**MATURI VENKATASUBBA RAO (MVSR) ENGINEERING COLLEGE**

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EAMCET/ PGECET/ ICET Code: MVSR

# tek essenCSE

# Department of Computer Science and Engineering

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# Department of Computer Science and Engineering

- **VISION**
- To impart technical education of the highest standards, producing competent and confident engineers with an ability to use computer science knowledge to solve societal problems.

- **MISSION**
- To make learning process exciting, stimulating and interesting.
- To impart adequate fundamental knowledge and soft skills to students.
- To expose students to advanced computer technologies in order to excel in engineering practices by bringing out the creativity in students.
- To develop economically feasible and socially acceptable software.

## B.E. PEOs, POs & PSOs

### PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The Program Educational Objectives of undergraduate program in Computer Science & Engineering are to prepare graduates who will:

1. Obtain strong fundamentals concepts, technical competency and problem solving skills to generate innovative solutions to engineering problems.
2. Continuously enhance their skills through training, independent inquiry, professional practices and pursue higher education or research by adapting to rapidly changing technology.
3. Advance in their professional careers including increased technical, multidisciplinary approach and managerial responsibility as well as attainment of leadership positions thus making them competent professionals at global level.
4. Exhibit commitment to ethical practices, societal contributions and lifelong learning.

### PROGRAM OUTCOMES(POs)

At the end of the program the students (Engineering Graduates) will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **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.
4. **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.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **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.
7. **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.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **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 clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principle and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Lifelong 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 (PSOs)
13. **Efficient coding:** an ability to analyse a problem, design the algorithm and optimally code its solution.
14. **Software deployment:** an ability to identify & define computing requirements to test, implement and maintain a software product.

# M.Tech PEOs, POs & PSOs
## PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The Program Educational Objectives of postgraduate program in Computer Science & Engineering are to prepare graduates who will:

1. Gain in-depth knowledge of advanced computational methods, to apply in relevant real-world issues within the context of a specific application domain.
2. Design and develop innovative solutions making use of modern computing platforms by exhibiting commitment to ethical practices and lifelong learning.
3. Understand and contribute to prevalent literature for pursuing research in the field of computer science and engineering.
4. Exhibit technical and managerial skills in multidisciplinary domains andbecome competent professionals.

## PROGRAM OUTCOMES(POs)

At the end of the program the students (Engineering Graduates) will be able to:

1. An ability to independently carry out research /investigation and development work to solve practical problems
2. An ability to write and present a substantial technical report/document
3. Students should be able to demonstrate a degree of mastery over computer science and engineering for holistic professional development.
4. An ability to demonstrate understanding for designing and developing software for multidisciplinary problems.

## PROGRAM SPECIFIC OUTCOMES (PSOs)

1. Conduct research using knowledge gained to identify and solve problems in multidisciplinary domains.
2. Demonstrate critical thinking ability to propose efficient solutions to the real world computational problems taking into consideration environmental and societal issues

# Creative Desk

**Dr.AkhilKhare,**
Professor,
(Reviewer Technical Magazine)

**Dr. B. Sandhya,**
Professor,
(Reviewer Technical Magazine)

**Meduri. Anupama,**
Associate Professor,
(Reviewer Technical Magazine)

**Dr. Daggubati. Sirisha,**
Assistant Professor,
(Incharge Technical Magazine)

**V. Sudhindra,**
Assistant Programmer,
(Magazine Design Team)

**M. Nagarani,**
Programming Assistant,
(Magazine Design Team)

# Index

### Chairmen's Message

**Dr. K. P. Srinivasa Rao,**
MBBS, MS (Ophthalmology),
Chairman, MVSREC

### Principal's Message

**Dr. G. Kanaka Durga,**
Principal, MVSREC
(Professor, Department of
Electronics and Communication
Engineering)

### HOD's Message

**Prof.J.Prasanna Kumar,**
HOD, MVSREC
(Department of Computer
Science and Engineering)

## Creative Desk

It is often said " Give me a copy of your college Technical Magazine", I will tell you about the quality of your college. "I strongly believe in this statement. Magazine carries the contributions reflecting ethos and aspirations of the faculty, students and other team members of an institution. I am happy to know that Computer Science & Engineering Department is bringing out its first department technical magazine this year. It is my pleasure to congratulate the editorial team for bringing out a quality Technical Magazine. Reading this technical Magazine would definitely be an inspiration and motivation for all students and staff to contribute even more to the forthcoming issues.

TekEssenCSE is the manifestation of the desire of Computer Science Faculty and Students to share their innovative ideas on common platform.    It gives me great pleasure to know that TekEssenCSE college magazine is ready for publication. This magazine is a perfect blend of magnificent and groundbreaking articles. It has concentrated in disseminating information to the student community and quenches their thirst for knowledge updations. I am very glad to congratulate the editor for their hard work and bringing out this edition.

TekEssenCSE is the annual magazine released by the Department of Computer Science & Engineering.  It is a blend of exquisite articles and innovative ideas from the faculty and new – age Students of Computer Science & Engineering Department. I strongly believe that the informative articles & innovative ideas presented in the magazine will be appealing and useful to the readers.

"Coming together is a beginning, keeping together is progress and working together is success" – This magazine "TekEssenCSE", a flag ship magazine of Computer Science & Engineering Department of MaturiVenkataSubba Rao Engineering College, is the culmination of the never tiring initiative and endeavors taken by the faculty and students of CSE. The Magazine strives to inform, engage, inspire and educate diverse readership on developments in Computer Science field.

IV

# Securing The Insecure

**Meduri Anupama**
Associate Professor

The internet is a war zone. Enter if you dare.

The internet was borne from the need for unfettered scientific communication across different locales.People adopted it into their everyday lives so they could share in that democratization of information. Digital economies emerged and more powerful computing systems allowed for more powerful web services.

Being able to carry out bank transactions on your phone, for example,may be a boon to a traveling salesman, but it's also a recipe for ending up as prey for bad actors looking to make it rich.

Nearly every internet fad has its own ledger of breaches, cybersecurity attacks, or digital ransoms.

It goes back to the dotcom boom. Yahoo dominated the cyberspace in the late 1990s and early 2000s, its emailservices reigning supreme in the fledgling digital society.The California-based company was valued at $54.9 billion– or INR 410,900 crores – in 2006.Following a 2013data breachthat left 3 billion accounts compromised, the poster child of the Y2K era was purchased in 2017 by Verizon for $4.48 billion – a 92% nosedive.

The early-2010s started with a fad to throw out physical hard drives and toss our personal data into the cloud – as if they were really floating,white puffs of ones and zeros. The cybersecurityattacksthat followed included a 2012 Dropbox hack that 'exposed 68 million users information, a 2014 phishing campaign that exposed  photos of celebrities, and a 2012 LinkedIn breach that involved the theft of countless encrypted passwords. Heck, even Microsoft's cloud services were hacked in 2010.

And here we are creating vacuum cleaners that connect tothe internet.

To no one's surprise, the internet of things has its own record of unglamorous cyber break-ins.Hackers at the 2016 DEF CON security conference – equivalent to an annual county fair for hackers looking to have fun and do some good – found 47 vulnerabilities for 23 devices. Everything from door locks to wheelchairs to thermostats walked out of the conference with newly documented weaknesses.

Researchers in 2015 demonstrated the ability to not just kill the engines of a Jeep Cherokeeonmiddle of the highway, but also mess with its air conditioning, radio settings, and windshield wipers – all via its Internet-connected, onboard entertainment system.

You get the point: The more devices we hook up to the World Wide Web, the more we hookup our lifelines to this network.Add in enough internet-connected utilities and you cook up a cyberstorm that can wipe out large swaths of our daily lives.

That's what happened in the fall 2016 Mirai botnet attack.

The attack exploited one of the essential facets of how the internet works: communication. Devices connected to the internet communicate via multi-byte units of information known as packets. They come with sender and recipient addresses, which are known as Internet Protocol Addresses – IP for short – and hop along network hubs stationed across the world via fiber optic cables deep under the sea or satellites up in space – a digital form of hot potato, if you will.

Every time you fire up your web browser and type in google.com, you're sending packets along this distributed network, eventually to one of Google's many high-powered web servers, which then sends packets of data hopping back to you. Every time a new page loads, the more the two of you exchange data.

Now imagine that back-and-forth happening simultaneously, trillions of times over.
That's what happened in 2016.

The Mirai botnet was quite simple: An unknowing user would download the malware, which would then infect internet-connected devices – webcams and routers, for example – by guessing every password from its in-built dictionary of common passwords.

Didn't know your webcam and router had passwords? Neither did a lot of people.

Many users kept and still keep the default passwords on their internet-connected devices, and the internet of things was no exception. The malware webbed together hundreds, if not thousands of infected devices – from smart toasters to printers to smart washers to smart ovens to DVRs to even baby monitors – and had them do one thing: repeatedly send web requests to internet services.

That's all it took to break the internet.

Fittingly so, "mirai" is Japanese for "future." It's a dark one, alright.

Consequently, we shouldn't be asking ourselves how to sign out of this digital nightmare. The better question is whether the internet of things can be tamed.

If the boom and bust of businesses like Yahoo have taught us anything, it's that rushing to embrace something just because it's a fad – and because it's connected to the internet – is a bad idea.

In other words, when Nike's light-up,self-lacing shoes hit stores near you, wait before rushing to the cash register. A security researcher might just show you why an app-controlled shoe that needs a nightly charge isasking for trouble.

Zuckerberg and Pichai can change their tunes all they want, but their message is surprisingly consistent: The internet is inevitable – and so is the loss of your privacy.

# Green Tomorrow (GT) - An Energy Efficient Novel Approach Using Crowd Computing

**Dr.AkhilKhare**
Professor

'*Save Energy – Save Earth*' *is a novel approach for GT using crowd computing. Crowd computing is one of the upcoming research areas allowing the people around the world to work together in assistance with the machines. A decade after the machines will completely take over the control with the heavy boom in industrial revolution ($I_R$). The exponential increase in data and its advance techniques, if not managed properly will result in the increase of high energy consumption (EC) and e-wastes.*

Currently, all of us are living and experiencing the era of 'Advance Computer/Network Age', where almost everything is handled by the computer software. Today, software alone might oversee the world. But, there will always be a margin between what humans understand and what computers can perform. Certain things are difficult to model with computers but can be performed by the human beings with their extraordinary intelligence. Consider an example, where the medical prescription written by your family doctor, which is really hard to recognize is given to the computer/robot to read for the medicines. Here, the various available algorithms, which involves huge computations and requires large amount of power consumption (PC); fails to decipher the scrawls.

Rather the same data when given to a group of people, and asked to recognize, with each other's help, they're able to fairly accurately glean words out of the seemingly unreadable. A human percepts and classifies the samples (or patterns) in the original space (pattern space) whereas a computer does not understand the pattern space. Thus, crowd computing allows the humans to proactively use their own natural energy rather than artificial computations, requiring a large power consumption. We all have learnt the law of energy conservation in science which says; **in a closed system, theamount of energy is fixed. Energy inside the system can neither be created nor be destroyed. The energy can be converted from one form to another (and sometimes back again).** Today, the distributed computing infrastructure makesuse of millions of devices which are the parts of IR and results in the increase of carbon emissions which is a serious threat for energy and power. The environmental cost function C(x) considered in many existing studies is as follows:

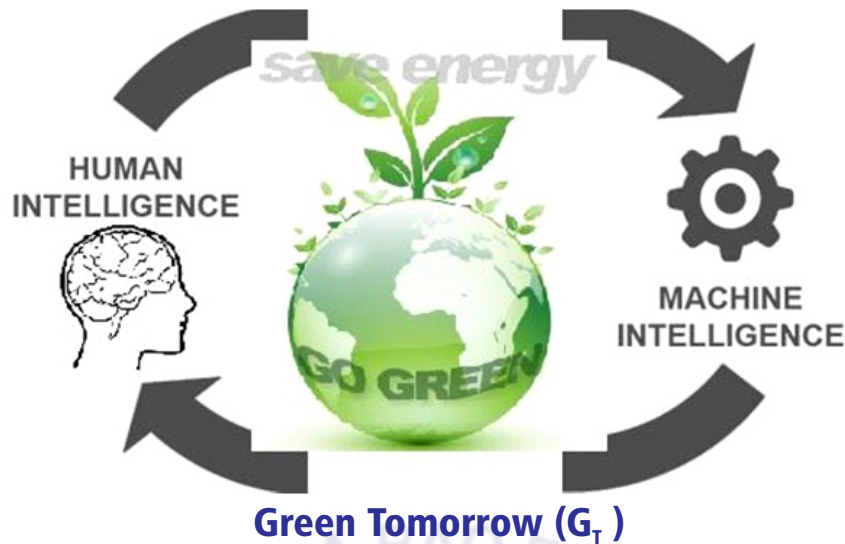$$C(x) = \textbf{c.r.PUE.P(x)} \qquad \qquad \text{.......(1)}$$

c – carbon footprint cost ($/gm)

r – avg. carbon emission rate (gm/KWh)

PUE – Power Usage Effectiveness

P(x) – server power = server utilization

$$P(x) = \text{Requirement/Capacity} = Pbusy/(Pbusy+Pidle) \qquad \text{........(2)}$$

## Green Tomorrow (G$_T$ )

$$GT \ \alpha \ \ ES. \ PS \qquad\qquad ........(3)$$

Green tomorrow (G$_T$) as shown in above Figure proposes an energy efficient approach where the Humans and Machines make a great team to save 'Mother Earth'. GT is directly proportional to the integration of energy savings (E$_s$) and power savings (P$_s$). The reduction in energy consumption and reduction in power consumption will collectively contribute to the vast amount of energy and power savings. These valuable savings will drive us all to 2080 rather than having hazardous energy crises in 2050, which might lay the critical scenarios for the living beings to survive.

Rob Miller, a professor of computer science at User Interface Design Group, Massachusetts Institute of Technology (MIT) - Computer Science and Artificial Intelligence Laboratory (CSAIL), highlights the 'crowdcomputing' revolution as a challenge that makes theworkers/employers and machines/software as colleagues rather than competitors. The dependence of human beings on the various advanced gadgets and their accompanying software for the daily use is increasing day by day, thus superseding the human intelligence. The industrial revolution has given an inferiority complex to the humans as they may become secondary to the technologies they create, which requires huge amount of power and energy consumption. The day-to-day technological innovations & advancements are demanding for more and more amount of energy resources. Thus, energy conservation is one of the challenging tasks for the humans to survive in future.

There are various definitions and views for crowd computing, which takes a different approach for solving different problems. SriniDevadas, professor of electrical engineering and computer science at the MIT CSAIL, states crowd computing as a symbiotic relationship between software and humans. Crowd computing analyses and recognizes the strong and weak points of both, and efficiently utilizes those qualities for improved energy savings. The human knowledge is combined with the varying technological advances to yield efficiency and profitability. It leverages the human intelligence through its experience and subjectivity, against that of artificial intelligence through its speed and objectivity. Brain-guided computations can perform certain tasks at a great speed, that computers alone cannot, such as transcription, video moderation, etc and result in the increase of techno power savings. The power of crowd computing has benefitted the digital universe with increase in the energy savings and reduction in harmful emissions, e-wastes. According to Murray et al. in crowd computing, opportunistic networks can be used to spread computation and collect results. The mobile phones having large bandwidth (BW) is used as nodes and crowd computing allows the distributed human interaction tasks with optimized utilization of various resources. Cooke and Gillam describes crowd computing as the group of people who are offering their intellect and computers to solve problems which are at present unsuitable for computational approaches. According to Schneider crowd computing is a myriad of human interaction tools that allow the exchange of ideas, nonhierarchical decision making, and full use of the world's mind space.

The emergence of Ubiquitous computing is rapidly changing the scenario of industries from ownership-based approach to subscription-oriented approach, where the access to scalable infrastructure and services is on-demand: anytime-anywhere. As shown in Figure this massive growth of industrial revolution demands for high-end computing resources (HCR) with huge capital investments ($C_I$). The inefficient management and handling of these resources result in critical penalty. The intensive increase in IR has following impact:

➤ The traditional approach demands high energy consumption/usage (EC) for computational operations, resulting in low resource utilization and wastage of energy.

➤ There is an increasing demand for heavy power consumption (PC), for example a typical datacenter with 2000 racks needs nearly 25 Megawatt of power to operate, which results in higher operational cost along with the additional cost incurred on cooling process.

➤ The continuous increase in the level of Carbon emissions ($CO_2$) by the industry is a dangerous pollutant that leads to adverse effects on the environment and all the living organisms. Gartner et al. [2007] estimated that the Information and Communication Technologies (ICT) industry generates about 2% of the total global CO2 emissions. The proposed approach suggest that a decrease in emission volume of 15% – 30% is essential before year 2025 to manage the global warming situation and keep the global temperature increase below 20C. It is predicted that if the global temperature rises by 3.60 C, the polar ice caps and glaciers would melt, which would increase the water level of oceans by about 100 m and hence lead to the flooding of low-lying coastal areas of the earth.

➤ The increase in e-waste (ew) due to the sophisticated advancements in electronic gadgets with large amount of energy and power requirements.
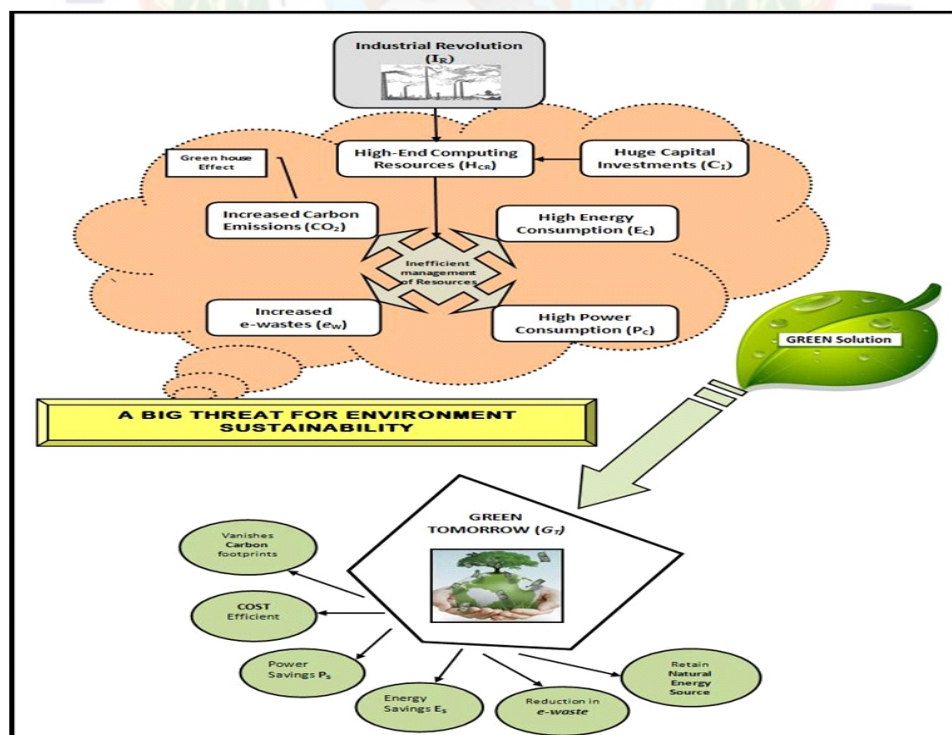


Thus, energy consumption, power consumption, carbon emission and e-wastes by industrial revolution/infrastructures have become a key environmental concern. All these factors together pose a **Big Threat for Environment Sustainability** – *A state in which the demands placed on theenvironment can be met without reducing its capacity to allow all living beings to live well, Today and in Future.*'

**Hence, GT is considered to be the function of IR.**

$$GT = f(IR) \qquad\qquad \ldots\ldots(4)$$

**IR $\alpha$ HCR . CI**

IR directly depends on the heavy demand of HCR with huge CI. Therefore to have the green solution (GS) we need to control IR with appropriate utilization of various resources.

$$GT \ n^- / IR$$

$$IR = \int_0^{n} (EC.PC.CO_2.ew.\ CI\ )dn \qquad\qquad \ldots\ldots.(5)$$

n $>$ 0 and n $\in$ { HCR | As per the Application requirements }

$\therefore$ Max. (GT) = Min. (IR) $\approx$ (Appropriate Resource utilization)

The proposed framework of GT gives the **GREEN Solution** for the Big Threat .GTis the result of CrowdComputing, which is a new energy efficient research paradigm. Here, the human intelligence and machine intelligence work hand-in-hand to create a miracle called 'GT'. EENACC is a great boon for green future: Save Energy – Save Earth. Crowd computing allows improvements by consuming less amount of energy. It's a fantastic solution to get a massive amount of computing power at fairly cheap amount of energy. The energy consumption can be minimized by actually measuring the amount of energy being used by monitoring the machines of the people who participate or contribute for the solution of a problem as the part of Crowd Computing process. There should be efficient resource management for proper industrial work with less power consumption. One of the important objective as well as economic incentive for an organization is the cutback in the energy budget of a datacenter. Crowd sourcing makes the traditional datacenters more energy efficient by using technologies such as resource virtualization and efficient workload allocation. Server consolidation reduces the energy consumption by allowing different workloads to share the same physical host using virtualization and also switching off the unused servers. Thus energy optimization can be achieved by combining resources as per the current utilization, efficient virtual network topologies and thermal status of computing hardware and nodes. The EC and PC can be further reduced by performing the execution of massive computations on slow speed with an additional advantage of doing some other work simultaneously using all the computing resources without disturbing the know-how of the machines. Thus, **bring together the unusedcomputational power (PS) and save the additional amount of energy (ES) which would have been required in Future. Today we can have lots of computational power at fairly cheap amount of energy with efficient use of resources and heavy financial gains-profits.**

A recent research survey of various energy efficient solutions and strategies show that shifting the business applications to crowd computing can reduce and vanish the carbon footprints of organizations in the upcoming days. The use of crowd sourcing practices has shown following good results in reduction of carbon emissions:

- ✓ Small Scale industries – upto 80 - 85 percent
- ✓ Large Scale industries – upto 40 - 65 percent
- ✓ Small Scale industries – upto 65 - 80 percent

Electricity is a significant source of energy which is used to power homes, business, and industries. The combustion of fossil fuels to generate electricity is the largest single source of $CO_2$ emissions in the world. The lifetime of $CO_2$ is hard to define as the gas is not destroyed over time, but instead moves among different parts of the ocean–atmosphere–land system and has a negative effect on all living organisms. Hence by accepting and using the green solution there will definitely be a significant reduction in the carbon wastes. Saving the electricity will directly minimize the corresponding $CO_2$ emissions. Also, there must be efficient management and handling of the advanced electronic gadgets to reduce the e-wastes. There should be proper dispersal of the e-wastes or appropriate recycling methods must be used for the e-wastes to have reduction in energy and power consumption.

# MIT Media Lab Open Agriculture Initiative (OpenAg)

**Dr.DaggubatiSirisha -** Assistant Professor
**MVR Jyothisree** - Assistant Professor

She was saying to me, "Small boys become big men through the influence of big men who care about small boys and for that reason we must be truly thankfuland grateful to our farmers". I was pondering whether being thankful and grateful is the maximum thing that we can do? Can't we do something more?I was petrified when I came across certain facts like the average period between the apple being plucked from the farm and apple being consumed by us, in our country is 10 months. This means that at the time we eat it, apple is nothing more than a sugar ball and it has lost all its antioxidants.



This proved that being grateful and thankful won't suffice. The other terrifying fact is the population is exponentially increasing and number of farmers are exponentially decreasing due to climate and water drought. So what will we do for food?

In 2015, Engineers from MIT came up with the idea of food computers. This madeclimate, a democratic one, such that farming can be done anywhere independent of climate.The plants were tracked and each plant had a plant profile and also all plants had a plantface-book, thereby, monitoring its progress day by day. If the pH went down, they adjusted it immediately and if humidity is less they adjusted it accordingly. At the end of harvest they obtained a nutrient rich food. For every 8 seconds, the parameters like temperature, humidity, CO2,Light spectrum, Light intensity, Water, Dissolved Oxygen etc…were tracked. AI monitored crops with stationary cameras, tracking growth and potential diseases overtime. We estimate that with computer vision and AI, 5-10% of crops can be saved by earlydetection.

As a result of this we can be sure that the food that we consume will be nutrient rich and won't be conundrum like now. As Caleb Haper said," The future of food is nothing but creating a network of shared tools that empowers the next 1 billion people to simply ask what if?". It is roughly estimated that in few years there will be 1 billion farmers all over the world. So with the tremendous development in technology, it is time to stop only being thankful and start contributing from our side.

# Demystifying Quantum Computing

**Varun Kumar Palakodeti -**
B.E. 4/4 CSE – A - 2451-16-733-044

Quantum Computing, a relatively booming field of computer science and a field that is proven to be significantly faster in solving np-complete problems. Even big name corporations like Microsoft, Google, IBM are investing millions into this technology gold rush, also in the recent budget session our financial minister Mrs.NirmalaSitharaman announced $1.12 Billion towards the area of quantum technologies in India.

The emergence of the Technology in 2010's has quite a lot of importance, Moore's Law is plateauing and this is seen very evidently as the size of transistors has already reduced to 7nm. Any further reduction in size would cause the electron to experience a phenomenon of Quantum Tunneling, i.e. the transistor fails to work normally because the known laws of physics don't apply for an electron of size 4nm to 6nm, and quantum physics starts to take over. Thus, we can say that nature is inevitably forcing us to shift towards quantum. Coming to the mathematical/computational aspect of the technology, it needs to be viewed as an entirely unique paradigm of computing, unlike traditional turing machines this one is not a deterministic computation, rather a probabilistic one. In simple terms, when an operation is performed on a bit of a normal computer it changes from one state to another, and the output is very much predictable using truth tables, but when dealing with a quantum computer and Quantum bits(qubits) the output is in probabilities of zero and one, this is also known as superposition of a qubit.



A very popular myth regarding quantum computers is that they will replace conventional computers that we use today. But the reality is far different, Quantum Processing units or qpu, when they come into existence they would work together with the conventional cpu just as the way the gpu works today. The gpu's have a particular job to perform, which the cpu fails to achieve when compared to the performance of gpu. Likely, the qpu will have a unique job that the cpu cannot perform. Hence, the cpu's will not be replaced totally. Another point of interest is that quantum computers can solve complicated problems like protein folding that can find a cure to cancer, and crack the RSA cryptosystems, etc. But in reality this would take around two to three decades to have a qpu that has such potential.

In terms of programming a quantum computer uses a completely different style of code, or it is safe to say that there would not be a code like the higher level programming languages of today, rather a circuit constructed using quantum(reversible) logic gates on a quantum wire would be employed. The circuit and the gates that it constitutes are not physical but rather abstract, technically speaking they would be vibrations on a quantum field. For starters, there are a few quantum programming languages like the q# (pronounced 'q sharp') from Microsoft and QISKIT (quantum information systems kit) from IBM, and google'scirq. In most of these quantum specific programming languages, we don't write code to be converted into binary or something like assembly language that will later be read by a computer bit by bit like the humans read a book word by word. But rather the circuit written in code for quantum computers would be like music where each gate acts as a musical note.
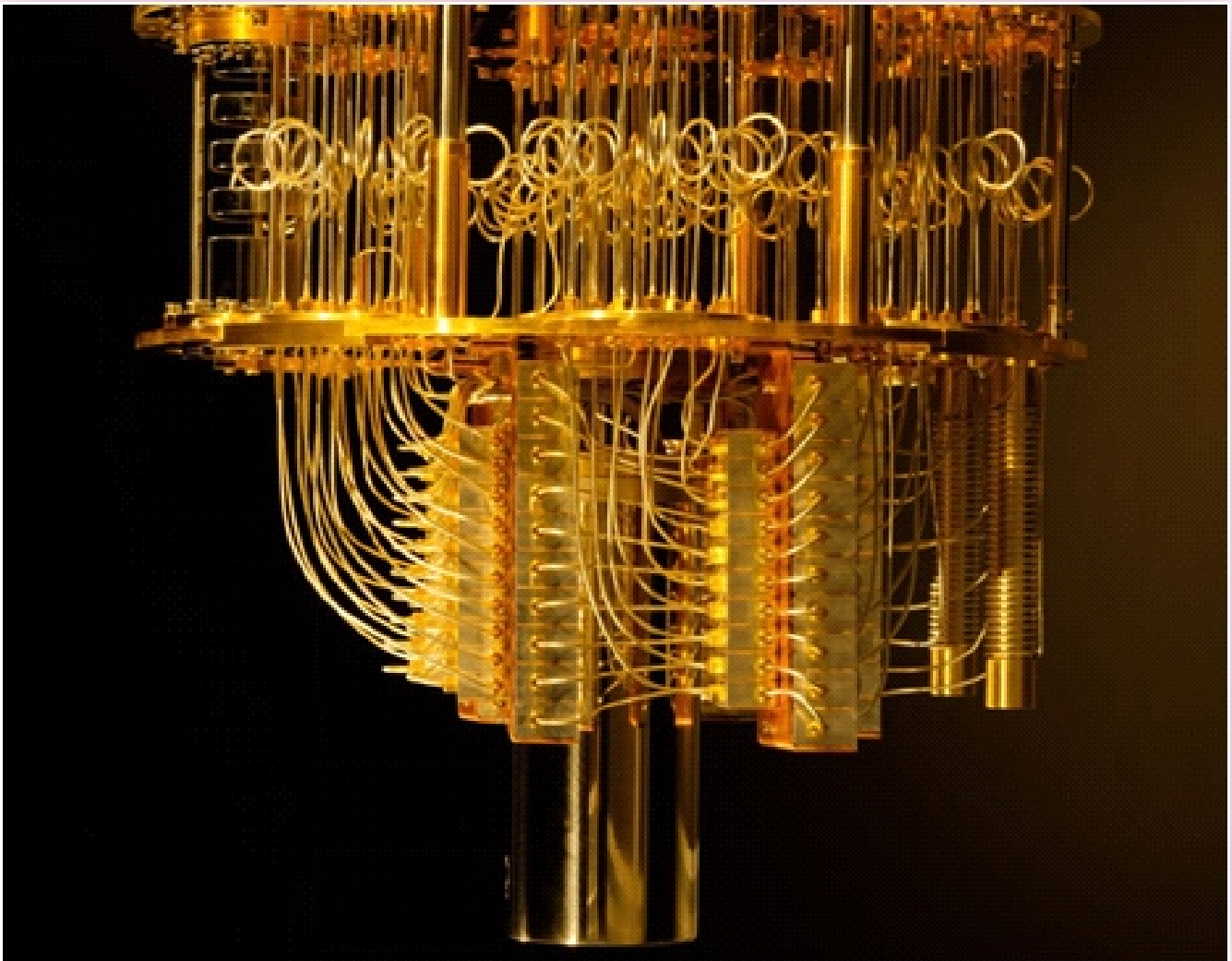


"Programming a Traditional Computer is like writing a book, the better your lines the better the performance, but programming a Quantum Computer is like composing Music the better the circuit the better the Rhythm."

# Breast Cancer Analysis

**P. Nischala**
M.Tech. [CSE] – 2451-19-742-007

## I. Introduction :

There has been a growing increase in the incidence of breast cancer which is still the most significant cancer-related cause of female mortality. In spite of significant progress in the management of breast cancer, the search for a curative treatment is still ongoing. Although a number of crucial studies and clinical trials have significantly contributed to the improvement of breast cancer care, many often remain unknown to the majority of clinicians, suggesting a need to identify at least the top 100 most cited studies in the field. Breast cancer is most frequently discovered as an asymptomatic nodule on a mammogram. A new breast symptom should be taken seriously by both patients and their doctors by the possibility of an underlying breast cancer at almost any age.

Machine learning a sub-field of Artificial Intelligence is used to achieve thorough understanding of the learning process and to implant learning capabilities in computer system. It has various applications in the areas of science, engineering and the society. Machine learning approaches can provide generalized solutions for a wide range of problems effectively and efficiently. The machine learning approaches make computers more intelligent. Machine learning helps in solving prognostic and diagnostic problems in a variety of medical domains. It is mainly used for prediction of disease progression, for therapy planning, support and for overall patient management. Hypothesis from the patient data can be drawn from expert systems mechanisms that use medical diagnostic reasoning. As mentioned earlier breast cancer is dreadful, so there is a need for computerized systems that emulate the doctors expertise in detecting the disease and help in accurate diagnosis. Machine learning has various approaches for building such systems. There is no single approach for all the problems and each approach perform differently for different problems. So there is a need for finding the approaches that perform well for a particular problem. In this thesis various approaches are used for breast cancer diagnosis and they are compared to find the best performing ones.

## II. Problem Statement

n the current system, the tumor images and the screenings take a lot of time to be analyzed by the radiologists and give a mammogram report. The mammogram report consists of certain characteristics of the tumor such as its radius, shape and texture. All these characteristics are later analyzed by oncologists and lets them decide which factors contribute to the malignant tumor. The entire process takes a few weeks and also puts a lot of pressure on the patient. To reduce the stress and cost a new system is required which generates instant results and also gives the patient some relief.

## III. Proposed System

In the presence of tumour, this project will make predictions more accurately about the presence of tumour in a patient based upon the test report. The project eliminates the presence of a Doctor for the consultation in order to find out about the presence of benign or malignant tumour. As it is a well trained machine learning model, the accuracy with which it gives us results that are very high. The accuracy of the model is calculated to be 90% which is very high and an effective way to solve the existing problem.

## IV. Domain Information

Machine learning is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it to learn for themselves.

The process of learning begins with observations or data, such as examples, direct experience, or instruction, in order to look for patterns in data and make better decisions in the future based on the examples that we provide. The primary aim is to allow the computers learn automatically without human intervention or assistance and adjust actions accordingly.

## Some machine learning methods :

Machine learning algorithms are often categorized as supervised or unsupervised.

☆ Supervised machine learning algorithms can apply what has been learned in the past to new data using labeled examples to predict future events. Starting from the analysis of a known training dataset, the learning algorithm produces an inferred function to make predictions about the output values. The system is able to provide targets for any new input after sufficient training. The learning algorithm can also compare its output with the correct, intended output and find errors in order to modify the model accordingly.

☆ In contrast, unsupervised machine learning algorithms are used when the information used to train is neither classified nor labeled. Unsupervised learning studies how systems can infer a function to describe a hidden structure from unlabeled data. The system doesn't figure out the right output, but it explores the data and can draw inferences from datasets to describe hidden structures from unlabeled data.

## V. Experimentation Analysis

The dataset containing the report details is initially loaded into the program and the attributes which have high correlation are chosen. The getdummies() method is used to get the dummy values such as 'M' and 'B'. The test cases are split into test and train cases and analyzed. The train data is fit into the model and trained. Later the model predicts the values for the test data. The accuracy of the model is calculated by seeing how many test cases have been predicted accurately and how many test cases are wrongly predicted.

## VI. Architecture Of Proposed System

Architecture diagram is a diagram of a system, in which the principal parts or functions are represented by blocks connected by lines that show the relationships of the blocks. The block diagram is typically used for a higher level, less detailed description aimed more at understanding the overall concepts and less at understanding the details of implementation.
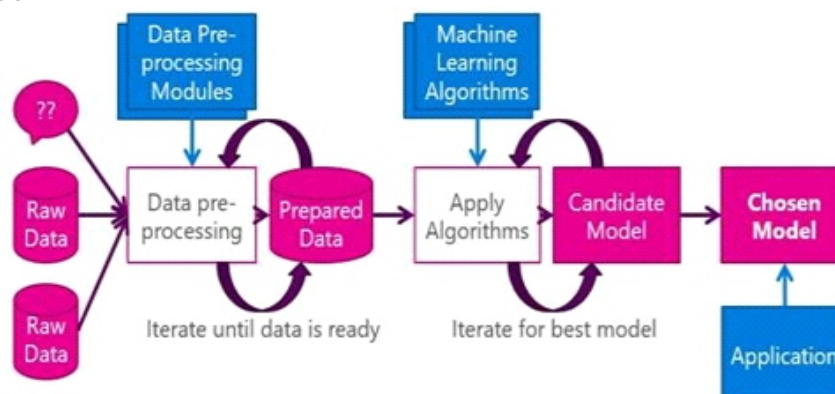
## VII. Algorithms
## Logistic Regression :

Logistic regression is a statistical model that in its basic form uses a logisticfunction to model a binary dependent variable, although many more complex extensions exist. In regression analysis, logistic regression (or logit regression) is estimating the parameters of a logistic model (a form of binary regression). Mathematically, a binary logistic model has a dependent variable with two possible values, such as pass/fail which is represented by an indicator variable, where the two values are labelled "0" and "1". In the logistic model, the log-odds (the logarithm of the odds) for the value labelled "1" is a linear combination of one or more independentvariables ("predictors"); the independent variables can each be a binary variable (two classes, coded by an indicator variable) or a continuous variable (any real value). The corresponding probability of the value labelled "1" can vary between 0 (certainly the value "0") and 1 (certainly the value "1"), hence the labelling; the function that converts log-odds to probability is the logistic function, hence the name. The unit of measurement for the log-odds scale is called a logit, from logistic unit, hence the alternative names. Analogous models with a different sigmoid function instead of the logistic function can also be used, such as the probit model; the defining characteristic of the logistic model is that increasing one of the independent variables multiplicatively scales the odds of the given outcome at a constant rate, with each independent variable having its own parameter; for a binary dependent variable this generalizes the odds ratio.

Logistic regression is a statistical method for predicting binary classes. The outcome or target variable is dichotomous in nature. Dichotomous means there are only two possible classes. For example, it can be used for cancer detection problems. It computes the probability of an event occurrence.

It is a special case of linear regression where the target variable is categorical in nature. It uses a log of odds as the dependent variable. Logistic Regression predicts the probability of occurrence of a binary event utilizing a logistic function.

## Linear Regression Equation :

$$y = \beta 0 + \beta 1 X1 + \beta 2 X2 + \ldots + \beta n Xn$$

Where, y is dependent variable and x1, x2 ... and Xn are explanatory variables. Sigmoid Function : Logistic regression is named for the function used at the core of the method, the logistic function.

The logistic function, also called the sigmoid function was developed by statisticians to describe properties of population growth in ecology, rising quickly and maxing out at the carrying capacity of the environment. It's an S-shaped curve that can take any real-valued number and map it into a value between 0 and 1, but never exactly at those limits.

$$p = 1/1 + e^{-y}$$

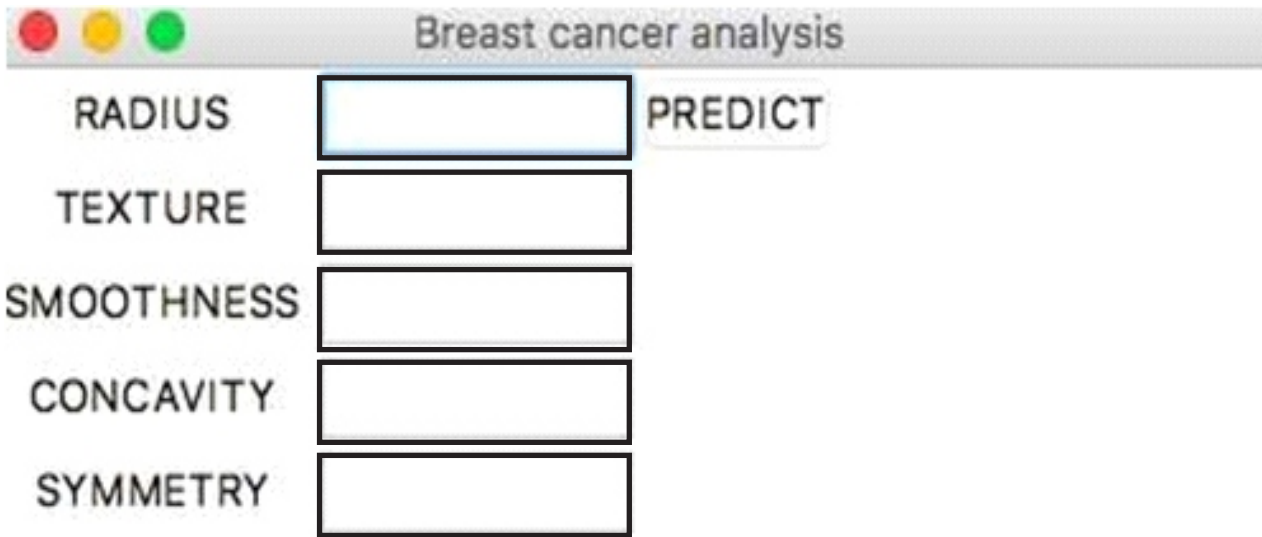## Apply Sigmoid function on

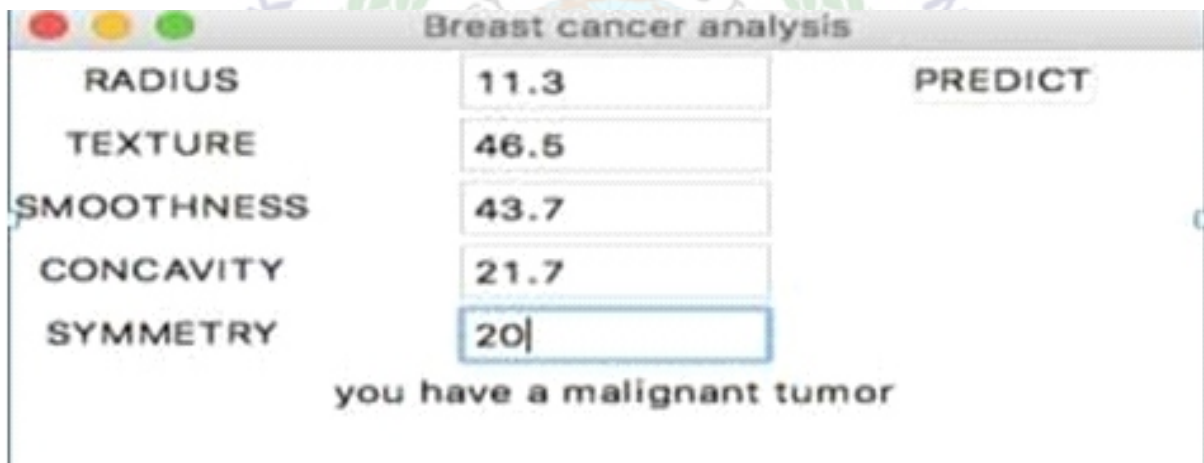$$p = 1/1 + e^{-(\beta 0 + \beta 1 X1 + \beta 2 X2 \ldots \beta n Xn)}$$

## Properties of Logistic Regression :

★   The dependent variable in logistic regression follows Bernoulli Distribution.
★   Estimation is done through maximum likelihood.

## VIII. Results And Discussions





## IX. Conclusion

In this project, we have outlined and technique for the problem of breast cancer detection. Although different classification techniques have been developed for cancer classification, there are still many drawbacks in their classification capability. In order to enhance breast cancer classification, in this project we proposed a new framework for breast cancer classification by combining mammogram wavelet transformation and neural network. According to results, classification based on locations of any abnormalities that may be present, character of background tissue, class of abnormality present, does not always shows the desired result. Finally, the evaluation and performance analysis of the proposed approach clearly shows that the preliminary 'results are promising in breast cancer discovery at early stage.

# Topic Modeling for Online Social Network

**Dr. AkhilKhare**

## Abstract

Huge amount of data is generated due to use of social network. The need to study and analyze this data to generate information to find which topic is discussed heavily in the network is topic modelling. Existing study show that LDA is an effective method for topic modelling. LDA has shown to produce good results over many domains. Consideration of social attributes along with the content on the network will increase the accuracy and efficiency of the hot topics identified. We propose a modified LDA model by considering different attributes of social network.

## Conclusion

The experimentation shows that our proposed approach outperforms the existing methods. The consideration of social attributes of the users give better accuracy as compared to traditional LDA and twitter –LDA model. The perplexity values of MP-LDA is much lower as compared to other two models. Thus MP-LDA models better than the traditional methods.

# Social Network Topic Diffusion for Influential Node Cluster Identification

**Dr. AkhilKhare**

## Abstract

The social networking and e-commerce is the backbone of information diffusion. This paper contributes an analysis of information influence over the internet. Paper also focuses on proposed Modified Topic Diffusion Model Algorithm. The quantitative analysis is usually carried out for information diffusion study; hence for the proposed study, we analyzed twitter and Flipkart web portals visitor responses. Data clusters are optimized to know the most influential information spreader. Based on such information the analysis is done for identification of nearest influential network nodes. The analysis shows the positive results for third-party web clients for the unsupervised network

# Conclusion

We proposed an integrated and novel methodology to model opinion/idea diffusion in web forums. The present modified topic diffusion model algorithmic approach is used to analyze topic selection and knowledge diffusion for information spreader analysis and subsequent node analysis. The model was evaluated on a large dataset from twitter and Flipkart customer review dataset. Theanalysis results revealed that the proposed model performed well in modeling topic diffusion for selected web forums.

# Identification of Malicious node for Effective Top-k Query Processing inMANETS

**Dr. AkhilKhare**

# Abstract

In Mobile Ad-hoc networks, query processing is optimized using Top-k query processing. The accuracy of the results can be lowered if there exists malicious node. In our proposed system, we assume that malicious node perform Data Replacement Attack, in which the malicious node replaces necessary data sets with the false data sets. In our system malicious node identification method, the query issuing node receives the reply messages from the nodes; if a query-issuing node detects a DRA then it performs subsequent inquiries with the nodes which receive the information from the malicious node. In this way the query issuing node identifies the malicious node, and shares the information with the neighbouring nodes. Then the nodes share the information regarding the malicious node with the other nodes which are far away. Each node tends to identify the malicious node in the network, and then floods the information. Query issuing node performs grouping of the nodes based on the similarity of the information on malicious node detected by the nodes. Identification of malicious node is performed based on the results of malicious node identifications by these groups.

# Conclusion

In this system, we have proposed methods for identification of malicious node for effective top-k query processing. The detection of DRA attack is performed. This system helps in preventing or avoiding an attack in its initial stage. It can identify all the addresses of nodes in the selected routing path from a source to destination after the source has received the RREP message. This system helps in improving packet delivery rate. This system helps in achieving the reduced overhead. As the future work we plan to implement the system for multiple malicious nodes and also design a message authentication method to prevent malicious nodes from performing false notification attacks.

## Abstract

Coupling measurement is a focus of study for many of the software professionals from last few years. Objectoriented programming is an efficient programming technique for programmers because of its features like reusability, data abstraction etc. Coupling is a very impotent factor in object-oriented programming for software quality measurement and used as predictors of software quality attributes such as fault proneness, impact analysis, ripple effects of changes, changeability etc. Many researchers have worked on coupling measurement and found various dimensions of coupling. Researchers have also worked on various aspects of coupling like static coupling measurement, dynamic coupling measurement, class level coupling, object level coupling etc. But still there is no standardization in the field of coupling measurement which is accepted worldwide. As a result of this it is very difficult to select any existing measure which obtain clear picture of state-of-art of coupling measurement for object-oriented systems. This paper analyses some terminologies of coupling measurement proposed earlier and discusses usefulness of each. Coupling in software has been linked with maintainability and existing metrics are used as predictors of external software quality attributes such as fault-proneness, impact analysis, ripple effects of changes, changeability, etc. Many coupling measures for object-oriented (OO) software have been proposed, each of them capturing specific dimensions of coupling.

## Conclusion

In this paper, we describe and evaluate some recently innovated coupling metrics for objectoriented (OO) design. We present an investigation into the run-time behavior of objects in Java programs, using specially adapted coupling metrics. These new metrics seek to quantify coupling at different layers of granularity that is at class-class and object-class level. For each measure, we indicate the type of coupling it uses what factors determine the strength of coupling, if it is an import or export coupling measure how indirect coupling is accounted for and how inheritance is dealt. we have analyzed two coupling metrics proposed by unified framework. We have selected and the measures which are sufficient to predict complexity of object-oriented software. We have collected the class-wise values of each measure from our code implemented in java. The values of each measure are useful to analyze the complexity of any class. The paper simplified the work of coupling measurement. The proposed metrics could be further refined by taking more detailed formalism for each measure.

# A Basic Analysis Of Machine Learning And Itsalgorithm Types

**Dr. Sesham Anand**

## Abstract

Over the past few decades, Machine Learning (ML) has evolved from the Endeavour of few computer enthusiasts exploiting the possibility of computers learning to play games, and a part of Mathematics (Statistics) that seldom considered computational approaches, to an independent research discipline that has not only provided the necessary base for statistical-computational principles of learning procedures, but also has developed various algorithms that are regularly used for text interpretation, pattern recognition, and a many other commercial purposes and has led to a separate research interest in data mining to identify hidden regularities or irregularities in social data that growing by second. This paper focuses on explaining the concept and evolution of Machine Learning, some of the popular Machine Learning algorithms.

## Conclusion

The foremost target of ML researchers is to design more efficient (in terms of both time and space)and practical general purpose learning methods that can perform better over a widespread domain. In the context of ML, the efficiency with which a method utilizes data resources that is also an important performance paradigm along with time and space complexity. Higher accuracy of prediction and humanly interpretable prediction rules are also of high importance. Being completely data-driven and having the ability to examine a large amount of data in smaller intervals of time, ML algorithms have an edge over manual or direct programming. Also they are often more accurate and not prone to human bias.

Consider the following scenarios: Development of software to solve perception tasks using sensors, like speech recognition, computer vision etc. It is easy for anyone to label an image of a letter by the alphabet it denotes, but designing an algorithm to perform this task is difficult. Customization of software according to the environment it is deployed to. Consider speech recognition software's that has to be customized according to the needs of the customer. Like ecommerce sites that customize the products displayed according to customers or email reader that enables spam detection as per user preferences. Direct programming lacks the ability to adapt when exposed to different environment.

# An Attribute-Based Storage System with Secure Deduplication in a Hybrid Cloud Setting

**Dr. Sesham Anand**

## Abstract

Attribute based encryption (ABE) has been generally utilized in distributed computing where an information supplier redistributes his/her encoded information to a cloud specialist co-op, and can impart the information to clients having explicit qualifications (or properties). In any case, the standard ABE [11] framework does not bolster secure deduplication, which is pivotal for wiping out copy duplicates of indistinguishable information so as to spare storage room and system data transfer capacity. In this paper, we present a property based capacity framework with secure deduplication in a half breed cloud setting, where a private cloud is in charge of copy identification and an open cloud deals with the capacity. Contrasted and the earlier information deduplication frameworks, our framework has two points of interest. Right off the bat, it very well may be utilized to privately impart information to clients by indicating access approaches as opposed to sharing decoding keys. Furthermore, it accomplishes the standard thought of semantic security for information secrecy while existing frameworks just accomplish it by characterizing a more fragile security idea. Also, we set forth a technique to alter a ciphertext more than one access strategy into ciphertexts of the equivalent plaintext yet under different access strategies without uncovering the hidden plaintext.

## Conclusion

Quality based encryption (ABE) [11] has been generally utilized in distributed computing where information suppliers redistribute their scrambled information to the cloud and can impart the information to clients having indicated qualifications. Then again, deduplication is a vital strategy to spare the storage room and system transmission capacity, which takes out copy duplicates of indistinguishable information. Be that as it may, the standard ABE [11] frameworks don't bolster secure deduplication, which makes them exorbitant to be connected in some business stockpiling administrations. In this paper, we displayed a novel way to deal with understand a characteristic based capacity framework supporting secure deduplication. Our capacity framework is worked under cross breed cloud engineering, where a private cloud controls the calculation and an open cloud deals with the capacity. The private cloud is furnished with a trapdoor key related with the comparing ciphertext, with which it can exchange the ciphertext more than one access arrangement into ciphertexts of the equivalent plaintext under some other access strategies without monitoring the fundamental plaintext. In the wake of accepting a capacity ask for, the private cloud first checks the legitimacy of the transferred thing through the connected verification. In the event that the evidence is legitimate, the private cloud runs a label coordinating calculation to see whether similar information hidden the ciphertext has been put away. Provided that this is true, at whatever point it is fundamental, it recovers the ciphertext into a ciphertext of the equivalent plaintext over an entrance strategy which is the association set of both access arrangements. The proposed stockpiling framework appreciates two noteworthy points of interest. Right off the bat, it tends to be utilized to secretly impart information to different clients by determining an entrance arrangement as opposed to sharing the decoding key. Also, it accomplishes the standard idea of semantic security while existing deduplication conspires just accomplish it under a flimsier security thought.

# Data Mining Planning Model Based On Socio-EconomicStatus

**Dr. Sesham Anand**

## Abstract

Planning a trip not only depends on the travelling cost, time andpath, but also on the socio-economicstatus of the traveller. Data mining techniques support numerous applications of intelligent transportationsystems (ITSs). This paper critically reviews various data mining techniques for achieving trip planningin ITSs. The literature review starts with the discussion on the contributions of descriptive and predictivemining techniques in ITSs, and later continues on the contributions of the clustering techniques. Being thelargely used approach, the use of cluster analysis in ITSs is assessed. The relevance of the socio-economicconstraints is defined using correlations, whereas the frequent as well as the feasible attributes are minedthrough the sequential pattern mining approach. The proposed model maintained a substantial trade-offbetween multiple performance metrics, though the trip mean model performed statistically

## Conclusion

This paper has introduced a new trip planning model using data mining approaches. Real-time travel information has been acquired from the Indian city of Hyderabad, and the experimentation has been carried out to demonstrate the performance of the proposed planning model. The proposed planning model was able to produce the socio-economic constraints, which are highly relevant to the trip, rather than its frequency. Three levels of performance investigation have revealed that the proposed model has maintained an adequate trade-off between all these performance metrics.

## Abstract

This research work proposes a novel and innovative idea of application of Machine Learning for malicious software analysis with a case study of malicious URL's implementations and validatings. Traditionally Data Mining and its associated tools were developed for Malware Detection. Also Data Mining and Machine Learning strategies were used in literature for Cyber security. Deep learning is also used for Malware Analysis. Machine learning techniques for Malware Detection includes: in supervised learning - Hidden Markov Model (HMM), Profile Hidden Markov Model (PHMM), Support Vector Machines (SVM) etc.; in unsupervised learning includes Principal Component Analysis (PCA), K-means etc. Machine learning for Web Mining includes strategies like: Web Structure Mining (Web Crawlers / Indexer/ Ranking – PageRank algorithm), Web Content Mining (Parsing), Natural Language Processing (Information Retrieval models – TF-IDF, Latent Semantic Analysis (LSA), Doc2Vec (word2wec), CBOW model), Post Processing (Latent Dirichlet allocation and Opinion Mining (sentiment analysis) etc.

## Conclusion

This research paper proposed a novel and innovative idea of application of Machine Learning for malicious software analysis with case study of malicious URL classification. Future work includes applying this innovative idea framework as technology transfer for Software Development industry for Secure Software Engineering for Systems and Software Assurance for Malware Analysis exploring research areas like: Code and Design Flaw Vulnerabilities, Malware Analysis Driven Use Cases. Distributed Systems involves high performance computing environments like cloud computing, Big Data etc… Design patterns and paradigm for scalable reliable services needs to explored using machine learning and implementations using docker, kubernetes, dcos etc… Further work involves implementations using HMM, PHMM, PCA, SVM, K-Means clustering for malware analysis and detection.

# An Approach to Establish Correlation of Courses to POs & PSOsand Attainment of COs, POs & PSOs

**Dr.H. Jayasree, Dr.G. Kanaka Durga**

## Abstract

Outcome based education (OBE) is student-centered instruction model that focuses on measuring student performance through outcomes. Outcomes include knowledge, skills and attitudes. An important component of OBE is the attainment of Course Outcomes (COs), Program Outcomes (POs) and Program Specific Outcomes (PSOs).Criterion 3 of Self-Assessment Report (SAR) emphasize on attainment of COs, POs and PSOs.The correlation between CO-PO describes the level at which a particular PO is addressed through a CO. The correlation is justified based on number of sessions mapping. Direct and Indirect assessment tools are applied for measuring attainment of COs, POs and PSOs. The paper presents a simple yet robust approach followed for establishing correlation between CO-PO/PSOs; and for measurement of attainment of COs, POs and PSOs as per the guidelines of SAR.

## Conclusion

In this paper a more realistic approach for establishing CO-POs &PSOs correlation and measurement or computationof the attainment of COs, POs and PSOs has been presented. The attainment values thus obtained can be compared with the set target levels and action plan can be suggested for those POs &PSOs where attained values are less than target value.

## Abstract

The healthcare industry collects huge amounts of health care data which, unfortunately, are not mined and analyzed in a proper manner to discover hidden information, to take decisions effectively, to discover the relations that connect patterns. The aim of this paper is to develop a decision support in Heart Disease Prediction System (HDPS) using machine learning's effective algorithms. Using medical profile of the patient(age, gender, blood pressure, blood sugar, cholesterol, chest pain, ECG graph etc.), it can predict the likelihood of patient getting a heart disease. The likelihood (class label) may be of 5 stages: no, low, medium, high and very high. If an unknown sample comes, then the system will predict the class label of the sample. Hence two basic functions namely classification and prediction will be performed. Initially binary classification is performed to find whether there is a likelihood of disease. If yes, then multiclass classification is used to classify the disease among the remaining four stages. It is implemented in python as an application which takes medical test's parameter as an input. Comparison between the algorithm's performances is also depicted. It can be used as a training tool to train nurses and medical students to diagnose patients with heart disease.

## Conclusion

Heart Disease Estimation System is an enhancement that makes estimation systems more effective by having more accuracy and confidence level on the data at present, based on its knowledge and behavior. The aim of Heart Disease Estimation System is to provide the right patient with the right information at the right time. A heart disease estimation system is based on two principal classification models: a binary model (which is all about classifying the test data into either of the 2 classes available), a multiclass classification (which classifies the test data into either of the classes available). An important aspect of this model is its high capability of showing up good confidence level. It is highly accurate at determining the accuracy of a Yes case. The proposed system can recommend and prescribe a suitable medication to the patient and immediately let the patient know the information needed at the right time.

## Abstract

Human Activity Recognition (HAR) is a wellresearched area that aims to recognize the activity performedby a person. But the practical applications often encountercomplications such as "The curse of dimensionality" and"Redundant features" which results in their poorperformance. Hence, the need for feature selection is veryimperative in such cases. This paper aims at identifying thesubsets of HAR dataset that consists of most important andrelevant features using Boruta Feature Selection Algorithm.Because the dataset with less number of features that are morerelevant requires less computational time to train theclassifier and it also improves the accuracy rate of theclassification model. Upon identification, this paper alsoimplements Support Vector Machines (SVMs) classificationalgorithm on identified subsets as well as HAR dataset.Furthermore, comparing the accuracy rates attained by theclassifier on different subsets as well as their computationaltime.

## Conclusion

On implementing the Boruta feature selection algorithm, thecomputational time taken to train the classifier has decreased,and the accuracy rate of the trained classification model hasimproved with the right subsets of HAR dataset. From all theresults obtained, we can say that HAR dataset is more linearlyseparable as the SVM linear kernel has obtained highestaccuracy for all test cases. The scope of this paper is toenhance the accuracy rate of a classification model byimplementing feature selection on HAR dataset, whichidentifies subsets that consist of only most important andrelevant features. This research has assisted us inunderstanding the HAR dataset and the mechanism ofalgorithms.

## Abstract

Growth in the remote monitoring and automation in maintenance for all fields of industrialization in motivating the sensor researches more and more. The major challenge faced by the practitioners and the researchers are to keep up with the advancements of the data accumulation and analytic demands as the resource capabilities of sensors, especially the wireless sensors, are limited in terms of battery or energy, processing capacity and security. A number of wireless sensor networks collect mission critical and sensitive data for the processing. Also, the feedback systems through the same sensor networks are also important and sensitive. Due to the fragile structure of the network, often it is vulnerable to the attacks. A number of studies have demonstrated the types of the attacks and their effect on the network. The identified attacks are highly versatile in nature, thus leaving a less scope for a single solution to prevent the attacks. Numerous research attempts are presented till date to find the most effective method of securing the wireless sensor networks. Nevertheless, all these solutions are criticised for neglecting one or the other possible threats. It is been observed that, the majority of the attacks happen during the data transmission time and the new node registration time. The transmissions of the data in the network are managed by the routing protocols and the registrations of the new node into the network are managed by node registration algorithms or strategies. Thus, these two are the highly vulnerable situations for any wireless sensor networks life cycle. Hence, this work addresses two unique solutions for these two situations, which is again mutually exclusive. The major outcome of this work is to secure the routing using randomize channels and node registration process using multi order key in order to avoid majority of the attacks on the network. Also, during the transmission or the routing of the data through the network channels, it is often recommended that the data must be encrypted. Nonetheless, the encryption and decryption of the data is a significant load on the limited processing capabilities of the sensor nodes. Thus this highly recommended process is habitually ignored, compromising the threats. Yet another outcome from this work, is to separate the header and the content part of the data packets to reduce the network loads.

## Conclusion

The wide use of wireless sensor networks for various critical information sharing purposes makes the domain highly adopted for research. A number of attempts for securing the routing scheme without tampering the low cost implementation, flexible structure, low energy consumptions are carried out. The most popular being the trust based management schemes are also not guaranteed to be secure. Thus the demand for enhancements continued to persist. The major drawback of the trust based systems is provocation of the newer types of attacks. The trust based schemes are easy to guess and that makes the policies vulnerable to attacks. Thus, the proposed multi order key sharing with dual channel based secure routing protocol has been established. The proposed scheme demonstrates high packet delivery ratio with benefits from majority of the attacks. This work is proven to be a newer direction of research in order to fulfil the demand of secure routing for a worldwide secure communication.

## Abstract

The helpful organizations industry gathers an enormous proportion of information which isn't really mined and not putto the ideal use. Divulgence of these shrouded representations and affiliations a significant part of the time goesunexploited. Any way there is propelling investigation in therapeutic end which can anticipate the infections of the heart,lungs and assorted tumours in context of the past information gathered from the patients. Our examination bases on thisbit of Medical end by knowledge plan throughout the amassed information for Swine Flu. This examination has mademodel Intelligent Swine infection Prediction show and issue zone. We used DLSC Classifier (Dynamic Learning dividedclassifier). Information mining assumes a huge job in anticipating maladies. The database report of therapeutic patientisn't increasingly effective, as of now we implement an undertaking to distinguish the mainly broadly extend infection ineverywhere throughout the world named Swine infection. Swine infection is a breathing illness which has Numeralnumber of tests must be essential from the patient for distinguishing an ailment. Propelled information mining systemsgives us help to cure this circumstance.

## Conclusion

In This literature has portrayed out how the data mining approach overhaul the computational prevailing uponthe objective that it might be reasonably used to help general prosperity the investigation of maladytransmission. The batching count k denotes is expected to design the patients as demonstrated by the Swine Fluindication on Google layout. Despite the fact that the desire estimations are utilized to obtain a genuine check ofimaginations and probable threat. As comparable examination the ordinary assessment tree computation, forinstance, C4.5 contain a powerful creating gathering regulations yet though taking care of with the contrastingatmosphere parameters it settles on difficult choice tree structure. The Bayesian Theorem is aoriginalprobabilistic computation that just deal by the chance of different probable yields from this time forward if thereought to be an event of varying atmosphere parameter it perform improved than anything assessment treeestimation.

## Abstract

In the contemporary era, big data is highlyregarded as the driver to promote productivity, efficiency andinnovation. Emergence of big data and data science paved wayfor comprehensive analysis of data for obtaining businessintelligence. Big data analytics has become crucial forenterprises to garner accurate knowhow for making wellinformed decisions. The cloud-big data ecosystem has beenrealized and thus it became easier to deal with big data and it'sprocessing as the storage and processing are outsourced tocloud. Different cloud computing platforms like Amazon AWS,Google cloud and Microsoft Azure made it a reality to work withbig data which provides comprehensive understanding of data.With big data, environmental issues especially air pollutionmeasurement and prediction can add value to existinginfrastructure so as to improve the quality of prediction and alsohelp in making strategic decisions. This paper represents thepresent state of the art on usage of big data analytics for addingvalue to different industries focusing more on environmentalissues. It also provides the empirical values made with ApacheFlink and Apache Spark for handling environment data. Thepreliminary results revealed that these frameworks play crucialrole in processing big data

## Conclusion

In this paper we explored the big-data eco system anddistributed programming frameworks such as Apache Flinkand Apache Spark. It throws light into introduction to bigdata, the need for big data processing and how big data canhelp adding value to businesses. Especially it covers theutility of big data for adding value to environmental study. Itis understood that big data can help in the research of climatechanges and environment including aim pollution in terms ofprediction and making strategic decisions for well beingofsociety. Our investigation into big data revealed that with theemergence of cloud computing and many distributedprogramming frameworks paved way for unprecedentedpossibilities. With pollution data (big data) we have made anempirical study on the usage of Apache Flink and ApacheSpark frameworks. In future we continue this research todevelop a framework that can help in measuring andprediction of air pollution by exploiting big data and cloudeco-system. Such framework can be used in Decision SupportSystem (DSS) pertaining Pollution Control Boards (PCBs).

## Abstract

MapReduce is a standard parallelenlisting perspective for broad scale datataking care of in gatherings and serverranches. A MapReduce [3] remaining weightgenerally contains a ton of occupations, all ofwhich involves different guide endeavourssought after by various diminishes errands. Onaccount of 1) that map endeavours can simplycontinue running in guide spaces and reduceerrands can simply continue running inabatement openings, and 2) the generalexecution impediments that map assignmentsare executed before decrease errands, variousoccupation execution demands andguide/lessen opening setups for a MapReduceremarkable weight have basically phenomenalexecution and system use. This paper proposestwo classes of figuring's to restrict theMakespan [6] and the full scale completingtime for a detached MapReduce [10]exceptional job that needs to be done. - Ourchoice of estimations revolves around theaction asking for streamlining for aMapReduce exceptional job needing to be doneunder a given guide/decrease space course ofaction. Alternately, our underneath normal ofestimations considers the circumstance that wecan perform headway for guide/decreaseopening setup for a MapReduce remaining jobneeding to be done. We perform re-institutionssimilarly as examinations on Amazon EC2 andshow that our proposed computations produceresults that are up to 15 80 percent better thanright now unoptimizedHadoop, inciting basicdeclines in running time before long.

## Conclusion

This paper centres on the activity requestingand map/diminish opening arrangementissues for MapReducegenerationoutstanding tasks at hand that runintermittently in an information stockroom,where the normal execution time ofguide/decrease assignments for aMapReduce employment can be profiledfrom the history run, under the FIFOplanning for a Hadoop bunch. Twoexecution measurements are considered, i.e.,Makespan and absolute consummation time.We first spotlight on the Makespan [6]. Wepropose work requesting streamliningcalculation and guide/diminish openingarrangement advancement calculation. Wesee that the absolute finish time can be poorsubject to getting the ideal Makespan, alongthese lines, we further propose another eageractivity requesting calculation and aguide/decrease opening setup calculation tolimit the Makespan and all outconsummation time together. Thehypothetical investigation is likewise givenfor our proposed heuristic calculations,including guess proportion, upper and lowerlimits on Makespan. At long last, we leadbroad tests to approve the dequacy of ourproposed calculations and their hypotheticaloutcomes.

# Abstract

In the contemporary world images play key role in information interchange. Medical, defence, space and variousareas of domain make use of high scale images in several applications. Security becomes the main concern wherein the imagesare to be protected so that they cannot be seen by any advisory. This can be achieved by image encryption. There are variousimage encryption methods that are based on textual key and text data which are not efficient for high definition images. In thispaper we propose a three step image encryption algorithm which uses another image as a key. In the first step, key image isscaled and tiled, in step2 encryption is achieved using grey-value substitution and in step-3 the output generated from step-2 isscrambled using Fibonacci transformation to add additional security. This multistep encryption provides high security forimages. The performance of this algorithm is analyzed using different attack models which results in high security without anyloss of input image.

# Conclusion

The proposed image encryption process can be combinedwith image compression so that it can be transferred over thenetwork with less transmission delay. Different existingimage compression methods can be applied in the process ofencryption

# Querying methods of Encrypted Cloud Data

**V. Sridhar, M. Dyna**

## Abstract

In the recent times business organizations are optingfor cloud based storage for reducing maintenance and storagecost for which data security is a major issue of concern. TheOrganizations may not completely rely on security provided bycloud service provider. Instead they would prefer for their ownsecurity model. Here data may be in relational or Non-relationalwith its own structures. If the data stored in the cloud is inencrypted format, querying will be difficult because for everyretrieval process, the data has to be decrypted. This is againsecurity problem with server. This paper explores about how toprocess and query the encrypted data stored in cloud. Differentmethods of querying, ranging from relational to Non-relationaldata are discussed in this paper.

## Conclusion

The survey given in this paper discussed about differentways of processing encrypted cloud data. For structured andun-structured encrypted data it is possible to retrieveinformation without decryption using special encryptedmethods and CryptDB discussed above. Some of them are notcompletely in public use but they are open for research scope.

# Adaptive TerraSAR-X Image Registration(AIR) Using Spatial Fisher Kernel Framework

**B. Sirisha, B. Sandhya**

## Abstract

TerraSAR-X image registration is a forerunner for remotesensing application like target detection, which need accurate spatialtransformation between the real time sensed image and the referenceoff-line image. It is observed that the outcome of registration of two TerraSAR images even when acquired from the same sensor is unpredictablewith all the parameters of the feature extraction, matching and transformation algorithm are fixed. Hence we have approached the problemby trying to predict if the given TerraSAR-X images that can be registered without actually registering them. The proposed adaptive imageregistration (AIR) approach incorporates a classifier into the standardpipeline of feature based image registration. The attributes for the classifier model are derived from fusing the spatial parameters of the featuredetector with the descriptor vector in Fisher kernel framework. We havedemonstrated that the proposed AIR approach saves the time of featurematching and transformation estimation for SAR images which cannotbe registered.

## Conclusion

Look-angle varied TerraSAR image registration is a challenging task as slightshift in look-angle alters the geometric and photometric characteristics of theimages. The proposed framework can predetermine if the given TerraSARimage pairs can be accurately registered. The asset of this framework is that,the attributes required for prediction model are computed from the featuresextracted as part of registration pipeline using spatial Fisher vector framework.It is established that detector parameters when fused with the descriptor inFisher vector framework improves prediction accuracy. While registering twoTerraSAR images without prior knowledge of deformation, the fused detector,descriptor parameters in the scrim of spatial Fisher vector framework, is productive in predicting registration outcome.

# Feature Selection on Deep CNN features used for Image Classification

B. Venkataramana, Dr. B Sandhya

## Abstract

Feature Extraction forms thecore of vision based applications such as imageclassification, recognition, retrieval etc. Due to successof deep learning in several domains, feature learninghas gained importance as compared to conventionalimage feature extraction. It has been observed thatactivation values extracted from pre trainedconvolution neural nets such as AlexNet, VGGNetgive efficient results as compared to generic featureextractors in matching, retrieval etc. Howeverfeatures obtained from fully connected layers of suchdeep nets are of considerable size as compared toconventional features of an image. Hence, it isimportant to select the best features which canrepresent the image distinctly without reducing theefficiency of operation being performed. In this paperwe have experimented with features extracted fromfully connected layers of VGG19 for classification ofimages. We have experimentally shown that featureselection when applied on fc1 or fc2 features greatlyreduces time to build a classification model withoutaffecting accuracy across all kinds of classifiers.

## Conclusion

The features extracted from VGG16 are compared with conventional global features in terms of classification accuracy

# Secure Data Dissemination In Wireless Sensor Networks UsingEnhanced DIDRIP

**H. Jayasree, N.Sabitha**

## Abstract

Data discovery and dissemination protocols are applied to update configuration parameters &distributedmanagement commands in Wireless Sensor Networks (WSN). Available protocols have two drawbacks: Firstly, they areconstructed on centralized procedure; where data items are distributed by only base station and hence this procedure doesnot support emerging concept of multi-owner-multi-user WSNs. Secondly, these protocols were not built to support securityso intruders can easily initiate attacks to harm the network. In this paper, we prefer first secure and distributed datadiscovery and dissemination protocol known as DiDrip. This enables the network owners to grant multiple network userswith different permissions to simultaneously and directly disseminate data items to sensor nodes. The DiDrip protocol isenhanced (EDiDrip) to enhance the network life time in distributed wireless sensor network with pre-failure rectificationtechnique. In this enhanced version of DiDrip protocol we replace a node in case of node failure in order to persist theprocess of data dissemination. DiDrip is demonstrated as provably secure by extensive security analysis. Our analysisreveals that EDiDrip can solve viable number of security issues that are identified.

## Conclusion

Wireless Sensor Networks is a wide and open area innetworking research, which is increasingly being deployedfor monitoring applications. This demands the need forquickly and efficiently disseminating data to sensor nodesto reprogram them to suite the current needs of theapplication. We experimented EDIDRIP protocol, the firstdistributed information discovery and disseminationprotocol that permits network owners and approved usersto disperse information items into WSNs without hopingon the base station and with network life timemanagement. From the results obtained, we conclude thatthe EDIDRIP protocol provides good energy efficientsecurity architecture to wireless sensor network.The efficiency and security can be improved by addingadditional mechanisms to ensure data confidentially in thedesign of secure and distributed data discovery anddissemination routing internet protocol

## Abstract

The Internet of Things (IoT) is a fast-growingtechnology. In IoT, the devices are connected through theInternet and controlled from any remote areas. Before theadvent of IoT, the interaction between the users was onlythrough the internet. By 2020 there will be 75.4 billion devicesinterconnected through the internet. Machine-to-machine(M2M) interaction is achieved by sending and receiving theinformation, such as room temperature, humidity etc. IoTcanbe viewed as heterogeneous networks that bring some securitychallenges like network privacy problems, confidentiality,integrity and availability. In IoT, we have Routing Protocol forLow-Power and Lossy networks (RPL). RPL is a light-weightprotocol which has a good routing functionality, context awareand it supports dynamic topology but has only the basic securityfunctionality. This paper elaborates on attacks in RoutingProtocol for Low Power and Lossy networks (RPL) and itsimplementation using Cooja simulation methodologyand inContiki operating system. Blackhole and version number attackare the most vulnerable security attacks based on routing of datain IoT networks. We proposed a common prevention techniqueto overcome those attacks based on the measurements ofthroughput, packet delay and packet delivery ratio values. Theresults show that our proposed detection technique is very securefrom both the attacks. This technique can be used in real timeapplications like smart living, smart mobility and smartenvironment etc.

## Conclusion

We conclude that our proposed algorithm is very efficient indetecting the blackhole and version number modificationattack. TBBVD algorithm is a common detection algorithmfor both the attacks which is mainly used to detect the type ofattack based on the behavior and trust between the motes.The proposed algorithm not only increases the packetdelivery ratio but also decreases the delay time. We havefocused on two main attacks in RPL and gave a commonsolution. There are other vulnerable attacks like floodingattack and overload attack in RPL which can be implementedas future work.

# EPCWebX: An unsophisticated approach for Embarrassingly Parallel Computations over the Web using XAMPP stack - IEEE Confe...

**Suryaa Pranav Meduri,  Sujanavan Tiruvayipati**

## Abstract

Web based parallel computing is the present reality that ease the current execution over heterogeneous arrangements that exists. To address the particular needs of the server programming language to access parallel computing equipment over the web, only one broadly utilized language exists since the successive past: JavaScript, for most client side computations. Current arrangements don't exchange well to the universe of JavaScript because of contrasts in programming models, the extra prerequisites of the web and to designer's desire. To address this we propose an unsophisticated approach planned explicitly using XAMPP stack along with JavaScript that fulfills the requirements of embarrassingly parallel computing over the web. To demonstrate that the proposed methodology is practical, an application to haze removal is experimented.

## Conclusion

We have demonstrated how EPCWebX's methodology meets the prerequisites of the web developer: the prerequisite of deterministic execution, the necessity of keeping up a solitary programming model to save quick prototyping, lastly the prerequisite of movability. The EPCWebX model demonstrates that it is possible and can be productively actualized. In this paper, we have proposed an engineering that permits machines associated with the Internet to make a bit of their figuring assets accessible to remote clients and furthermore use assets offered by different machines. A master node is utilized to enlist and guarantee assets, and to do bookkeeping. EPCWebX exhibits a simple browser-based intermediary engineering utilizing JavaScript which can handle situations of conceivable improvements and different employments of the proposed framework, from coarse grained supercomputing applications running on a great many hubs, to Internet stations. We foresee a few specialized issues while executing a total form of the proposed engineering. Specifically, we analyzed the high elucidation overhead of JavaScript code, and arrangements like without a moment to spare accumulation and dynamic gathering. The displayed foundation is fundamentally planned to work over the entire Internet. It is likewise usable on a littler scale, and we envision that its underlying usage would be inside vast associations directing their very own intranets. This would enable such associations to utilize their total equipment base all the more proficiently. In the meantime this improves a few of the specialized issues that are not yet comprehended totally. In our further research, we intend to make our simple engineering increasingly usable and easy to use, improve its execution, book keeping and validation instruments.

# Abstract

MapReduce is a standard parallel enlisting perspective for broad scale data taking care of in gatherings and server ranches. A MapReduce [3] remaining weight generally contains a ton of occupations, all of which involves different guide endeavours sought after by various diminishes errands. On account of 1) that map endeavours can simply continue running in guide spaces and reduce errands can simply continue running in abatement openings, and 2) the general execution impediments that map assignments are executed before decrease errands, various occupation execution demands and guide/lessen opening setups for a MapReduce remarkable weight have basically phenomenal execution and system use. This paper proposes two classes of figuring's to restrict the Makespan [6] and the full scale completing time for a detached MapReduce [10] exceptional job that needs to be done. - Our choice of estimations revolves around the action asking for streamlining for a MapReduce exceptional job needing to be done under a given guide/decrease space course of action. Alternately, our underneath normal of estimations considers the circumstance that we can perform headway for guide/decrease opening setup for a MapReduce remaining job needing to be done. We perform re-institutions similarly as examinations on Amazon EC2 and show that our proposed computations produce results that are up to 15 80 percent better than right now unoptimizedHadoop, inciting basic declines in running time before long.

# Conclusion

This paper centres on the activity requesting and map/diminish opening arrangement issues for MapReduce generation outstanding tasks at hand that run intermittently in an information stockroom, where the normal execution time of guide/decrease assignments for a MapReduce employment can be profiled from the history run, under the FIFO planning for a Hadoop bunch. Two execution measurements are considered, i.e., Makespan and absolute consummation time. We first spotlight on the Makespan [6]. We propose work requesting streamlining calculation and guide/diminish opening arrangement advancement calculation. We see that the absolute finish time can be poor subject to getting the ideal Makespan, along these lines, we further propose another eager activity requesting calculation and a guide/decrease opening setup calculation to limit the Makespan and all out consummation time together. The hypothetical investigation is likewise given for our proposed heuristic calculations, including guess proportion, upper and lower limits on Makespan. At long last, we lead broad tests to approve the adequacy of our proposed calculations and their hypothetical outcomes.

# An Attribute-Based Storage System with Secure Deduplication in a Hybrid Cloud Setting

**B.Saisudha, Dr.Sesham Anand**

## Abstract

Attribute based encryption (ABE) has been generally utilized in distributed computing where an information supplier redistributes his/her encoded information to a cloud specialist co-op, and can impart the information to clients having explicit qualifications (or properties). In any case, the standard ABE [11] framework does not bolster secure deduplication, which is pivotal for wiping out copy duplicates of indistinguishable information so as to spare storage room and system data transfer capacity. In this paper, we present a property based capacity framework with secure deduplication in a half breed cloud setting, where a private cloud is in charge of copy identification and an open cloud deals with the capacity. Contrasted and the earlier information deduplication frameworks, our framework has two points of interest. Right off the bat, it very well may be utilized to privately impart information to clients by indicating access approaches as opposed to sharing decoding keys. Furthermore, it accomplishes the standard thought of semantic security for information secrecy while existing frameworks just accomplish it by characterizing a more fragile security idea. Also, we set forth a technique to alter a ciphertext more than one access strategy into ciphertexts of the equivalent plaintext yet under different access strategies without uncovering the hidden plaintext.

## Conclusion

Quality based encryption (ABE) [11] has been generally utilized in distributed computing where information suppliers redistribute their scrambled information to the cloud and can impart the information to clients having indicated qualifications. Then again, deduplication is a vital strategy to spare the storage room and system transmission capacity, which takes out copy duplicates of indistinguishable information. Be that as it may, the standard ABE [11] frameworks don't bolster secure deduplication, which makes them exorbitant to be connected in some business stockpiling administrations. In this paper, we displayed a novel way to deal with understand a characteristic based capacity framework supporting secure deduplication. Our capacity framework is worked under cross breed cloud engineering, where a private International Journal of Management, Technology And Engineering Volume IX, Issue V, MAY/2019 ISSN NO : 2249-7455 Page No: 1511 cloud controls the calculation and an open cloud deals with the capacity. The private cloud is furnished with a trapdoor key related with the comparing ciphertext, with which it can exchange the ciphertext more than one access arrangement into ciphertexts of the equivalent plaintext under some other access strategies without monitoring the fundamental plaintext. In the wake of accepting a capacity ask for, the private cloud first checks the legitimacy of the transferred thing through the connected verification. In the event that the evidence is legitimate, the private cloud runs a label coordinating calculation to see whether similar information hidden the ciphertext has been put away. Provided that this is true, at whatever point it is fundamental, it recovers the ciphertext into a ciphertext of the equivalent plaintext over an entrance strategy which is the association set of both access arrangements. The proposed stockpiling framework appreciates two noteworthy points of interest. Right off the bat, it tends to be utilized to secretly impart information to different clients by determining an entrance arrangement as opposed to sharing the decoding key. Also, it accomplishes the standard idea of semantic security while existing deduplication conspires just accomplish it under a flimsier security thought.

# Identification of Malicious node for Effective Top-k Query Processing in MANETS

H. Swathi, Dr. Akhil Khare

## Abstract

In Mobile Ad-hoc networks, query processing is optimized using Top-k query processing. The accuracy of the results can be lowered if there exists malicious node. In our proposed system, we assume that malicious node perform Data Replacement Attack, in which the malicious node replaces necessary data sets with the false data sets. In our system malicious node identification method, the query issuing node receives the reply messages from the nodes; if a query-issuing node detects a DRA then it performs subsequent inquiries with the nodes which receive the information from the malicious node. In this way the query issuing node identifies the malicious node, and shares the information with the neighbouring nodes. Then the nodes share the information regarding the malicious node with the other nodes which are far away. Each node tends to identify the malicious node in the network, and then floods the information. Query issuing node performs grouping of the nodes based on the similarity of the information on malicious node detected by the nodes. Identification of malicious node is performed based on the results of malicious node identifications by these groups.

## Conclusion

In this system, we have proposed methods for identification of malicious node for effective top-k query processing. The detection of DRA attack is performed. This system helps in preventing or avoiding an attack in its initial stage. It can identify all the addresses of nodes in the selected routing path from a source to destination after the source has received the RREP message. This system helps in improving packet delivery rate. This system helps in achieving the reduced overhead. As the future work we plan to implement the system for multiple malicious nodes and also design a message authentication method to prevent malicious nodes from performing false notification attacks.

# Abstract

Due to exponential growth of video technology there is a huge multimedia content obtainable on the internet the main challenge for user is how to inspect and review rapidly these large multimedia data. Video Summarization is a Technique that permit rapid overview of multimedia data which is widely used in computer vision related applications like video browsing, video retrival system . Video summarization aims to segment the input video to shots and extract the most informative video frames referred as key Frames. In our paper we proposed a new approach for video summarization by introducing BOW and Entropy model for extracting the informative and meaning full summary. Evaluation is done Using VSUMM Dataset by calculating fidelity category using Manhattan Distance between summarized key frames and total number of video frames.

# Conclusion

Video summarization is done using entropy in different color spaces and evaluated using fidelity Measure and we observed that in RGB colorspace summarization gives a better fidelity, compared with Lab and HSV colorspace summarizations. Our future work, we focus mainly to improve summarization by using different feature extraction methods and by changing clustering techniques

# General Election Using Block Chain

2451-15-733-066, 116, 119
**Guide - K. MuraliKrishna**

## Abstract

The Election Application is held using a decentralized system. The Application is deployed on a local Blockchain Network or Ethereum Network. The local Blockchain is run on the host system with the help of Ganache. The Ganache Application provides 10 Ethereum accounts. The Metamask extension is added to browser which connects the Ethereum accounts to the front end so that the account can cast a vote. The results are updated on all the nodes in the network if a vote has been cast. This provides transparency. Once the votes are cast the results cannot be changed since the Ethereumblockchain is immutable.

# Classification Of Deformation Complexity Of Images For Image Registration

2451-15-733-040, 047, 058
**Guide - D.Sirisha**

## Abstract

Image registration is a pre-processing step for different applications. It consists of mainly four steps: feature detection, feature matching, transformation model estimation and image resampling. View synthesis is incorporated in the standard pipeline of feature-based image registration, to feed the feature detector with additional synthetic views of an image. A predictive approach is proposed in which the number of synthetic views to be generated in order for the image to get registered is estimated based on their deformation complexity w.r.t one another, thereby eliminating the need to generate extra synthetic views as in the case of iterative approach which incurs cost of additional memory and time to be spent on generation of relatively more views and feature extraction across all those views.

# Detect, Vision & Speech System (DVS System)

2451-15-733-079, 080
**Guide - Dr. H. Jayasree**

## Abstract

DVS system is an automated version of existing Material Gate Pass system. The purpose of this system is to detect a vehicle, generate and scan QR-code on vehicle and produce relevant voice synthesized instructions. The vehicle loaded with material is detected. It consists of a pertinent QR-code that is generated and further scanned under authorized conditions. Here, Admin phase generates a particular format of QR-code inclusive of materials present in a vehicle and checks for the message or details provided by security and maintains the database by clearing unnecessary data. Security phase- detects the vehicle, scans the QR-code and sends appropriate message to admin.

## Advancements In The Field Of Wireless Network Communication

**AkshithaShinde - M.Tech Research Assistant**
*Email : cs19mtech11033@iith.ac.in*
**Indian Institute Of Technology Hyderabad**

Telecommunication and networking has been and will be one of the core technologies in helping the evolution of mankind and technology itself. If it wasn't for these channels of communications and data transmission, we would probably still be in an era where technology isn't as advanced as today.

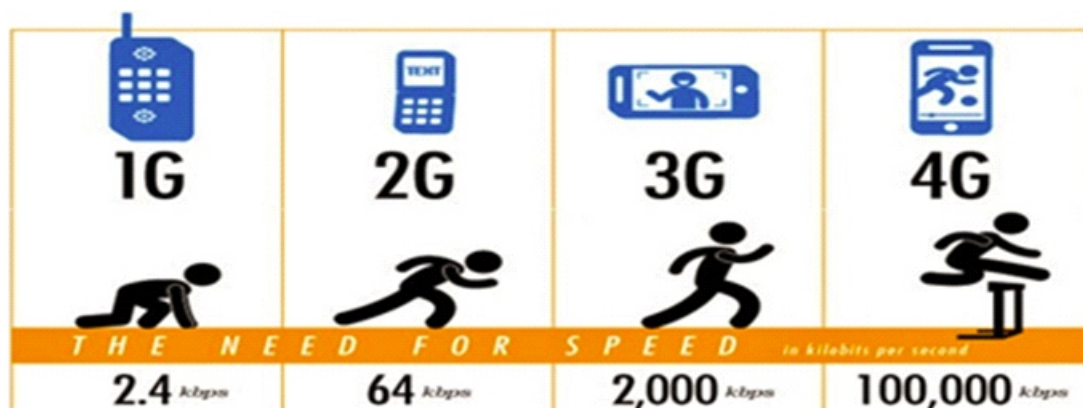We are currently in 4th Generation trying to move to 5th Generation.

# Advancements In The Field Of Wireless Network Communication

**AkshithaShinde - M.Tech Research Assistant**
*Email : cs19mtech11033@iith.ac.in*
**Indian Institute Of Technology Hyderabad**

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We are currently in 4th Generation trying to move to 5th Generation.



**Image Ref:** https:\\mse238blog.stanford.edu\2017\07\ssound\1g-2g-5g-the-evolution-of-the-gs\

## But where did it all start ?

If you remember we all started with 2G. It was only about to be able to make a call to someone else far away from us (CDMA). We then moved to Global Systems for Mobile Communication (GSM) that enabled data transfer on top of voice communications. When we started off with data transfers the max we had achieved was (30-35 kbps).

Then with GPRS General Packet Radio Service had technology similar to GSM but data speeds improved to 110 kbps

Then with EDGE enhanced Data rates for GSM Evolution in 2003 we were able to achieve 135 kbps of data speed. It's still used in many parts of the world and by many operators as it satisfies basic needs of both carriers and users.

Then when we entered in 3rd Generation where there was a drastic development we achieved the speeds of 2 mbps. This is when we could easily send emails and messages from our smartphones. Then in 4G Data rates of 100 mbps were achieved.

But the main drawback was the cost. 1GB of data cost us more than 150 rupees.

The game changer technology that came into the market was 4G LTE (long term Evolution). It's a complete redesign of previous architecture.

## Why do you think the very famous telecomm JIO offers only 4G LTE services ?

Technologies until 4G and that from 4G LTE have different architectures. It's going to cost the company a lot to maintain 2 different architectures. Even companies like Airtel are planning to withdraw services below 4G.

This LTE technology has drastically got down the charges. 1 GB data on average costs us around 5 rupees now.

We are now in the era of the Internet of Things. We have so many smart devices, smart vehicles, smart homes etc. The need for a reliable network is greater than ever. That is what drives us to transmit to the 5th generation that aims at meeting the increasing demands and is more reliable. There are so many features that 5G offers. one of them is 5G New radio. 5G NR is specifically meant for vehicular technologies.

There has been a lot of advancements in the field of wireless network communication over the years in terms of overall development and change in core functionality, which has been crucial to put us in a era that is driven by technology all around us and with 5G a couple years away, technologies such as IoT, Cloud computing and AI will completely redefine our world by 2025.

**Reference** : https://mse238blog.stanford.edu/2017/07/ssound/1g-2g-5g-the-evolution-of-the-gs/

| Faculty Name | Category | Level | Title | Date DD-MM-YYYY | Description |
|---|---|---|---|---|---|
| Ambati Saritha | *Achievement* | *National* | National Eligibility Test | 01-07-2018 | This exam will be an elegibilty for admission into Phd in many universities in the state |
| Tiruvayipati Sujanavan | *Appreciation* | *Institution* | For efforts & services as Organizing Member | 14-08-2018 | During "Big Data Analytics" FDP organized in association with E&ICT Academy, NIT(W) |
| Kanajam Muralikrishna | *Appreciation* | *Institution* | For efforts & services as Organizing Member | 14-08-2018 | During "Big Data Analytics" FDP organized in association with E&ICT Academy, NIT(W) |
| Pothavarjula Phani Prasad | *Achievement* | *National* | Wipro Certified Faculty | 22-08-2018 | To work as Talent Next Training Mentor to train the pre-final year students in java programming area. |
| Vikram Narayandas | *Appreciation* | *Institution* | A Three-day Workshop on Innovations, Intellectual Property Rights and Startups" organised by Entrepreneurship Development Cell & Innovations and Incubation Center | 12-10-2018 | Department coordinator |
| Nagamala Sabitha | *Appreciation* | *Institution* | Certificate of Appreciation | 17-11-2018 | organizing spoken tutorials courses |
| Gummedelli Srishailam | *Appreciation* | *National* | Spoken Tutorial Organizing Member | 17-11-2018 | Certificate of Appreciation for organizing spoken tutorial certification courses |

## Faculty Achievements

| Faculty Name | Category | Level | Title | Date DD-MM-YYYY | Description |
|---|---|---|---|---|---|
| Gummedelli Srishailam | *Achievement* | *National* | Wipro Certified Faculty | 22-12-2018 | Wipro's Project Based Learning framework in Java-J2EE |
| Battula Venkata Ramana | *Achievement* | *National* | National Eligibility Test | 05-01-2019 | The award of JRF and or Eligibility for Assistant Professor depends on the aggregate performance of the candidate in Paper-I and paper-II of UGC-NET. |
| Nagamala Sabitha | *Appreciation* | *State* | Appreciation Letter of Recommendation | 12-04-2019 | Swecha NGO |

| Roll Number | Name of the Award | Name of International Institution / Organisation from where the award has been received |
|---|---|---|
| 2451-15-733-023 | OU Rank 1 | OU |
| 2451-15-733-067 | OU Rank 3 | OU |
| 2451-15-733-128 | OU Rank 7 | OU |
| 2451-15-733-071 | Rank-808, GATE 2019 | GATE |
| 2451-15-733-121 | Rank-1357 , GATE 2019 | GATE |
| 2451-15-733-086 | Rank-4669, GATE 2019 | GATE |
| 2451-15-733-134 | GATE 2019 | GATE |
| 2451-15-733-171 | Rank-5189,GATE 2019 | GATE |
| 2451-15-733-306 | Rank-1470 in TS-PGECET 2019 | TSPGECET |
| 2451-15-733-023 | Rank-1406 in GATE 2019 | GATE |
| 2451-15-733-143 | MS Admission at ILLINOIS Inst. Of Technology , USA | MS |
| 2451-15-733-015 | Score-298,GRE | MS |
| 2451-15-733-064 | Score-319 , GRE 2018 | MS |
| 2451-15-733-067 | Score-321 , GRE 2018 | MS |
| 2451-15-733-077 | Score-309 , GRE 2018 | MS |
| 2451-15-733-079 | Score-304, GRE | MS |
| 2451-15-733-100 | Score-290 , GRE 2018 | MS |
| 2451-15-733-102 | Score-319, GRE | MS |
| 2451-15-733-027 | MS, MONASH University, Australia | MS |
| 2451-15-733-009 | IEEE Publication | Publication |
| 2451-15-733-009 | EPCWebX | Copyright |

## Student Achievements

| Roll Number | Name of the Award | Name of International Institution / Organisation from where the award has been received |
|---|---|---|
| 2451-15-733-152 | 92%, took Admission in IIM Banglore. | |
| 2451-15-733-306<br>2451-15-733-034 | Got copyright  SAMYAMINI – Meta-cognition framework for Multi faced User | SAMYAMINI |
| 2451-15-733-067<br>2451-15-733-064 | Got Copyright ANUVANI-A rustic wizard framework for naive users | ANUVANI |

# Jokes

1. A programmer gets stopped at an airport and is asked, "Do you have anything to declare?"

   He answers, yes, three variables and a constant.

2. Why didn't the integer and string fall in love? It was a type miss-match.

3. Why do Java programmers tend to wear glasses?
   Because they can't C#.

4. Why computers are like women :

   ○ No one but the Creator understands their internal logic.

   ○ The native language they use to communicate with other computers is incomprehensible to everyone else.

   ○ Even your smallest mistakes are stored in long-term memory for later retrieval.

   ○ As soon as you make a commitment to one, you find yourself spending half your paycheck on accessories for it.
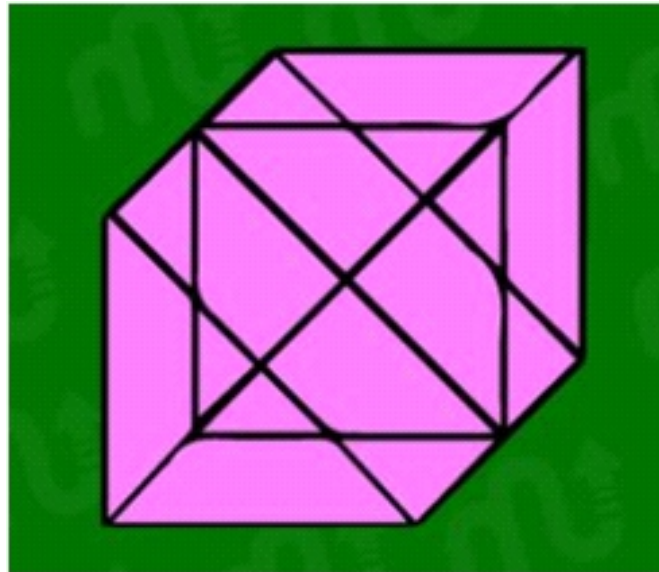
5.
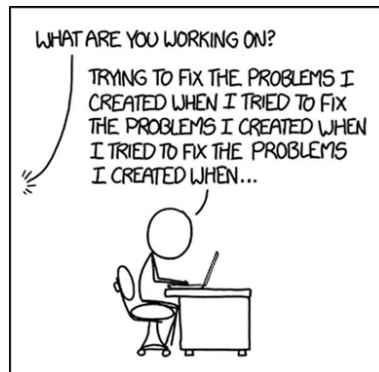


**M.Naga Rani**
Programming Assistant

# Tricky Riddles

1) WHICH WORD IS WRITTEN INCORRECTLY IN A DICTONARY?
2) PEOPLE BUY ME TO EAT, BUT NEVER EAT ME. WHAT AM I?
3) WHO MAKES MOVES WHILE BEING SEATED?
4) EVA'S MOTHER HAD THREE CHILDREN. THE FIRST WAS CALLED APRIL, THE
   SECOND WAS CALLED MAY.  WHAT WAS THE NAME OF THE THIRD?

5) CAN YOU FIND THE NUMBER OF TRIANGLES IN  THE GIVEN FIGURE?



**Answers**:
1) THE WORD IS WRITTEN **"INCORRECTLY"**
2)  A PLATE

# Tricky Riddles

3) A CHESS PLAYER



4) ITS EVA!
5) THE NUMBER OF TRIANGLES IN THE GIVEN FIGURE IS '**24**'

M.Naga Rani

# Cross Words

```
H  V  D  W  O  R  K  J  K  R  O  W  L  I  N  G  N  S  H  Z
P  A  E  L  D  F  A  T  Z  B  P  N  Q  A  L  F  H  U  Q  M
Q  J  N  Q  R  U  S  L  M  A  I  L  R  F  D  K  O  S  N  F
V  E  N  N  P  S  B  O  J  E  V  E  T  S  Z  N  G  D  Q  K
Z  N  I  R  A  A  V  K  I  F  E  Q  O  A  O  Q  S  A  W  E
G  S  S  Q  G  A  S  A  D  H  F  Y  E  S  I  W  E  K  J  R
N  E  R  X  A  R  N  X  S  Y  A  D  T  U  A  E  M  I  A  T
I  N  I  N  T  Y  A  D  N  K  Z  A  M  L  D  I  N  L  D  Y
K  A  T  O  H  G  E  R  B  O  W  O  T  N  O  S  P  M  E  G
W  C  C  T  A  N  Q  X  M  A  N  E  F  X  U  H  A  O  N  S
A  K  H  Y  C  I  C  Z  M  Z  R  S  I  L  B  K  Q  G  S  P
H  L  I  L  H  B  M  F  E  V  B  P  A  M  I  J  S  M  N
N  E  E  B  R  S  E  R  L  N  L  M  E  H  N  R  X  E  I  L
E  S  O  D  I  O  U  I  I  E  F  R  G  R  U  E  O  M  T  X
H  V  G  I  S  G  A  U  V  C  N  U  B  N  A  K  Y  Q  H  X
P  Q  S  N  T  S  C  R  U  S  L  M  A  I  L  L  I  W  R  Y
E  C  E  E  I  E  A  N  I  U  A  L  S  I  R  R  A  H  P  S
T  M  M  S  A  M  O  H  T  Y  S  S  E  T  P  W  L  U  A  P
S  B  W  U  R  A  S  M  U  S  L  E  R  D  O  R  F  O  R  D
Q  A  H  P  H  J  V  U  E  W  Q  E  S  I  U  R  C  M  O  T
```

**CLUES :**
1. FOUNDER OF JAVA
2. FATJER OF VIDEO GAMES
3. FAMOUS SERIES AUTHOR
4. TREDNING SONG LYRICIST
5. WALT DISNEY PRODUCER
6. CARTOON SERIES WRITER
7. ANDROIDS COMPETITOR
8. SCIENCE'S BRIGHTEST STAR
9. "NEVER SAY NEVER" KID
10. INDIA'S MISSILE WOMAN

**ANSWERS :**
1. JAMES GOSLING
2. RALPTH BAER
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