ICT

INFORMATION & COMMUNICATION TECHNOLOGY

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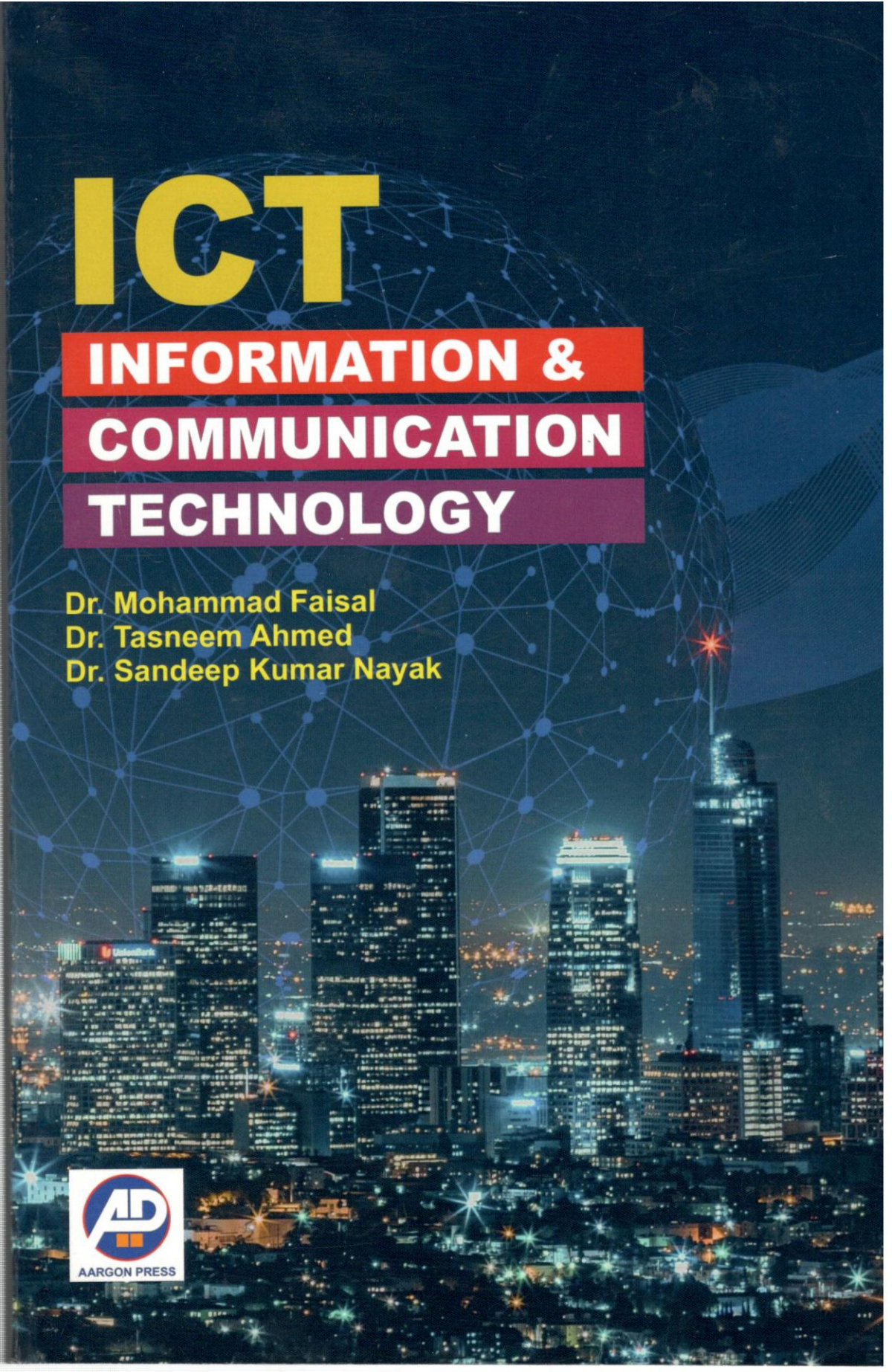

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Abstract

The entire world is experiencing one of the worst pandemics of this era. The Covid-19 outbreak had a massive effect on the world, and different countries turned to a halt. Not only have these unprecedented times had health and financial insinuations on industries, individuals, administrations, and government, but also it has given birth to a tool for hackers and cyber-criminals to use in cyber-attacks. During these challenging times, cyber security has become more significant such that the current situation is assisting cybercriminals to easily cyber attack. At the start of the COVID-19 pandemic, the World Health Organization (WHO) has suffered various intensities of cyber-attacks intended at its whole group, as well as email frauds intended for the general public, which has grown massively. As per the WHO report, In April 2020, 450 email credentials were compromised online. Scammers spoofing WHO in mails have deliberately targeted the common people toward donations and contributions to a counterfeit COVID-19 Solidary Response Fund

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ROLE OF DATA SCIENCE IN CYBER SECURITY: AN OVERVIEW FROM MACHINE LEARNING PERSPECTIVE

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Abstract

The combination of digital technologies and business processes has made the IT infrastructure and system vulnerable and enhanced the demand for businesses to have robust cyber security in place. Many organizations do not have the resources and insights needed to identify, prioritize and mitigate the existing and upcoming threats. This had collided with its ability to combat cyber threats efficiently. In the computing era, cyber security is becoming an important domain in technology and its operations in which Machine Learning and Data Science are getting extensively used. Organizations need to have a cyber security policy that includes remote networking with regular reviews. Security policies must be acceptable for multiple workers working remotely and must include the use of personal devices. Organizations must also adjust their security tools for a remote work setting. Cyber security is the process of defending your computers,

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ANOMALY DETECTION IN SOCIAL NETWORKS USING DEEP LEARNING EMBEDDING APPROACH

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Abstract

Attributed networks are pervasive and constitute a crucial element of advanced technologies, where node attributes augment the network structure. Identifying abnormal nodes on attributed networks has gained significant research interest recently. Anomaly detection in attributed social networks sought to discover nodes whose patterns substantially differ from the rest of the nodes. However, it persists as a concern because of the complex description of anomalies and heterogeneous nature of the available attributes. Attributes and Structural information generally tend to be associated with each other, making it hard to decide who has larger role for shaping an evolving network model. Most current approaches ignore dynamic interactions between network topological information and attributes of the node. Anomalies of various kinds are discussed in this chapter, as well as their new classification based on various characteristics. An examination of various techniques for the prevention and detection of anomalies as well as underlying assumptions and reasons for their existence is covered in this chapter. A

Chapter-4

CYBER ATTACK IN COVID-19 ERA

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Abstract

COVID 19 pandemic disrupted the life of entire world and alters the livelihood of billons of citizen across globe. This pandemic governs a new-normal in the way citizens live and work. Apart from colossal impact in society, this pandemic agape doors for cyber criminals that affect business, society and individuals. Pandemic gateway peaks the likelihood cyber-attack implementation and expand range of cyber-attacks to ditch naive spears citizens. In this pandemic, cyber-attack increased from 5000 attacks per week to 200,000 per week and till the end of June, 34% increase in all types of attacks are observed, this reflects how alarming situation is for entire world. In this chapter, analysis of Cyber-attacks from COVID 19 perspective and elaborate the range of attacks expandedglobally during the same has been focused. In order to barricade cyber-attack, it's essential to discern modus-operandi of cyber attackers. This chapter delineates cyber attackers and elaborates impact of individual attack on citizens. Later, the initial outbreak of pandemic in China and explosion of cyber-attacks over the world has

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ROLE OF SATELLITE IMAGES IN ESTIMATION OF LOCUST SWARM INFESTED AREAS DURING COVID-19 PANDEMIC IN INDIA

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Abstract

The locust invasions ranging from Africa, Arabia and India during the ongoing covid-19 pandemic has been one of most critical issue occurred in the year 2020. The desert locus swarm formations affected vegetation which resulted in devastation of crops. The precipitation levels in these ranges due to the increase in rainfalls deteriorated the situation further enabling more regions for locusts breeding. The early migrations of locusts caused their exponential population growth and intensified the difficulties for the farmers and the governments. The use of innovative technologies such as Geographic Information System (GIS), Global Positioning System (GPS) and high-resolution satellite imagery can detect changes in vegetation caused by these insects and address the condition with an effective intervention. The clearance of infested and the breeding areas requires the control operations to procure appropriate equipment, train the staff to have expertise along with clear guidelines. In this chapter, it has proposed that integration of satellite images that

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SATELLITE IMAGE QUALITY ASSESMENT IN BIG DATA REPOSTORY USING BIG DATA ANALYTICAL TECHNIQUES

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Abstract

Lots of earth observatory sources are producing satellite images with different resolutions, the resolution of satellite images can be categorized as spatial, spectral, and temporal resolutions. Satellite images are freely available on many platforms and have been used in various applications such as land use land cover classification, agriculture monitoring, fire monitoring, urban monitoring, etc. A satellite sensor produces a huge amount of data every day for analysis. The traditional techniques of analytics are less capable to extract meaningful information from the satellite image because traditional analytical techniques are not designed for large and complex datasets. The modern big data analytical techniques are capable to work withsatellite images and can extract meaningful information from satellite images. Big data analytics can be appliedto offline data as well as realtime data. There are some popular big data analytical techniques

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THE NECESSITY OF CREATING A UNIFIED FRAMEWORK ASA GENERAL IOT PLATFORM

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Abstract

IoT is another incredible technological concept by which any device can be connected to the Internet and to other connected devices. It is a giant network of connected "things" and people within which the related data is collected and shared. The devices which are being referred to as "things", they are made capable of connecting to the Internet by the help of sensors and actuators. An IoT ecosystem has nearly been constructed due to continues development of IoT Technology. However, various terminals, massive data, and complex application scenarios continue to mitigate technology's adoption. As a pervasive business, IoT faces many challenges like industrial barriers, technical restrictions, cross platform support, fragmented development of the industry. How to mask these kinds of issues is the biggest challenge for the IoT environment. Architecting a unified intelligent information management platform will definitely give a boost to IoT development. As the technologies such as Cloud Computing, Big Data, and AI are becoming very much

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RISK CLASSIFICATION AND ANALYSIS IN SOFTWARE DEVELOPMENT

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Abstract

Software Development Management (SDM) plays an important role in the software development life cycle (SDLC)[1]. Software development management aims to identify, evaluate, plan, and estimate the costs, resource allocation, activity planning, monitoring, and control. Software development has many risks in its life cycle. Risk is any situation or event that could negatively impact the software development. Risks are the uncertainty of events that may occur in the future. In the software development life cycle (SDLC), risk is the major factor influencing software cost, reliability, and performance. The software has a higher failure rate as a result of inappropriate risk management. Different types of risks are requirements, scheduling, management, budget, programmatic, technical, and quality. Many researchers have focused on different tools and techniques for risk management and risk analysis in the software development process. Due to the large size and complexity of the software, managing and developing it has become

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TO ANALYZE RISK MANAGEMENT MODEL IN SCRUM FRAMEWORK

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Abstract

The goal of thischapter is to give practical information on the risk management process in agile projects in the Norwegian software industry. A qualitativestudy has been conducted to achieve the goal. The results of the interviews indicated that practically all practitioners use a classic waterfall approach to risk management. In a matrix format, all of the key dangers are listed. These risks are regularly monitored during the development process, and their likelihood of occurrence is calculated. The next stage is to create a mitigation strategy based on the likelihood of occurrence. Relative assessments are used to reduce estimation hazards. Risks may be be managed by shortening the sprint/iteration and doing a SWOT analysis. Risk sharing between the supplier and the customer is not specified in most contracts. It is thought that the supplier bears the most of the risk in fixed-price contracts, whereas the customer bears the majority of the risk in time and material contracts. Target price contracts do provide a risk-sharing mechanism between the supplier and the client.

Keywords: Scrum Framework, Risk Management, Agile Software Development.

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CYBER SECURITY THREATS DURING COVID-19 PANDEMIC

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Abstract

In this chapter, we examine the cyber security challenges during the recent Coronavirus (COVID-19) pandemic. Cyber criminals and groups that employ Advanced Persistent Threats (APT) have exploited the pandemic to target vulnerable individuals and systems. The chapter emphasizes the fact that the pandemic and cyber-attacks which target industries that are vulnerable are correlated. Cyber-attacks are also becoming more successful because of the anxiety and fear caused by the pandemic. During the pandemic, cyber-attacks targeted organizations in the healthcare sector. The pandemic has also brought to light issues of cybersecurity, including the possibility of state-sponsored attacks, phishing, and ransomware, as well as the new normal of remote workers (WFH). Besides offering different practical approaches to reducing the risks of cyberattacks, we also addressed security risks related to healthcare. In order to improve cybersecurity, healthcare organizations must take a comprehensive approach to caring their data and resources.

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SIMILARITY-BASED NEURAL NETWORK MODEL FOR FEATURE-BASED SATELLITE IMAGE RETRIEVAL SYSTEM

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Abstract

Satellite images are a major source of Earth observation, and also helpful for man-made and natural resources monitoring. Multiple satellites are functional in orbit and producing many images on daily or weekly basis for the interpretation, analysis, and monitoring of the land surface. Satellite images are important to capture the data and information that is used in various fields such as environmental impact analysis, agricultural monitoring, forest survey, urban change detection, etc. Many satellite images retrieval systems are available which providing a wide variety of images with different resolutions (spatial, spectral, temporal) for land surface monitoring. The image retrieval system has an image repository that contains a variety of images. In the repository, some images may be affected due to weather conditions and cloud covers. The affected images are not suitable for post-processing because they cannot produce an efficient result for the interpretation and

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ROAD-MAP TO FULL STACK WEB DEVELOPMENT

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Abstract

The most important thing to consider while developing a top-notch web application is selecting the best tech stack. Web development can be better defined as the building and maintenance of websites for hosting over the internet or intranet. It's all about creating web pages or web applications that run in a web browser for enabling users with a seamless interface. It is a fast-paced field, with several programming languages, frameworks and databases for providing a variety of functionalities that are seemingly arising now and then. Traditionally it has a three-layer architecture: Presentation layer (User Interface through the front end), Business logic (Data validation through the back end) and the Database management layer. But in this fast-paced evolution of Information Technology, knowing only one is quite outdated. In the recent era of full-stack web development, both the front end and back-

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SUCCOUR IN HEALTH INDUSTRY: IOMT

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Abstract

The face of health industry is changing rapidly as health systems like smart pills, movement detector, real-time patient health monitoring, fitness tracking and virtual home systems helps health workers, doctors to monitor or tack the slightest improvement or movement in the patient as this information are stored on servers or cloud-based technology which can be accessible medical practitioners as and when required. Considering the concept of innovation, the combination of medical-grade devices and computer system has made its remark as IoMT- "Internet of Medical Things". IoMT denotes the interconnection of health care machines and their integration to broader-scale health networks to provide better health services. The aim of this chapter is to explain that IoMT is thus beneficial as it can-increase the life expectancy ratio, reduce the complexity of appointments of doctors and patients, minimise the cost of medical aid, provide fast and accurate monitoring and health services, flexibility in the working condition of health workers, remote monitoring of chronic diseases. Pervasive health

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ROLE OF BALANCED DATASET IN CLASSIFICATION TASK OF MACHINE LEARNING

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Abstract

Machine learning is used in real life for prediction task, classification task, data analysistask and optimization task. Machine learning performs different tasks on the basis of the data that is provided using real life working. Machine learning learns from the data in a similar fashion as humans learn from their experiences. Human learns inappropriate things from wrong experience similarly machine learning produces a wrong result from inappropriate data. Therefore, an appropriate data plays an important role in machine learning to produce correct results. However, the data that is provided from real life is normally inappropriate. At this point data preprocessing using under sampling is required to make the collected data balanced. The study is being performed to prove that machine learning produces better result of classification task after performing data preprocessing under sampling. The study used machine learning classifiers (logistic regression and random forest) and two different datasets and performed classification task. The observed results showed that classification task

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CHALLENGES IN INTEGRATING CLOUD WITH IOT

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Abstract

Digital objects such as sensors, machines, gateways, and the network, are connected to one another on the Internet of Things (IoT), allowing people to connect with things, and things to interact in real time. Internet of things networks have exploded in size, scope, and variety, which results in exponential increases in the volume, velocity, and variety of data. Over the past decade, the Internet of things has grown rapidly, and it is considered to be a major field that impacts everyone's lives on a day-to-day basis. Although the Internet of Things is rapidly growing, the growth is severely limited by factors such as limited storage, limited communication capabilities, and limited computing power. Clouds, on the other hand, can facilitate the storage and processing of large amounts of data since they have massive storage capacities. Data from heterogeneous computing devices can be easily integrated using cloud computing because it provides a suitable and scalable network access. These two technologies have enormous potential and are complementary. Thus, they have been combined to form what is called the cloud of things (Cloud-IoT). By combining

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VIRTUALIZATION AS A PERTINENT PREREQUISITE FOR CLOUD COMPUTING

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Abstract

Cloud Computing is another developmental, virtualization-based technology that delivers a spectrum of services including servers, storage, databases, networking, software, analytics, and intelligence- on the Internet thus offering faster innovation, flexible resources, and economics of scale. Rather than keeping the data and files on a local hard drive, the cloud facilitates storing them over a remote database, which can be accessed by an authentic user, anywhere and at any time. In cloud computing, the software and service environments are subscription-based i.e. a monthly fee is paid by the user to buy licenses. In exchange, the software and platforms are managed by the cloud providers and are updated continuously for maximum performance and security. Hence, instead of organizations having to make major investments to buy equipment, train staff, and provide ongoing maintenance, some or all of these needs are handled by the cloud service provider. Some of the repute cloud service providers include Amazon

Chapter-17

APPLYING LEAVER CONCEPT TO SECURE CLOUD SERVICES IN MULTI-TENANCY LOWER ENVIRONMENT

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Abstract

The frequently used cloud services are Software as a Services (SAAS) application in a multi-tenancy environment. Primarily public cloud is based on a multitenant architecture. Any project/module development utilizes a few standard middleware services in an enterprise-level organization's development or testing environment. The developers or testers, who are part of the projects, need access to those common services in the respective environment. User roles like admin, viewer, or system admin are assigned to the user groups depending on the authorization policy. To get access of common services, the developer or tester needs to be a member of the user groups. As the best practices, it is required user should not be a member of the access group once the project/module is over. Still, at an enterprise level, users are often not getting removed from the user groups, which lead to a security breach by an intended malicious internal user of the organization. To protect

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INDUSTRIAL APPLICATION OF IOT-TECHNOLOGY IN THE AUTOMOBILE SECTOR

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Abstract

The Internet of things has been one of the most discussed technologies from the few past years. This technology isnow presently available inthe usable form. Thetechnique still continues to be very popular and itself enables transformational changes in a number of market and sector. The automobile utilitiesare present around us fromlong time and it is continuously evolving itself ever since. The foremost expected transformation, which is conversion of vehicle driving by humans to the driving and control by themselves. Industrial Applicationof IoT-technologies in automobile sector will set the path for the autonomousvehicles manufacturing industry. The revolution of automobile industry will set a landmarkin productionof the autonomous vehicles that may play a foremostcontribution in the future economy. The effective arrangement of vehicles on the road with the association of IoT-technology provides the economic benefit and energy conservation. It is done by the centralized control and well-timed maintenance.

Keywords: Internet of Things, Automobile Sector, Environment issues.

Chapter-19

WEAPON AUTONOMY: GREEDY ALGORITHM SELECTING & ATTACKING PERSPECTIVE

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Abstract

The attacker reacts by computing an ideal attack plan that circumvents the deployed mitigations, while the defender adopts a mitigation strategy that interdicts prospective attack activities. In Greedy Algorithm Selecting & Attacking Perspective, a generic formulation for deterministic plan interdiction will be presented as a mixed-integer problem, and then constraint generation has been applied to compute optimum solutions. The ultimate moral principle is to be the 'Perspective' it arrives in, whether on a human or computer level. Weapon Autonomy or choosing systems with substantial autonomy are major features that are now in use for picking and striking targets. Today, these weapons tend to be extremely controlled in their tasks (e.g., self-protective rather than attacking operations). However, the problem consists of optimally assigning a given number of weapons toa set of their damagecapacity, so that the post-engagement total expected survival value of the targets isminimizeda deeper look at these current

Chapter-20

SAFETY ASSESSMENT OF HEALTH CARE COVID-19 IN INDIA: ASSISTEDTHE FUZZY LOGIC APPROACH (FIS)

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Abstract

In 2019 month of December, a novel coronavirus, called Covid-19 was discovered in the city of Wuhan china and also spread various cities as well asother countries. At the present-day novel coronavirus becomes the most important for health, causing severeissues about concern to the being human and this is becoming the pandemic. Due to the prone ofCovid-19, uncertainty is more significant for facility a healthcondition. There are solutionsto handle with insecurity about health from Covid-19 for assessing the condition through FIS (Fuzzy Inference System). Therefore, the particular reason study to develop the fuzzy systemto help assess the safety of health related the patient condition according to the changes ofenvironment. The FIS is permitted to assessing the patient's history like that temperature ofthe body, travel history, disinfection frequency, breathing problem, suffering the cough

Chapter-21

DISTRIBUTED ENERGY RESOURCES ALLOCATION IN DISTRIBUTION SYSTEM USING EERP

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Abstract

A distributed system contains several nodes that are physically separate but joined together along the network. All the nodes in this system communicate with one another and handle processes in tandem. Each of those nodes contains a little part of the distributed software system software. Along with some advantages, DS also has some challenges like security, load distribution, resource allocation, and failure due to electricity. Power loss minimization of the distribution system is utmost important to improve system efficiency. Also, sufficient reactive power support to the system is necessary for improving the voltage profile, system stability and reliability. In order to achieve all of these, it is essential to introduce new technologies for optimal usage of existing resources. A well-managed, time-constrained workflow scheduling is needed to improve system performance and end user satisfaction. Meanwhile, the intrinsic uncertainty in dynamic systems increases the difficulties of the scheduling problem. Therefore, it is a great challenge to improve performance and optimize several objectives simultaneously.

Chapter-22

CURRENT ISSUES AND CHALLENGES FOR MEMORY FORENSICS: SECURITY PERSPECTIVE

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Abstract

The world has shifted to a digital domain as a result of rapid technology advancements. The rise of this transition has been fueled by cybercrime and security breaches, putting consumers' privacy and security at risk. As a result, the goal of this chapter was to look into the use of memory forensics in preventing cybercrime, which has been a significant achievement in cybersecurity. Memory forensics is a sub-part of digital forensics. This is a major field of investigation and collects the evidence in digital form. Memory forensics includes numerous elements like memory acquisition, volatile memory, and memory dumps. The recent survey and investigation reports show the expansion of law-breaking and attacks. Forensics specialists and forensics companies are continuously able to offer what they wish. Memory rhetorical is said to be information recovery. This chapter provides the same information about memory rhetorical and current problems, tools, and challenges in memory forensics security.

Keywords: Memory Acquisition, volatile memory, Memory dump, Memory forensics importance, challenges tool, and techniques

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CYBER SECURITY CHALLENGES AND IT'S NEED IN SMART SECURITY

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Abstract

Information security and cyber security are considered synonymous. This title contends that these two terms are not entirely equivalent, although here is a considerable correlation between information and cyber security. This article also indicates that cyber security goes beyond the conventional information security limits to include information resource protection and other properties, including the individual himself. Reference to the human element in information security typically corresponds to the role(s) of humans inside the security procedure. This feature has an extra level in cyber security, namely people being potential targets of cyber-attacks or perhaps inadvertently participating in a cyber-assault. This has ethical implications for mankind, as it may be considered as a societal duty to

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EXPLORING POTENTIAL PROBLEMS WITH INFORMATION SECURITY RISK MANAGEMENT

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Abstract

The modern world is critically reliant on a broad range of software systems. Dependency on computers is so high that life cannot be imagined without them. With all the advantages of computers and the software running on them, there is fear too. This anxiety is in the form of software vulnerabilities that vulnerabilities are the defects that are introduced during the development of software. In most cases, "compromising in design" is one of the critical security risks that make vulnerable to the system. The presence of even a single vulnerability may cause irreparable loss to the organization in terms of money and reputation. When one talks about improvement, a question comes to mind that up to what extent a particular approach can improve security.

Chapter-25

THE ROLE OF ADVANCED MACHINE LEARNING TECHNIQUE IN ENVIRONMENT, BIODIVERSITY AND DISASTER MANAGEMENT

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Abstract

Climate change is one of humanity's biggest challenges and we, as researchers in machine learning, may think how we can help. Here it will describe how machine learning can be a powerful tool for reducing greenhouse gas emissions and supporting community adapt to the changing environment.Machine learning is used to healthy energy production and demand in real-time, more realize the potential of ' smart grids, ' decrease complexity, and increase efficiency, energy balancing, and choose sustainable energy storage. Due to environmental change there is a challenge of biodiversity and disaster management. Therefore, advanced machine learning techniques gives a precise solution for the biodiversity challenge and disaster management. Machine learning techniques provides the backbone for applications that can automatically detect changes in soil use in variety with satellite pictures, including coverage and forest analysis, vegetation, and flood

Chapter-26

A FUZZY QUANTIFICATION APPROACH FOR UNCERTAINTY ESTIMATION IN NATURAL LANGUAGE TEXT

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Abstract

Estimation of uncertainty is the key for the social presumptions; it not only the core component but essential for the research design. Uncertainty estimation in the natural language is the qualitative research and provides new prospect research. Uncertainty estimation includes characterizing the uncertainty present in the natural languageor qualitative sources of data, such as text, uncertainty evaluation at the level ofindividual variables; social science texts contain and articulate uncertainty about widehypothetical constructs and relationships amongfact of attention. A consistentapproach tomeasure and estimate this extra uncertainty would assist in the creation of futureresearch. For qualitative research or qualitative sources of data such as interviews, leveragingverbally or textually expressed uncertainty could provide an external mechanismfor weighting and validating evidence. Despite the promise of utilizing textual data for uncertainty analyses,