber security.

Lately, schools have started using technological methods to store data, but many schools are still not adhering to monitoring and protecting network infrastructure. Institutions are now becoming digitalized in compiling a massive amount of data including assessment information, learning tool data, educator observations, attendance data, instructor feedback, and summative evaluations.

Meanwhile, as the Internet of Things (IoT) gain momentum, students are using more than one device in classrooms, where all of them are not secured. Educational institutions are underestimating the need for a protective solution across all institution networks.

There is an urgent need to deal with cyber frauds in India, as schools collect an incredible amount of personal data. In order to escape from cybercrime, understand the common mistakes that lead to cybercrime.

Modepalli Abhilash Chowdary(172U1A0530)

CYBER CRIME AND SECURITY

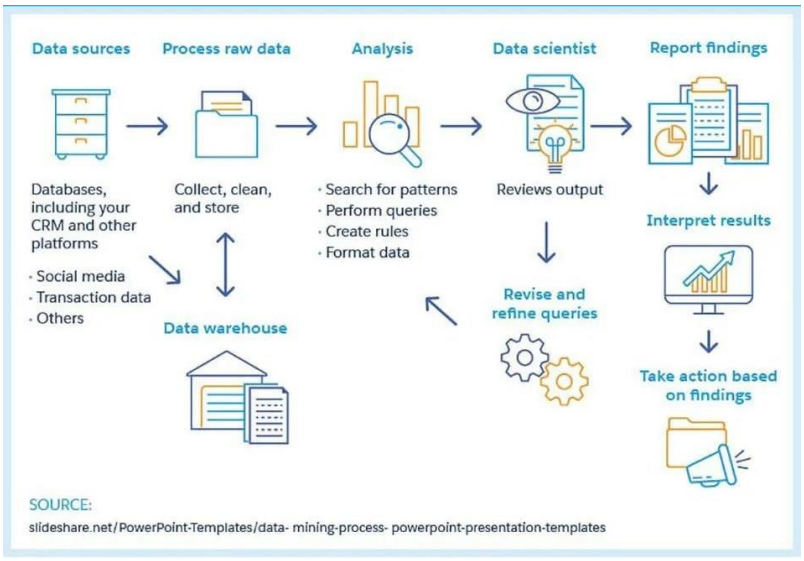
Cybercriminals use the internet and computer technology to hack users' personal computers, smart phone data, personal details from social media, business secrets, national secrets, etc. Criminals who perform these illegal activities through the internet are called – Hackers. Though law enforcement agencies are trying to tackle this problem, it is growing regularly and many people have become victims of identity theft, hacking, and malicious software. One of the best ways to stop these criminals and protect sensitive information is by making use of inscrutable security that uses a unified system of software and hardware to authenticate any information that is accessed over the Internet. Let's find out more about cybercrimes.

Causes of Cybercrime

- **Easy to access** – The problem behind safeguarding a computer system from unauthorized access is that there are many possibilities of breach due to the complex technology. Hackers can steal access codes, retina images, advanced voice recorders, etc. that can fool biometric systems easily and bypass firewalls can be utilized to get past many security systems.
- **Capacity to store data in comparatively small space** – The computer has the unique characteristic of storing data in a very small space. This makes it a lot easier for people to steal data from any other storage and use it for their own profit.
- **Complex** – The computers run on operating systems and these operating systems are programmed with millions of codes. The human mind is imperfect, so it can do mistakes at any stage. Cybercriminals take advantage of these gaps.
- **Negligence** – Negligence is one of the characteristics of human conduct. So, there may be a possibility that in protecting the computer system we may make any negligence that provides cyber-criminal access and control over the computer system.
- **Loss of evidence** – The data related to the crime can be easily destroyed. So, Loss of evidence has become a very common & obvious problem that paralyzes the system behind the investigation of cybercrime.

Shaik Wajid(172U1A0549)

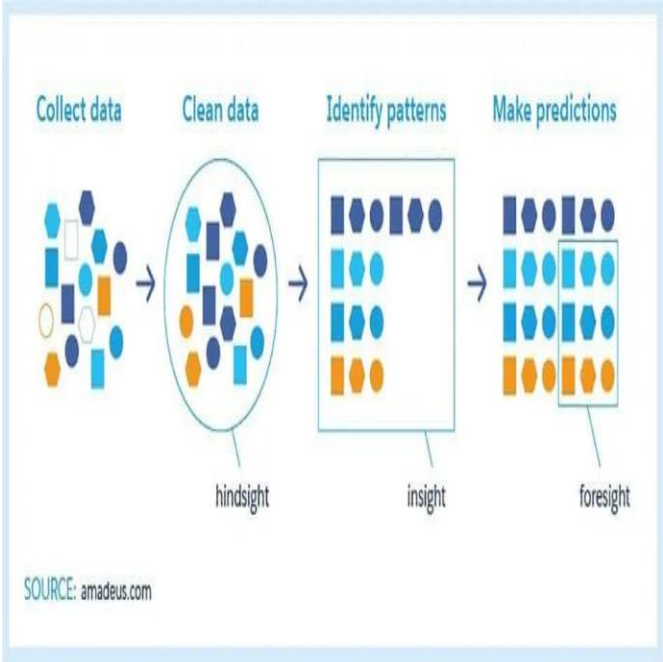
Data mining is the process of discovering useful data or patterns in large data sets. The below image explains the process of data mining. It starts with a data warehouse where the large data is stored usually and then cleaning, analyzing, applying algorithms (ML), interpreting results are performed. Predictive analysis is the continuation of data mining where a predictive score is assigned to the identified patterns. This helps in prioritizing the data based on the importance.



When you use both data mining and predictive analysis together it can create wonders. The important data can be filtered in seconds. The output of data mining acts as input to the

How Data mining works

predictive analysis i.e. the predictive analysis acts on the patterns identified by the data mining and the predictive score is assigned to the patter.



Data mining and predictive analytics – aren't the same things. The first is pretty easy to understand, and you'll start to see how companies mine your data throughout the day (and also how you can mine your customer's data). For example, they'll start by trying to collect your email to sign you up for rewards. They would want you to use that rewards number whenever you buy something because if you do, they can start to record what you're buying and when you're buying it.

On the surface, that's just data, nothing more. It's important, but it's what companies do with the data that matters. If they're smart, they're going to take it to the next step of data mining, which is figuring out patterns and organizing methods for that data.

Kolli Harish(172U1A0587)

INNOVATIONS OF ARTIFICIAL INTELLIGENCE IN THE HEALTHCARE SECTOR

The healthcare business is widely recognized as one of the most important and difficult to operate on the whole wide planet. It is a sector that has a considerable influence on society as a whole and is constantly undergoing a change in response to the requirements posed by patients. In this article, we will discuss the Role of Artificial Intelligence in healthcare industry. Artificial intelligence (AI) and machine learning are quickly becoming one of the most game-changing technologies in the healthcare sector.

Image Source: Shutterstock

There are a wide var iety of applications that may be developed using Artificial Intelligence in healthcare sector, and these applications have the potential to significantly disrupt the business. In this article, we will discuss some of the ways that AI is changing the landscape of the healthcare sector. X-rays, CT scans, and MRIs are just some of the medical pictures that may be analyzed more precisely and rapidly with the use of artificial intelligence (AI). Artificial intelligence Software is able to spot irregularities that human observers would overlook, which can lead to earlier discovery and more successful treatment.

Artificial Intelligence algorithms are able to identify changes in the retina that the human eye may not be able to see since they analyze photographs of the retina. Because of this, medical professionals may be able to recognize the problem sooner, which may lead to more successful treatment and better results.

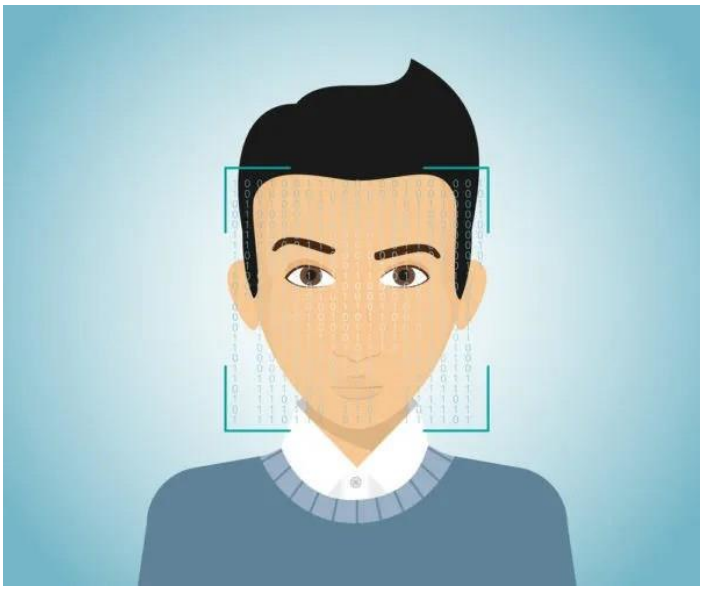
Another illustration of this would be the use of AI to screen for breast cancer. Artificial intelligence algorithms are capable of analyzing mammograms and locating possible malignancies with a higher degree of accuracy than human observers. This may assist medical professionals in detecting breast cancer at an earlier stage, which can lead to more successful treatment and better results.

Also, AI is assisting in the development of individualized treatment programs for individuals. AI systems are able to recognize patterns in large volumes of medical data and make educated guesses about how a patient will react to a certain therapy by using this knowledge. This information may assist medical professionals in the development of individualized treatment programs that are more likely to be successful and include a lower risk of adverse effects. You can also integrate your healthcare software with AI to smoothly run things.

Ravu Jayakeerthi(172U1A05A5)

FACE DETECTION AND RECOGNITION TECHNOLOGY

Facial recognition involves the use of algorithms to scan and match the contours of a person's face. The algorithms are either feature-based or image-based. The programming is so advanced it can identify the subtlest of differences. Facial recognition tools are designed to determine matrices like jaw length, the width of the nose, eye socket depth, and chin shape. The details are then compared with representations already collected in a database. A face authentication system based on principal component analysis and neural networks consists of three stages; pre-processing, principal component analysis**,** and recognition**.**



- In the pre-processing stage, normalization illumination, and head orientation are done.
- The principal component analysis is applied to find the aspects of the face which are important for identification. Eigenvectors and eigenfaces are calculated from the initial face image set. New faces are projected onto the space expanded by eigenfaces and represented by a weighted sum of the eigenfaces. These weights are used to identify the faces.
- In the third step, a Neural network is used to create the face database. Recognition and authentication of the face are done by using the weights generated by eigenfaces.

Eigenfaces is the name given to a set of eigenvectors. Eigenface provides an easy way for face recognition as its training process is completely automatic and easy to code. Eigenface adequately reduces statistical complexity in face image representation. Eigenfaces can handle large databases and once the eigenfaces of a database are calculated, face recognition can be achieved in real-time.

Benefits of Facial Recognition Technology

Facial recognition has evolved from its nascent stage. It has improved to show extremely accurate results. Recent improvements in technology have enabled a broader implementation of facial recognition. More and more companies are benefitting from facial recognition tools.

Facial recognition has many applications in a variety of fields such as security systems, videoconferencing and identification however face detection is not 100% accurate most of the time. We will talk about the drawbacks of Face identification and Recognition later in this post.

Chenthati Meghana(182U1A0515)

LOCATION-BASED SERVICES THROUGH GPS

A tracking system is a device or software that uses GPS technology to track the location of an object or person. Tracking systems are used for various applications, including fleet management, asset tracking, and personal tracking. This system uses the Global Navigation Satellite System (GNSS) network to determine the location of a tracking device.

The GNSS network consists of a constellation of satellites that orbit the earth and transmit signals to tracking devices on the ground. Tracking devices use these signals to calculate their location relative to the satellites. GPS tracking systems are accurate to within a few meters, depending on factors like satellite visibility and signal interference.

Types of Tracking Devices

There are two main types of tracking devices: passive and active. Passive devices store data about their location but don't transmit it in real-time. This data can be downloaded later for analysis. Additionally, passive devices typically have longer battery life than active devices because they don't transmit data constantly. They are often used for tracking vehicles or assets over long periods. Therefore, passive devices are well-suited for fleet management and asset tracking applications.

How GPS Devices Work

GPS devices work by determining their location relative to a constellation of satellites in orbit around the earth. The device uses the signals transmitted by these satellites to calculate its position, speed, and direction. GPS devices typically use the Global Navigation Satellite System (GNSS) network, which consists of a constellation of 31 satellites orbiting the earth.

Applications of GPS Tracking

There are many different applications for GPS devices. Some of the most common applications include:

– Fleet management
– Asset tracking
– Vehicle tracking
– Personal tracking

Aitha Meera V S Sriteja(182U1A0502)

Wise Words

MY LOVE MY LIFE

Now I can't live without you

Without you, what is my worth?

Without you, what is my purpose?\

May be If I get separated from you

Then I'll get separated from myself(the world)

You are my existence(world)

My peace, and my pain

You alone are my love

What kind of relationship exist between you and me?

Not for a moment can I stay away from you

I live everyday only for you

I dedicate all of my time to you

I don't wish to live a moment without you.

On every breath is your name.

Because you are the one

You are the only one.

You are my life.

My peace and my pain

You alone are my love

I live only for you

Let her remove all the sadness from my heart

With you my destiny is tied up.(feel together)

After possessing you I am no longer incomplete.

Because you are the one.

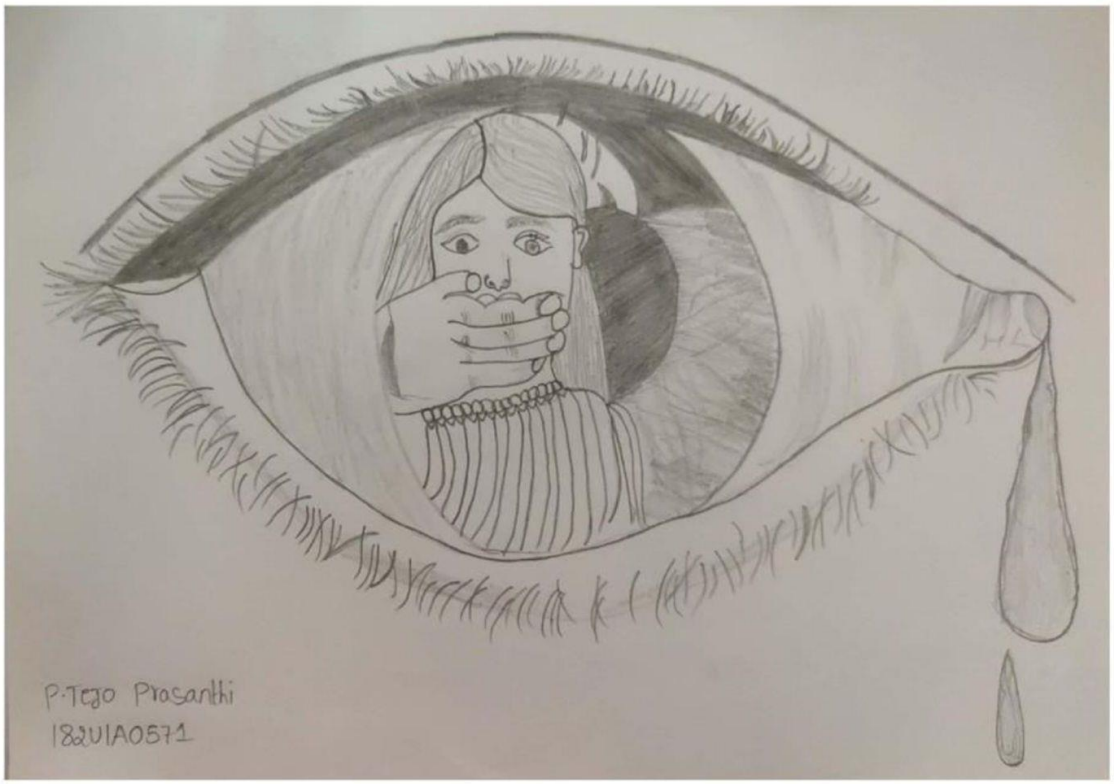
You are my life.

My peace and my pain

You alone are my love

Vempuluru Vamsi(182U1A05B4)

G. Premkrishna 182U1A0523 III CSE



P.Tejo Prasanthi 182U1A0571 III CSE

వికసించిన పువ్వు వాడిపోతుంది
ఉదయించిన సూర్యుడు అస్తమిస్తాడు
వెన్నెల తరువాత చీకటి వస్తుంది
కానీ స్నేహమనేది వాడిపోయే పువ్వు కాదు
అస్తమించే సూర్యుడు కాదు
గమ్యం ఎరుగని చీకటి వెలుగులు కావు
కలకాలం నిలచి ఉండేది స్నేహం.

G. Satish 182U1A0528 III CSE

U Praneeth II CSE

N Narasimha 192U1A0573 II CSE

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

PO1. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem Analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with anunderstanding of the limitations.

PO6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clearinstructions

PO11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES

PSO1: Apply the expertise in adaptive algorithms to develop quality software applications..

PSO2: Get employed or become an entrepreneur through their capabilities in basic and advanced technologies.