

# Shell

Newsletter

Department of  
Computer Science & Engineering



Volume 5

Issue 2

July 2020

## Vision and Mission of the Institute

### Vision

- To be one of the premier institutes of Engineering and Management Education in the country

### Mission

- To provide Engineering and Management Education that meets the needs of human resources in the country
- To develop leadership qualities, team spirit and concern for the environment in students

### Objectives

- To achieve educational goals as stated in the vision through the mission statements which depicts the distinctive characteristics of the Institution
- To make the teaching-learning process an enjoyable pursuit for the students and teachers

## Vision and Mission of the Department

### Vision

- To be a premier department for education in Computer Science and Engineering in the state of Karnataka, molding students into professional engineers

### Mission

- To provide teaching/ learning facilities in Computer Science and Engineering better than prescribed by University for easy adaptation to industry and higher learning
- Provide a platform for self-learning to meet the challenges of changing technology and inculcate team spirit and leadership qualities to succeed in a professional career
- Comprehend the societal needs and environmental concerns in the field of Computer Science

## This issue of Shell



from the Department of Computer Science and Engineering is dedicated to **Rohini Godbole who is an Indian physicist and academician**. She is a professor at the Centre for High Energy Physics, IISc, Bangalore. She has worked extensively on different aspects of particle phenomenology over the past three decades, in particular on exploring different aspects of the Standard Model of Particle Physics (SM) and the physics beyond it (BSM). She is the author of more than 150 research papers. She is being awarded Padma Shri for her contributions to science and technology (2019).

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Vidyayamruthamashnutha

*B.N.M. Institute of Technology*

(Approved by AICTE, Affiliated to VTU, Accredited as grade A Institution by NAAC  
All UG branches - CSE, ECE, EEE, ISE & Mech.E Accredited by NBA for academic years 2018-19 to 2020-21 & valid upto 30.06.2021)

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## From Editor's Desk

Dear Reader,

It is indeed a great pleasure to introduce 'SHELL' volume 5, issue 2. It will take you down the lanes of the latest innovations and technological advancements happening around the world. It is a platform that exhibits the skills and innovative ideas. It is a mixture of technical articles with some interesting blogs and a tint of tricky quiz questions.

People all around the world have certainly had to face major challenges and upheavals as a result of Covid-19. We've had to adjust and change the way we do things. However, amidst this pandemic, we all have found ways to carry on - at a distance.

I had an incredible experience with the team SHELL. I am happy to see such enthusiasm in the members of the college towards contributing to this magazine even in times of pandemic and world crisis. It is this inclination to share knowledge, concern, and special insight with people of common interest that have made this newsletter readable.

I would like to take this opportunity to thank our Department of CSE on behalf of my team. I thank the tireless endeavours set forth by the team in making this newsletter a success. I invite you to immerse yourself in the unfolding of current science and technology.

**Fatema Malu Bhai Wala**  
**VI CSE 'B'**

## Department Profile

The Department of Computer Science and Engineering started in the year 2001 is known for imparting quality education and carrying out cutting edge research. In addition to the strong UG program, PG Computer Science Engineering Program, and Research Facilities for M.Sc. (Engg.) and Ph.D. courses are also offered. The Department has a well-equipped Research and Development Centre, affiliated to VTU

The Department has associations with professional bodies like CSI, IEEE, ISTE, IET, the student branch of Institution of Engineers, and Indian Society for Technical Education. The major areas of specialization of the faculty include Image Processing, Computer Vision, Pattern Recognition, Data Mining, Wireless Sensor Networks, and Network Security. The Department has attracted some of the brightest students and faculties into its portal. Faculties are involved in Campus Connect Program of Infosys and they are reviewers of reputed National and International Journals and have chaired National and International Conferences.

The Department regularly organizes Faculty Development Programmes (FDPs), workshops, technical talks, and industrial visits for students as well as faculties so that they are abreast of recent trends. The students are placed in leading IT companies, offering attractive pay packages. They also pursue higher studies in reputed universities across the globe.

In addition to academics, the Department is striving to upgrade students' skills with programmes like Skill Development Programme, Innovative Project Laboratory, T5, TW5, WP5 and Engineering Exploration Laboratory (EEL) Programmes.

## Finalists of 'Smart India Hackathon 2020, Software Edition'

The image shows a screenshot of a Google Meet session. On the left, a window displays the 'Virtual Tourist Guide' application interface. The interface has a green header with the title 'Virtual Tourist Guide' and a menu icon. Below the header, there is a section titled 'EMERGENCY CONTACTS' with several blue buttons labeled 'MAKE A CALL' for 'GOA POLICE', 'Goa Tourism Development Corporation Ltd', 'Women Helpline Number', 'Centralized Helpline Number', 'Fire', 'Ambulance', and another 'MAKE A CALL' button. At the bottom of this window, it says 'To know more please visit [here](#)'. The main part of the screenshot shows the Google Meet interface with a presentation slide titled 'Trio India PS ID: DR135 (Virtual Tourist Guide) Govt. of Goa'. The slide features the Vel Tech logo and a globe. To the right of the slide, there is a list of participants with their names and profile pictures. The participants listed include DR135\_AKSHAY\_T..., Dr K J Rao, Asst.Pr..., DR135\_T SAI SRU..., DR135\_Swarnamal..., Naziya Shaikh, Asst.Prof. EEE Vel..., DR135\_AISHWARYA..., DR135\_AKASH\_K..., Amar Naik, Pandiyarasan Velu..., Avinash Patil, Shubha Kamat, nilesh natekar, and Asst.Prof. EEE Vel Tech, Che... The meeting details at the bottom show 'Meeting details' and 'Turn on captions'. The bottom status bar shows the time as 6:59 PM on 8/2/2020.

Our Students Akash Kunwar, Akash Anand, Akshay Anand, Sai Srujan T, Swarnamalya M, Aishwarya R Bhatt, of 6th Semester, CSE, have participated in the Smart India Hackathon 2020, and were selected in the final round for unfolding a trip advisor application named 'Trio India- The Virtual Tourist Guide'.

## Deep Web

“When you jump into the dark web, one click can put your life at stake”

The Deep Web sometimes called the Web or the Hidden Web is the large part of the internet that is inaccessible to conventional search engines. Deep Web content includes emails, chat messages, private content on social media sites, electronic bank statements, Electronic Health Records (EHRs), and other contents that are accessible over the internet but are not crawled and indexed by search engines. The content of the deep web is hidden behind Hyper Text Transfer Protocol (HTTP) forms and includes many common uses such as webmail, online banking, private or otherwise restricted access social-media pages and profiles, some web forums that require registration for viewing content, and services that users must pay for, and which are protected by paywalls, such as video on demand and some online magazines and newspapers. In the Google form submission system, the pre-computation of submissions is done, using three algorithms:

1. Selecting input values for text search inputs that accept keywords
2. Identifying inputs that accept only values of a specific type
3. Selecting a small number of input combinations that generate URLs suitable for inclusion into the Web search index.

Although, the Deep Web is not always illegal there are plenty of activities that are entirely within the context of the law. Activities such as those mentioned below are commonplace on the Deep Web, with a membership often comprised of in-the-know internet users well-versed in accessing the Deep Web: Social Media, Blogging, Text and Voice Chat, International tournament-style games such as Chess and Backgammon, Survivalist-type, end-of-world groups, Bookclubs, fan clubs, video game clubs, Hidden Answers – a popular Deep Web version of Yahoo Answers

**G Sai Vennela**  
VI CSE 'B'

## Microchip Implant (Human)

With the evolving technology at a great speed, we on the consumer side, are expecting better technologies that comfort us daily. To this level of advancement, a new tentative addition under research is the development of a microchip implant on humans. A human microchip implant is typically an integrated circuited device or Radio-frequency identification (RFID) transponder encased in silicate glass and implanted in the body of a human being. This type of subdermal implant usually contains a unique ID number that can be linked to information contained in an external database, such as personal identification, law enforcement, medical history, medications, allergies, and contact information. ‘One of the biggest concerns is the unintended consequences of the ability to track where bodies are in the most fundamental sense, warns Associate Professor Michael Zimmer, Ph.D., Dept. of Computer Science at Marquette University.’ He has researched privacy issues and ethics related to technology. He

advises that we need to proceed with caution when it comes to this technology. The chips can be used to unlock doors, start cars, exclude the use of work pass cards, and offer options to pay for things. They could also be used to hold medical information and could be very helpful in emergencies. Microchip implants are essentially cylindrical bar codes that, when scanned, transmit a unique signal through a layer of skin. Mostly, they have been used to organize products or warehouses or identify livestock and stray pets, though there has been some human experimentation.

The chip is not approved by the U. S Food and Drug Administration. The cost ranges from \$150-200. Researchers, however, have examined microchip implants in humans in the medical field and used them to indicate that there are potential benefits and risks in incorporating the device in the medical field and hence, this is still under research.

**M V Sanjana**  
VI CSE 'A'

## Secret to Superhuman Intelligence: Bees

A tool inspired by flies is helping people predict the future. When it comes to making decisions, most of us are influenced to some degree by other people, whether that's choosing a restaurant or a political candidate. We want to know what others think before we make that choice. Lois Rosenberg runs a start-up called Unanimous AI, built a tool to support human decision-making by online sourcing. Hundreds of participants respond to a question all at once, pooling their collective insight, biases, and varying expertise into a single answer. Since launching in June, Unanimous AI has registered around 50,000 users and answered 230,000 questions. Rosenberg thinks this hybrid human-computer decision making machine, once dubbed an 'artificial' artificial intelligence could help us tackle some of the world's toughest questions. 'We can't stop the development of smarter and smarter artificial intelligence So, our alternative is to make ourselves smarter so that we always stay one step ahead.' This is where the bees come in. ‘If you look at social species like bees, they work together to make better decisions, that's also why birds flock and fish shoal - it allows them to react in optimal ways by combining the information that they have’. Rosenberg's hive minds have had remarkable success at predicting a string of events: the winners of the 2015 Oscars; the winners of the 2016 National Hockey League's Stanley Cup; and at - 542 to one odds - the first four winning horses in order of the 2016 Kentucky Derby, converting a \$20 bet into \$11,800 (£9,300). Most recently, they predicted not only the winning team in World Series Baseball, the Chicago Cubs - who took the prize for the first time since 1908 — but also the Cub's opponent in the final game, the Cleveland Indians, as well as all eight of the teams to make the playoffs. These correct predictions were published four months in advance in the Boston Globe.

**Bhupendra**  
IV CSE 'A'

## Artificial Intelligence

Artificial Intelligence can be thought of as the transfer of human intelligence to machines. The IBM supercomputer, Deep Blue created history by defeating the world champion, Kasparov, during the late 90s in a six-game match. The basics of chess and the previous chess games' data were given as input to the computer. The computer was made to play several times and it updated and tried all possibilities. We can consider AI as a superset of Machine Learning and Deep Learning. In AI, we program in such a way that the machine follows our instructions. AI is making a machine smarter by thinking. In many situations, humans are not trained to react. If a machine can think on its own, then it is called AI. The machine is made of neural networks just as the fact that the human brain is composed of neurons. The machine is trained with what is wrong and what is right. It does the work repeatedly, then updates itself to improve performance and learns from its mistakes. For example, the working of Google assistant, the suggestions in a search engine, friend suggestions on Facebook, and many others work based on AI and Big Data.

- Artificial Intelligence: It refers to creating intelligent machines
- Machine Learning: It refers to systems that can learn from experience.
- Deep Learning: It refers to systems that learn from experience on large data sets.

It is expected that in the upcoming years, AI will dominate us and this may be the initial stage of human destruction.

If this happens then either human cannot have control over the machines or they should find a way to solve the problems. Hence, AI has both advantages and disadvantages.

**Nagashree M S**  
**IV CSE 'B'**

## Momentary Markets

That means viewing each moment as if it is an individual market - a momentary market. Miss the moment, and there is no second chance. The only way to capture those momentary markets is to develop extremely well-attuned sense - detecting mechanisms that enable a brand to identify consumer needs before the competition - and sometimes before consumers themselves.

### The Emergence of 'Momentary Markets'

The innovators also understand a fundamental truth about consumer goods manufacturing: that competitive advantage increasingly lies in capturing the fleeting 'Momentary markets of one?' These are the highly specific individual consumer opportunities that arise at the moment - and disappear just as fast.

With direct digital access to consumers (and consumers' data), companies can understand these markets better than ever before. This is critical in an environment where smaller, nimbler, and more innovative brands are making aggressive moves.

## Effect on Society and Civilians

There is no doubt that social media has a major influence on how we function in society today. It's not just how we connect. It's how we recruit and find jobs, and now, how we shop. This is exactly momentary marketing. Momentary marketing is changing the way businesses retail their products and services by using temporary content social networks like Snapchat to offer special deals, coupons, and price matching in real-time, on the spot. In a 'limited time only' fashion, momentary marketing increases brand awareness to heighten excitement for a specific event, promotion, or service. We are in a world of instant satisfaction and ephemeral marketing plays into the desire of online consumers to absorb smaller, easier, and more efficient forms of content.

**Amogha R Chandra**  
**VI CSE 'A'**

## Technology in Sports

*"It's not faith in technology, it's faith in people."*

*~ Steve Jobs*

In recent times, there have been massive developments in sports concerning technology. This has brought a new paradigm shift to the way decisions are made in sports. These technologies are unbiased and have higher efficiency than human officials. The aim of these technologies is not to eradicate human officials, but to aid them in tough calls. We will take a deeper dive into the technologies used in the sport of swimming (DiveCam), football (GLT), and rugby (TMO).

### DIVECAM:

The DiveCam is a small camera contained in a tube that follows the diver from the top of the platform into the water. But instead of using complex pneumatics or motorized tracks, the camera is simply dropped at the same time the athlete leaves the platform. Since gravity ensures that everything falls at the same rate, as long as the operator releases the camera at the same time as the diver, it will perfectly follow them into the water. The idea was originally thought up by NBC's David Neal. Garret improved one of the ideas with mechanisms to safely bring the camera to a stop once underwater and added remote tilt-and-pan controls so that the cameraman could always keep the diver in the frame.

### GOAL LINE TECHNOLOGY (GLT)

In football, a goal is scored if the whole of the ball crosses the goal line between the goalposts and under the crossbar. In most cases, this is relatively unambiguous (goal nets being a low-tech way of verifying that the ball passed the correct side of the goalposts). Occasionally however situations occur when it is difficult for referees and their assistants to tell if a goal has been scored before a rebound, save, or defender's clearance from the goal area. is a method used to determine when the ball has completely crossed the goal line in between the goal-posts and underneath the crossbar with the assistance of electronic devices and at the same time assisting the referee in awarding a goal or not? The objective of goal-line technology (GLT) is not to replace the role of the officials, but rather to support them in their decision-making. The GLT must provide a clear indication as to whether the ball has fully

crossed the line, and this information will serve to assist the referee in making his final decision.

### TELEVISION MATCH OFFICIAL (TMO)

The TMO is someone who watches the match action on TV screens, usually outside the ground. Using a system called Hawk-Eye, they can see multiple camera angles of an incident and pass on information to the match referee – via an earpiece to help him make accurate decisions. TMO's aid can be used by the on-field referee to make decisions that are hard to judge. The TMO can run through the previous tapes and figure out if foul play occurred or not and can then report it back to the on-field referee. In conclusion, we can say that these technologies have eradicated corruption in games as well as biased decisions, but it is also to note that these systems do make errors at times but they can be built upon and improved in the next phases of said technologies.

**Srinidhi S P**  
VI CSE 'B'

## Cybersecurity Roadmap

'Cybersecurity engineers are truly the warriors of this digital galaxy'

Faced with an extremely high-paced threat landscape and an enormous shortage of talent, organizations are struggling to protect data and strategically align cybersecurity and business goals.

While a career in cybersecurity can be stressful, it's also extremely rewarding. The responsibilities of a cybersecurity professional may vary, but the role can be simplified into one function: protect a company's data from being compromised by an attack. During times like a pandemic where the fear of recession is looming, pay cuts, and job losses are widespread, a career in Cybersecurity is standing out to be a saviour and highly beneficial. Students can capitalize this opportunity by utilizing all the available resources such as Udemy (Highly recommend instructor Nathan House) and another Udemy Course of Vikash Chaudhary (Bug Bounty Hunting - Offensive Approach to Hunt Bugs), as well as OFFENSIVE BUG BOUNTY - HUNTER 2.0 by the same author in hackersera application. Use sites like BugCrowd, Hackerone, Synack for bug bounty contests.

### How to land a job in the Cybersecurity Industry?

Unfortunately, getting a Cybersecurity engineer's job as a fresher just out of college is not an easy task. But the good news is, you can be ready with all the skill set required so that you can be available to take up this role when the opportunity knocks your door.

### Various Roles in the Cybersecurity Industry:

- Penetration Tester (VAPT - Vulnerability and Penetration Testing)
- Security Analyst
- Cloud Security Engineer (AWS, Azure, GCP, etc.)
- Infrastructure Security Engineer
- Network Security Engineer
- Security Consultant (Combination of above roles) and multiple other roles which would require more experience

### These are the approaches I followed which helped me follow my passion to thrive in the job.

- Entry-level positions don't exist in cybersecurity. Take up a job that might be helpful or closest to the security engineer role. You can take up web developer, networking roles as well. Highly suggest learning to script (Python would do)
- Get Certified. Cybersecurity roles require certifications as there are legal requirements for data protection. You can start with beginner certifications like CEH (Certified Ethical Hacker), OSCP (Offensive Security Certified Professional), Cloud Security Certifications like CCSK v4, AWS Security Specialist, Azure Security Engineer Associate
- Start using Security Tools responsibly. Get comfortable with Kali Linux operating systems. Kali Linux is the most used OS for cybersecurity and ethical hacking. Learn Burp Suite, Nmap, Nessus and you would figure out the rest when you start digging deeper. Hacking into systems without prior approvals is a criminal offense and you would end your career before starting
- Attend/Watch Security Conferences. Black Hat, RSA, DefCon Conferences are a great place to know what are the latest happenings and new developments in the security market by various vendors and other hackers
- Have a digital presence. Publish your achievements, articles on LinkedIn. Keep your LinkedIn account very professional. Most of the HR's look for profiles on LinkedIn
- Learn to GOOGLE. You would often end up having no guidance or team to support due to the shortage of specialists. Hence, Google is your best teammate.

With all these strategies, I believe it would be a delightful path to start working in this interesting industry. Remember that not a single day is going to be the same in this job.

**Prashasth Baliga Bantwal**  
BE, Alumnus  
2015 Batch

## Agile Implication in Technical Operations

Agile is one of the hottest management trends for companies across industries, and with good reason. This approach, which encourages collaboration, responsiveness, and ownership has helped to transform different parts of an organization and generated significant performance improvements. Over the past decade, leading companies have applied agile methodologies to IT, software development, project management, and delivery organizations. All these functions have volatile processes with multiple inputs and high uncertainty, which made them natural candidates for agile.

But today companies have been much slower to implement agile in operational functions because executives assume these areas are ill-suited for this approach. Customer care, for example, has less uncertainty than other functions, with plenty of repeated tasks and requests. Efficiency is one of the biggest problems to achieve agile.

A few ways to maximize efficiency from my approach are listed below: -

1. Agile customer service must be flexible and focused on meeting customer needs, rather than blindly following established procedures.
2. An agile process eliminates barriers to quick delivery of products and results. When applied to customer service, manpower becomes nimble, cross-trained, and ready to collaborate to deliver results.
3. Building customer feedback i.e. negative or positive is a key part of the developmental agile strategy which in turn influences the product roadmap. The support process should always be evolving based on the feedback and changing requirements of the customers. Tracking customer complaints is important and critical to follow up and make sure complaints have been resolved.
4. The agile process relies on both staff and customer collaboration. The manpower must be completely trained so that they may transfer the knowledge to customers as well.
5. Do not force a strict process on your support team. Let them define their process based on what the best is for both, the customers and company.

As per today's situation, in case of any circumstances like COVID and forced to work remotely. A schematic framework like agile could improve team productivity. Students should gear up with preliminary learning about the agile framework so that hiring companies would gain confidence in them.

**Akhila V**  
**MTech, Alumnus**  
**2016 Batch**

## **Blogs**

### ***Is Smart Making us Dumb?***

Being a resident of Bengaluru, also called the garden city which is located in the southern part of India, most of my family and friends residing in different parts of the world, physical distance doesn't seem to separate us today because of modern technology that always keeps us connected with our near and dear ones at the touch of a button. Technology has indeed made this colossal world seem so small, by breaking the bonds of distance and time and thereby enabling us to communicate from one part to the other in a trice.

I feel lucky that I was born in this smart-tech era for which our ancestors were not privileged. Our daily lives have become so indispensably interwoven with technology, which has impacted our lives in every aspect positively, or sometimes, otherwise. Thanks to satellite navigation. We can now travel to any nook and corner of the world, without human assistance. All we need is a smartphone with an internet connection.

I grew up in Aurangabad, a city situated in central India which is far off from my native place Kanyakumari, located in the southernmost part of the country. During my childhood days, communication between my grandparents and our

family was mostly through inland letters. I can recollect that whenever my father had written letters to my grandmother, I always penned down a few words for her and patiently waited for her response. There were an eager expectation and joy in waiting for the reply. Although writing a physical letter takes more time and effort than quickly typing an email. It adds heft to our words and shows the reader of the letter, the thought, love, and affection, for them.

I am talking about a bygone era, where we didn't have the privilege to access the technology that we have today. But that bygone era had inculcated patience and tolerance which the present generation seems to be lacking because many things are readily available at their disposal without the need to wait, think and then decide, shaping their overall persona which has ripple effects on the overall society as well.

Being an academician, I come across many young minds every day, who are unaware of yesteryear's lifestyle and so used to modern technology, that 'being patient' is a lost word in their dictionary. Living in this era of cutting-edge technology, the need to be patient has lost its sheen and is considered sluggish.

Until mid-90's we had the only option of using the landline phone connection and we remembered multiple contact numbers of our family and friends, but with the advent of mobile phones where we have the option of storing contact details, our ability to remember has come down drastically. During our days we were content to walk for a distance or even take bicycle rides, for shopping, movie, or a park, but today's cutting-edge technology has enabled us to book a taxi from the comfort of our homes that has left us languid.

It is considered a privilege to stay away from families for work or study and settle, The preconceived notion that technology will always keep them virtually connected is deep in the heart. But this has left a void in physical presence resulting in broken relationships and many living in isolation without human connect which itself has disturbing social effects. Parents are not able to spend adequate time with their children due to compelling reasons for adapting to modern work culture and children at home are often seen to being glued to gadgets, which directly affects their behavioural pattern with the content they watch, reduced emotional quotient, disturbed sleep, etc.

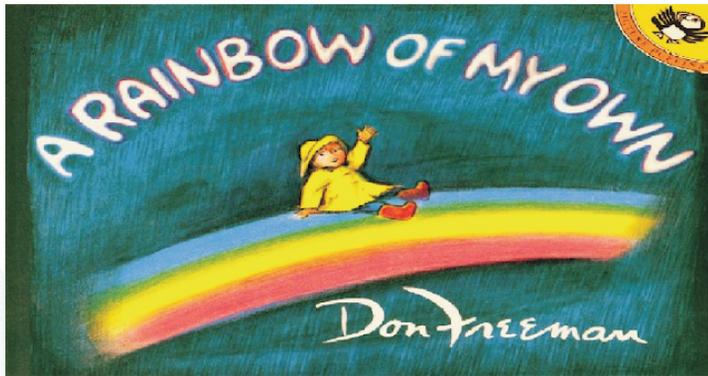
Are we heading in the right direction? Seems like these smart devices have succeeded in making us naiver. We, humans, have achieved greater materialistic success, but at the cost of human values. We can do great things technologically, but not humanly.

We need to reconsider and strategize the use of technology wherever it's applied in our daily lives and remind ourselves that technology was created for our well-being and we should not inadvertently become a slave of it, instead use it for the betterment of mankind.

**Blog link:** <https://jebahj.blogspot.com/>

**Jebah Jayakumar**  
**Assistant Professor**  
**CSE**

## *Difference between Focusing on Problems and Focusing on Solutions*



***Life has its ups and downs. Sometimes the sun shine has its ups and downs. Sometimes the sun shines, sometimes the rain lashes, but then it takes both the sun and rain to make rainbow...!***

Everyone faces the problem in life some or the other way small or big. The problem is a problem which has to be solved sooner or later. Ruminating the problem does not make any sense other than deterioration of the health, waste of time, and depression. So, a better way to deal with it is solving it! The question arises how? when? or by whom?

The only answer is to solve the problem by ourselves. What matters are the good perceptions of a person, at this point. It would be convenient to quote an article that adds realistic thoughts about solving the problem.

One of the biggest cosmetics companies received a complaint that a consumer had bought an empty soapbox. Authorities immediately identified the problem that was in the assembly line which transported all the packaged boxes of soap to the delivery department. Management asked its engineers to solve the problem. Post haste, the engineers worked hard to devise on X-ray machines with high-resolution monitors manned by two people to watch all the soapboxes that passed through the line to make sure they were not empty. No doubt, they worked hard and fast but with a greater cost.

Just give a thought, was it an only solution to the problem?! The engineer only focused on what is the problem never thought about the result. Another employee tried to solve the problem by not getting into complications of X-rays etc., but instead came up with another solution of using the strong industrial fans and pointed at the assembly line. When the fan was switched on, and as the soapbox passed through the fan. The empty soapbox blew out of the line. The simplest possible solution ever.

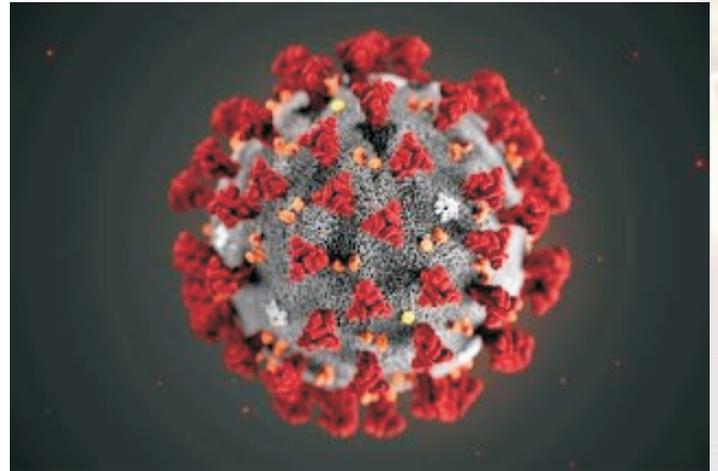
Always don't look at the problem as a problem change the perception and focus on the outcomes surely there is a feasible solution. As stated in the quote: "Always remember, your focus determines your reality"-George Lucas

**Blog link:** <https://pathanjali.blogspot.com/>

**Pathanjali C**  
**Assistant Professor**  
**CSE**

## *COVID-19 Crisis on Health and Wealth*

*We all complained about how bad the year 2019 was and 2020 is like, "HERE... HOLD MY CORONA!!!"*



*Corona Virus has turned us all into DOGS! We roam the house looking for FOOD. We're told "NO" if we get too close to strangers. And we get EXCITED about car rides and walks.*

### **So, what is CORONA?**

'Co' stands for Corona, 'VI' for Virus, and 'D' for Disease. Formerly, this disease was referred to as '2019 Novel Corona Virus' or '2019-nCoV'. Corona Virus Disease 2019 (COVID-19) is an infectious disease caused by the severe acute respiratory syndrome. It was first identified in December 2019 in Wuhan, China, and has resulted in an ongoing pandemic. Traces of the virus have been found in wastewater that was collected from Milan and Turin on 18 December 2019. More than 4.61 million people have recovered.

The entire world is almost under LOCKDOWN. We have reached the stage where we are scared to step out of our homes. We feel safe being home, enjoying the company of our loved ones. But at the same time, are we concerned about our health?! This pandemic has made us think about our future; our health and wealth. The changes in the lifestyle and working environment, are taking a toll on an individual's health.

The majority of us are working from home and thus are not very worried about financial status. But, the need of the hour is to maintain balance overwork and personal life.

Have a ROUTINE. Freshen up, workout a home, meditate to avoid stress and to keep your mind fresh. Following our home remedies, such as consumption of decoction [Kashayam]early in the morning, as our ancestors did, can protect us from common health issues and respiratory ailments.

A good work-life balance is to restrict our work time and not interrupt our families, during the meantime and not stay in the 'OFFICE GEARS' once the work is done. Devote the rest of the day to regular family chores and other activities.

Regular breaks are important for mental balance. Take a break and don't forget to have plenty of liquid intake at this time.

The recent rise in the number of suicidal cases is alarming. Celebrities and the news channels have been vocal about this too. The main reason for this is 'DEPRESSION'.



The pandemic has triggered stress and loneliness in people, especially due to the monotonous lifestyle. It is the right time to help our friends and family suffering from mental illnesses, with less medication and more love and care, and activities



that cheer them up.

Our heroes, the CORONA WARRIORS are working so hard to treat us, let us stay home and stay safe until a proper vaccine is found!

**Pooja B S**  
Assistant Professor  
CSE

### *An effortless way to live an eco-friendly lifestyle*



Everything that we need for our survival and well-being depends on the natural environment either directly or indirectly. We use nature's resources to satisfy our needs and requirements, but greediness and strive for luxury has led to environmental imbalance. Now the time has come to think of nature conservation and a healthy environment for substantial living.

The simplest way to define what being eco-friendly means is to say that it is the act of living with intent. The intent is focused on not harming our environment. Every step we take towards eco-friendly living is one that helps the earth to be clean and green.

#### **How to adopt an eco-friendly lifestyle?**

Small changes in our everyday life contribute to looking after our earth well and also help to live an eco-friendlier lifestyle.

**Plant more Trees:** One of the best ways to contribute to creating an eco-friendly environment is to plant more and more trees. Nothing is wasted when we plant a tree they bring us immense benefits. They produce oxygen, fruits, controls floods, and provide shelter for birds and animals.

**Plogging:** Plogging is a popular workout trend that not only benefits our health but also helps the earth. Plog is to walk or jog outside and pick up any litter that you find to recycle or throw away.

**Walk Don't Drive:** Ditch vehicle at least once a week and adopt for more environmentally-friendly transportation options such as walking or biking. Not only can walking and biking be a fun form of exercise, but also lower the number of harmful emissions being exuded into the air and environment.



**Practice the Reduce-Reuse-Recycle:** As much as possible, we all have to reduce the waste generated by refusing to use unnecessary packaging or opt for eco-friendly products. Reusing products, or finding a new use for the material, can also save money and reduce the amount of waste going into landfills.

**Conserve Water and Electricity:** It takes energy to produce freshwater and electricity. Few simple ways like turning off lights when not in use, fixing leakages, Proper insulation, using maximum daylight, etc., can help in adopting an eco-friendly lifestyle.

**Buy locally Grown Products:** Use locally grown products to reduce the carbon footprint in the form of using fewer plastic bags and saving fuel to get vegetables from the market etc.

As long as we keep our future generations in mind, these and other eco-friendly actions can help us to live a more

sustainable and environmentally-friendly life.

**Blog link:** <https://manjushreek30.blogspot.com>

**Manjushree K**  
Assistant Professor  
CSE

## Teach-Back

Teach Back-A New Pedagogy that works. An olden technique restated as a new pedagogy that would help a subject instructor to make the classroom more interactive is Teach-Back. The interactive classroom is the by-product of this pedagogy since the students' flip between two roles as a listener as well as a presenter. Catching the flow of the present scenario of virtual classrooms, this pedagogy can be used as a method when you go for a short interactive session on a particular refrain of a topic. The pedagogy works in the following sequence:

**Explain the Topic to the learner:** Explanations can be recorded audio or video, written versions, or a live class about the refrain of the topic.

**Learner Teaches back the topic:** The learner tries to teach their new understanding back to the teacher. If the learner gives a good response, the teacher goes on to explain more about the topic. With this one on one giving students' options like a poll or a quiz can make the classroom still more collaborative. You will be astonished by the findings of the students because they always come up with fresh perceptions and insights into the theme.

**If Learner Struggles:** If the learner finds it difficult to pull back the details about the lesson, the teacher explains the topic still further with illustrations until a shared understanding is reached.

This pedagogy turns out expedient for both the learner as well as the instructor, filling the gap between learning and understanding. The instructor learns a structured way of delivery as a result. This will also be a way of evaluating your students' understanding as well as your classroom delivery.

Surprisingly you and your student may end up in a thought-provoking problem statement too. Will come up with new pedagogy explored soon ....

**Blog Link:**

<https://teachingpedagogiesashakeup.wordpress.com/2020/07/13/teach-back/>

**Chandravathana I**  
Assistant Professor  
CSE

## Maths in our Daily Life...

In our schooling, most of us had all these questions running in our mind - what for we need to study Algebra? Trigonometry? Differential Calculus? Integration?

Well, we all use maths in our daily life whether we are aware of it or not. Mathematics is the core language of our environment, helping mankind explain and construct society.

Why Algebra?

The word 'Algebra' comes from the Arabic word 'al jabr,' which translates to 'reunion of broken parts.' We use algebra

while we aim at something. E.g.: Throwing a waste paper into a trash bin from a distance. The study of algebra aids in critical thinking and encourages one to break down a problem and then find a solution. While losing our weight, we first calculate our Body Mass Index, then watch out for food intake, and hence, monitor our calories.

Why Trigonometry?

Trigonometry and Geometry help a sportsman find the best way to hit a ball, make a basket or run around the track. As computers cannot comprehend and listen to music, the sound engineers use Sine and Cosine functions to develop computer music. Another interesting aspect is in criminology, trigonometry can help to calculate a projectile's trajectory, to predict the root cause of the collision in a car accident.

Why Calculus?

In Latin 'Calculus' means 'pebble.' Calculus is used in engineering to improve the architecture of buildings and important infrastructures such as bridges. Credit card companies use calculus to set the minimum payments due on credit card statements considering multiple variables such as changing interest rates and fluctuating available balance. Calculus is also used in the field of epidemiology to determine how far and fast a disease is spreading, from where it is originated, what is the best possible way to treat it. Biologists use differential calculus to determine the exact rate of growth in a bacterial culture when different variables such as temperature and food sources are changed. A graphics designer uses calculus to determine how multidimensional models would behave when the conditions change rapidly.

Why Probability?

Probability is a mathematical term referring to empirical explanations of how likely an event occurs or how likely a statement is valid. Athletes and coaches use probability to determine the best sports strategies competitions. Probability is used - in analyzing insurance policies to determine which plans are suitable for an individual and family, in predicting the outcome of an election, share markets, etc.

Very importantly we should know the 'Maths' behind Covid-19

To study the spread of this epidemic, the researchers are using a stochastic process, a way to analyze random happenings over some time. Basic calculus is studying the rate of change of the number of people susceptible to the disease.

What is the growth rate of an epidemic?

The growth rate of a disease is a natural way to capture how quickly the number of infections changes every day. If the growth rate is positive, the number of new cases each day is increasing, if the growth rate is 0, the number of new cases stays constant. What is needed to keep the epidemic under control is for the growth rate to be negative and hence the number of new cases to be decreasing.

**Blog link:** <https://ashwinirajaharsha.blogspot.com/>

**Ashwini**  
Assistant Professor  
CSE

## Departmental Activities

### Data Science and Analytics with R workshop



Department of CSE, BNM Institute of Technology, Bangalore had organized two days' workshop on 'Data Science and Analytics with R' in association with Kigyan School of Data Science, Pvt Ltd, Bangalore under 'The Institute of Engineers, (India)' students' chapter on 27th and 28th February 2020. Sixty-Five students from the 4th semester CSE had participated in the workshop. Ms. Bhagyashree from Kigyan Group, was the resource person for this workshop.

Day-1 started with a brief-introduction on Data Science with R, Business Analytics and Bigdata. Students were explained how to analyze the given problem, followed by a day in data scientist's life, sectors of data science like health care and finance. Also, Introduction to Statistics and its Application, Introduction to R, Setting-up Environment, Programming in R Data

structures in R, Applying Function in R, Introduction to ML, Supervised and Unsupervised Learning model was also discussed during the workshop. Theoretical topics were discussed during the first session of the workshop followed by hands-on sessions in the second session of Day-1.

Day-2 started by implementing simple linear regression in Excel, multilinear regression, implementing regression in R. Also, students were introduced to Classification algorithms, Time Series algorithms, AR Model, MA Model, Exponential Smoothing and Arima Model. Students were also introduced to hands-on sessions to gain practical knowledge on the subject throughout the workshop. Students had a good experience attending this workshop.



### Workshop on Node.js and Express Development with MongoDB



Department of CSE, BNM Institute of Technology, Bangalore had organized two days' workshop on 'Node.js and Express Development with MongoDB' in association with Indian Tech-Keys, Bangalore under 'The Computer Society of India' students' chapter on 6th and 7th March 2020. Fifty-Nine students from 6th-semester Computer Science & Engineering and Information Science & Engineering had participated in the workshop. Mr. Sujay from Indian Tech-Keys was the resource person for this workshop.

Day-1 started with an overview of the languages that are used for full-stack web development. Hands-on sessions were conducted on JavaScript using VS Code text editor, array and JSON data creation and manipulation, server creation, receiving an HTTP request, and sending back responses, and express framework to provide server related operations.

On the second day, the students learned to use MongoDB Compass as GUI for implementing NoSQL, create databases and collections with JSON data, commands for insertion & manipulation of data, and Node.js – MongoDB connectivity. A shopping cart program with database connectivity and front-end request handler was implemented.

### Webinar series on “Industry Based Emerging Technologies”

Two day webinar series on “Industry Based Emerging Technologies” in association with Metamor Technologies, Bengaluru under BNMIT - CSI students chapter on the 18th and 19th of June, 2020. One hundred and ninety-two students from 2nd, 4th, 6th and 8th semester from various branches had participated in the webinar. Mr. Chandrakant SH, IT Director and Mr. Mahesh R G, Program Director of Metamor Technologies were the key resource persons for this webinar. Day-1 started with the first session on understanding the framework of Industrial Internet of Things (IIoT). Students learnt about various operational technologies related to IIoT. The second session dealt with aspects of Blockchain technology and its applications. The first session on Day 2 dealt with the basic concepts of Progressive Web Applications like app manifest, service workers, cache API, sync API, notification API. In the second session the students learnt the key attributes of information security: confidentiality, integrity and availability.



# Webinar series on “Research Frontiers in Intelligent Computing”

Department of Computer Science & Engineering  
presents  
Virtual Webinar Series  
**Research Frontiers in Intelligent Computing**

Schedule  
25<sup>th</sup> June, 2020 to 3<sup>rd</sup> July, 2020  
Platform  
Microsoft Teams

**Schedule**

25 <sup>th</sup> June 9:30 am - 11:00 am Prof. P. Rajagobalan IIT Bombay	27 <sup>th</sup> June Prof. D & S Das Prof. Chaitin Suresh Babu University of Mysore	29 <sup>th</sup> June Prof. Michael Eisenstein Professor Emeritus University of Toronto	1 <sup>st</sup> July Prof. P. Shashisankar Faculty of Computer Science, York University of Toronto	3 <sup>rd</sup> July Prof. Ali Bayat Abadi Associate Professor Southern Cross University
11:30 am - 1:00 pm Prof. Umayyada Pal Computer Science Research Recognition Unit, SRM Institute	Prof. Sagar Saha VIT Chennai VIT Chennai	Prof. Shabbir Verma IIT Bombay	Prof. Rajat S. Nimbhorkar Assistant Prof., IIT Madras	Prof. Srinivas D. Gowda HOD, IIT Madras

B. N. M. Institute of Technology

Department of CSE, had organized webinar series from 25th June to 3rd July, 2020 to provide an exposure for research opportunities in 'Intelligent Computing'. Several eminent personalities shared their knowledge and expertise in the upcoming technologies. The aim of this webinar was to provide an insight into the world of Pattern Recognition, Machine Learning, Artificial Intelligence and its various applications. The theses topics, which are the most talked about subjects were discussed in order to motivate engineering architects to make a better world tomorrow with new automated technologies from the abundant data being generated every day.

### Organizers:

- Dr. Sahana D Gowda
- Dr. Sejal S Nimbhorkar
- Prof. Pathanjali C
- Prof. Ragahavendra C K

### Technical Assistants:

- Mr. Anand PM
- Mr. Chikkanna

## KEY MOMENTS IN THE AI JOURNEY...

**1940**

Expectations that machines could match humans in terms of general intelligence. By that we mean machines could have an ability to **Learn, Reason and React.**

**1950**

Alan Turing develops the **Turing Test**; a test to determine whether a machine is intelligent. However, it wasn't for another 60 years or so that any program was deemed to have passed.

**1955**

The first time a computer program **defeats a human World Champion** in a board game.

**1956**

John McCarthy invents the **new term 'Artificial Intelligence'** when he held the **First Academic Conference** on the subject of AI.

**1962**

Arthur Samuel's machine learning checkers (draughts) program, beat a checkers master.

**1980**

Reinforcement Learning is introduced. This is a type of programming that uses rewards and punishments to train a machine to interact with its environment.

**2012**

Research group led by **Geoffrey Hinton** wins the **ImageNet** competition – this competition requires AI to categorise about 1.2 million images into any of 10,000 different categories. The level of accuracy was **equal** to that of the average human completing the same task manually.

**2014**

Eugene Goostman's chatbot, a bot pretending to be a 13 year old boy, supposedly **passes the Turing Test**, a test which no one has passed before! But **controversy** arose with this claim as:

1. Experts claims it only lasted five minutes.
2. It was deemed **biased** as Eugene's first language (Ukrainian) was not the same as the judges (English), which is an advantage as language is one of the few ways we can tell the difference between a human and machine.

**2018**

**Alibaba's AI Model** performs better than humans in a reading and comprehension test at **Stanford University**, scoring 82.44 against the 82.304 scored by humans!

Fatema Malu Bhai Wala  
VI CSE 'B'

## Announcement



**NEW** Bachelor of Engineering (B.E.) in  
Artificial Intelligence & Machine Learning

Under VTU  
Approved by AICTE

## Biz-Tech Quiz

- Who is the father of Computer Science?**
  - Donald Knuth
  - John von Neumann
  - Alan Turing
- Who is the inventor of the 'Difference Engine'?**
  - Charles Babbage
  - Benjamin Herschel Babbage
  - Lady Bryon
- Pick the best statement for the below program:**

```
#include "stdio.h"
int main()
{
    struct {int a[2];}arr[] = {{1},{2}};
    printf("%d %d %d
%d",arr[0].a[0],arr[0].a[1],arr[1].a[0],arr[1].a[1]);
    return 0;
}
```

  - Compile error because arr has been defined using struct type incorrectly. The first struct type should be defined using the tag and then arr should be defined using that tag.
  - No, compile error and it'll print 1 0 2 0
  - No, compile error and it'll print 1 2 0 0
- Which of the following is the major part of the time taken when accessing data on the disk?**
  - Settle time
  - Rotational latency

- Seek time
- X is an online publishing platform developed by Twitter co-founder Evan Williams and launched in 2012. What is X?**
    - Medium
    - HubPages
    - Quora
  - Which is the only programming language ever written in Tamil?**
    - Ezhil
    - Ssiat
    - ChaScript
  - What is the predecessor of Wikipedia?**
    - Encarta
    - Nupedia
    - Baidu Baike
  - Adobe's X is likely to be Photoshop for voices. What is X form Adobe?**
    - Fix
    - Express
    - VoCo
  - What key do you use to check spelling?**
    - F7
    - F12
    - F6
  - Which is the World's First Regional Operating System**
    - Windows
    - Indus
    - Linux

ANSWERS  
1) Alan Turing 2) Charles Babbage 3) No compile error and it'll print 1 2 0 0 4) Seek time 5) Medium 6) EZHIL 7) Nupedia 8) ProjectVoCo 9) F7 10) Indus

Keerthi Hali  
IV CSE 'A'

Rashmitha Barick  
IV CSE 'B'

## Student Achievements

- T Sai Srujan and Akash Anand of VI Semester secured the First place in Hackathon 2.0, held on 19th of October, 2019 and organized by IEEE BNMIT.
- Akash Kunwar of VI Semester bagged the Second place in Competitive Coding under Magnovite Renaissance 2019 organized by Christ University.

## Editorial Team

### Staff

- Prof. Ashwini**  
Asst. Professor, CSE
- Prof. Chandravathana I**  
Asst. Professor, CSE
- Prof. Ravindra Nath Tiwari**  
Asst. Professor, Training & Placement Dept.

### Students

- Ms. Fatema Malu Bhai Wala - VI A
- Mr. Srinidhi S P - VI B
- Ms. Mrudula K - VI A
- Ms. Amogha R - VI A
- Ms. Raksha R - IV B
- Mr. Ranjith V - IV B
- Ms. Rashmitha Barick - IV B
- Ms. Mahima R - IV A
- Ms. Kshama G - IV A
- Ms. Heena Kausar - IV A