SRI SHAKTHI
INSTITUTE OF ENGINEERING AND TECHNOLOGY

NAAC
ACCREDITED WITH GRADE
A

- DEPARTMENT OF INFORMATION TECHNOLOGY

2020

I'm Possible

2020 - 2021

VISION

To make the institution one of our nation great engineering schools, recognized nationally and internationally for excellence in teaching, research and public service. We seek to be the preferred destination for students, practitioners seeking an engineering education, employers hiring engineering graduates and organizations seeking engineering knowledge.

MISSION

To Provide an encouraging environment to develop the intellectual capacity, critical thinking, creativity and problem solving ability of the students.
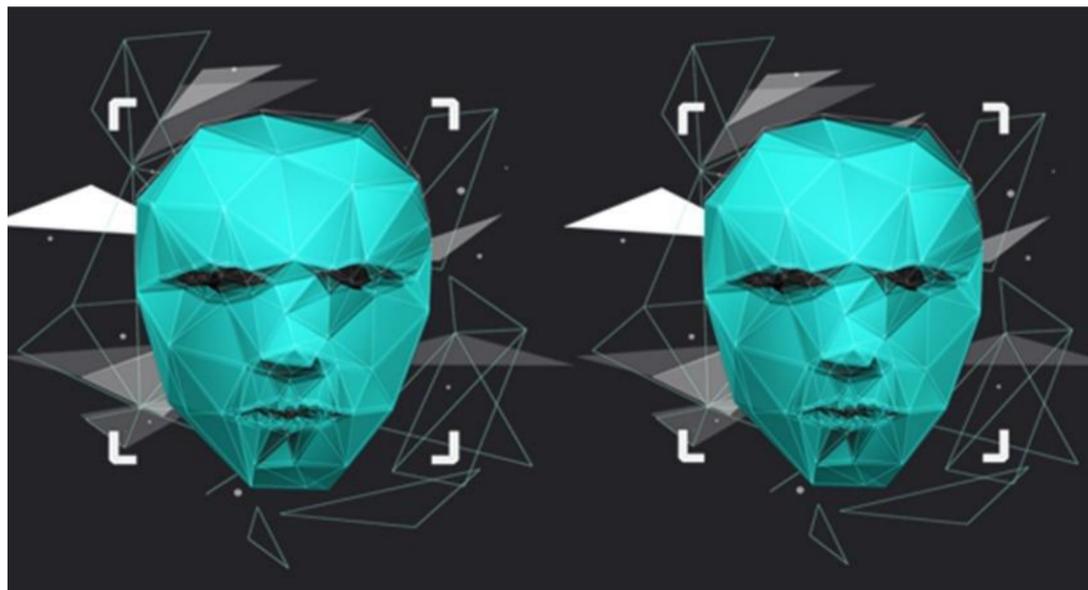
ABOUT THE DEPARTMENT

The Department of Information Technology was established in 2006 with the objective of imparting quality education in the field of Information Technology. Since its inception, the department has expanded and grown in terms of dissemination of knowledge within and outside curriculum and skill development activities.

Vision of the Department:

The Information Technology Department will be a recognized center of excellence in creating engineers for ever changing technologies of Information Technology and IT Enabled service industries.

Mission No. Mission Statements

MI Create learning environment for students to gain core knowledge in the field of Information Technology

M2 Provide opportunities to acquire knowledge in various tools and programming languages by the way of self-learning

M3 Solve engineering problems for the betterment of mankind and technology as part of lifelong learning process

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

1. To ensure graduates will be proficient in utilizing the fundamental knowledge of basic sciences. mathematics and Information Technology for the applications relevant to various streams of Engineeringand Technology.

2. To enrich graduates with the core competencies necessary for applying knowledge of computers and telecommunications equipment to store. retrieve. transmit, manipulate and analyze data in the context of business enterprise.

3. To enable graduates to think logically, pursue lifelong learning and will have the capacity to understand technical issues related to computing systems and to design optimal solutions.

4. To enable graduates to develop hardware and software systems by understanding the importance of social, business and environmental needs in the human context.

5. To enable graduates to gain employment in organizations and establish themselves as professionals by applying their technical skills to solve real world problems and meet the diversified needs of industry, academia and research.

PROGRAM OUTCOMES (POs)

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 knowledgeband research methods including design of experiments. analysis and Interpretation of data. and synthesis of the information to provide valid
conclusions.

5. Modern tool usage: select and apply appropriate techeques resources, and modern engineering and IT tools including predios d modelling to complex engineering activities with an understanding of the limitations.

6. The engineer and society: Apply reasoning Informed by the contextual knowledge to assesssocietal health, safety, legal and cultural lesues 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 contents, 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 member or leader indiverse 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, maks effective presentations, and give and receive clear instructions.

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

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

PROGRAM SPECIFIC OBJECTIVES (PSO)

1. Professional Skills: To create, select, and apply appropriate techniques resources. modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

2. Problem Solving Skills: To manage complex IT projects with consideration of the human financial, ethical and environmental factors and as understanding of risk management processes, and operational and policy implications.

3. Career and Entrepreneurship The ability to employ recent technologies. programming languages and platforms.

I'm Possible

1 **Chairman's Desk**

2 **Principal's Desk**

3 **Academic Dean's Desk**

Future with IT

4
- Deep Fake
- Virtual Reality
- Hyper Automation
- Machine Learning
- Augumented Reality
- Edge Computing

5 *Alumni Stories*

1 | Chairman's Desk

Dr.S.Thangavelu

"I do not want my institution to be walled off on all sides, I want the culture of all lands to be blown about my institution as freely as possible. But I refuse to be blown off my any one of them. Mine is not a religion of the prison house. It has room for the least among God's creations but it is proof against insolent pride of race, religion or colour. "And this I believe will be the watchword of each and every Shakthi.

We have been witnesses to the realization of such dreams by the achievements of legends like Nelson Mandela, Kofi Annan, Dr A.P.J. Abdul Kalam–the 'People's President' and more recently by the President of the United states, Barrack Hussein Obama.

Dr. A. P. J. Abdul Kalam in his 'Three Visions for India' urges the youth to be aware of India's past greatness—to revive her to greater heights and make her a super power before 2020.

I have always been inspired by Dr.Martin Luther King's statement, 'I have a dream' – a dream I believe will come true – a dream that my children will one day live in a world where they will not be judged by the colour of their skin, but by the content of their character'. This need for tolerance - to create an equal society with no discrimination in Caste, Creed or Colour was best exemplified in the words of Mahatma Gandhi.

I too have a dream - a dream of a prosperous and healthy India.. I dream of an India, which shall awaken into the comity of nations with her head held high. Centuries before the British Conquest, our motherland was one of the richest nations in the world. As early as 300 years before the Christian era began, India had established trade with the Greeks and the Egyptians. Now, the mandate is with today's youth who can transform and liberate our nation from narrow domestic walls; to regain its lost glory and make our Indian flag

A nation is built in its educational Institutions. We have to train and build our youth in them. We have to impart to them the tradition of the future. And this is precisely what I dreamed to create through Sri Shakthi Institute of Engineering and Technology.

Sri Shakthi, to me, symbolizes 'creative, progressive power' – the dynamic, vibrant power of the youth! To ensure this, my vision for Sri Shakthi as an Institution of Excellence is to recruit the best minds of this region as the Staff for Sri Shakthi, because the kind of education that we at Sri Shakthi provide for our youth is determined by the kind of men and women we secure as Teachers; who, I believe will provide quality education, holistic in nature.

thereby aim at a balanced growth of the individual and insist on both Knowledge and Wisdom. I have always believed that moral qualities and character building is of greater value than intellectual accomplishments alone.

It is my fervent desire that Sri Shakthi will aspire to inculcate in our youth, character and a democratic discipline and a 'change with continuity'- a present that is built on the foundations of the past.
Besides this I dream of a youth being bestowed with the best skills required for nation building- Attitude, Aptitude, Proficiency, Efficiency, Personal effectiveness, Diligence, Reliability, Responsibility, Commitment, Dedication to the common cause of nation building.

Education is the means by which the youth is trained to serve the cause of drastic social and economic changes. Institutions like nations become back numbers if they do not reckon with the development of the age .To choose 'The Right 'requires a cultivation of the heart and the head. Any satisfactory system of education should

2 | The Principal

Mr.Ravikumar

It is a matter of great pleasure and pride that the college is providing an excellent quality of education and mentoring for the students, aspiring to be competent professionals in engineering and technology. Ever since its establishment, the SSIET conglomerate of students, staff and faculty have endeavored towards creating young and dynamic engineers who will form the crux of the technical workforce of tomorrow.

The college provides facilities to students to take part in co-curricuar and extra curricular activities. There is an active National Service Scheme (NSS) unit which organizes several programmes related to social service. Different societies and and various clubs at the institute is used to inculcate not only the love for social service, discipline, compassion for nature, agility and awareness for one's rights and duties, but also make them good human beings and confident leaders.

The College encourages faculty members through incentives and sops to acquire higher degrees, to publish text books/papers and participate in Seminar / Workshop / Conferences that are held not only within our country but also abroad.

With student strength of more than two thousand at SIET, our efforts are directed to accommodate and address the expectations of every student by the way of enabling them to participate in seminars, workshops in and out of the Institute, apart from educational tours and industrial project works. The College has a full-fledged Placement and Training ((PAT) Centre. This Centre organizes several training programmes related to development of soft skills to our college students. It has enabled our college students to participate in several recruitment programmes of several leading organizat

Sri ShakthiInstitute of Engineering and Technology (SSIET) was established in the year 2006 with approval of All India Council for Technical Education (AICTE), New Delhi, and is affiliated to Anna University, Chennai. The primary vision of the institute is to impart technical knowledge and skills to the students in accordance with the needs of the industry by producing technologically superior and ethically strong engineers to transform life as a whole.

The College offers 10 UG courses leading to B.E and B.Tech degrees and also 5 PG courses leading to M.E degrees. The College has well qualified, experienced and dedicated faculty and supporting staff, state-of-the art laboratory and workshop facilities, computer facilities, library and information center, outdoor and indoor games, air conditioned seminar hall and round the clock Internet facilities & separate hostels for Boys and Girls on campus.

Department of Information Technology

There are several ways to present the canonical core of Information Technology. Over the years we have developed a distinct style and method that bridges the theory - practice divide while remaining grounded in the core. Technology changes rapidly, especially in the field of computing, whereas the science, if it changes at all, does so much more gradually. Our understanding is that persons who are clear and thorough about the fundamentals can adapt to rapid changes in technology relatively easily. We want the education imparted to our students to be the basis of a life time of learning

Our Department has produced hundreds of professionals and has established a name for itself in the country and abroad. They have consistently excelled in the highly competitive industrial environment. I attribute this success to the winning combination of a dedicated faculty that works hard at imparting quality education, a well-planned syllabus and last but not least, our students

3 | Head of the Department

Dr.S.Prakash

Learning is a continuous process and does not end with the acquisition of a degree, especially because steady and rapid advances in computing technologies shorten the life of tools and techniques prevalent today. Therefore we do not aim to make our students walking manuals of any language or package. Instead, they are given a strong foundation in computer science and problem-solving techniques, and are made adaptable to changes.

We believe that this approach to teaching-learning, coupled with practical experience gained during Industrial Training in reputed organizations, equips our students to handle the challenges posed by the software industry. I am confident that you will find our students worthy of your organization. I am proud to see that the students of our department have put in appreciable effort into creating this magazine. It is good to see that today's generation has not lost its literary roots, despite the perpetual efforts of e-Technology to extinguish the flames of the written word.

4 | Deep Fake

Srihari S (2018 – 2022)
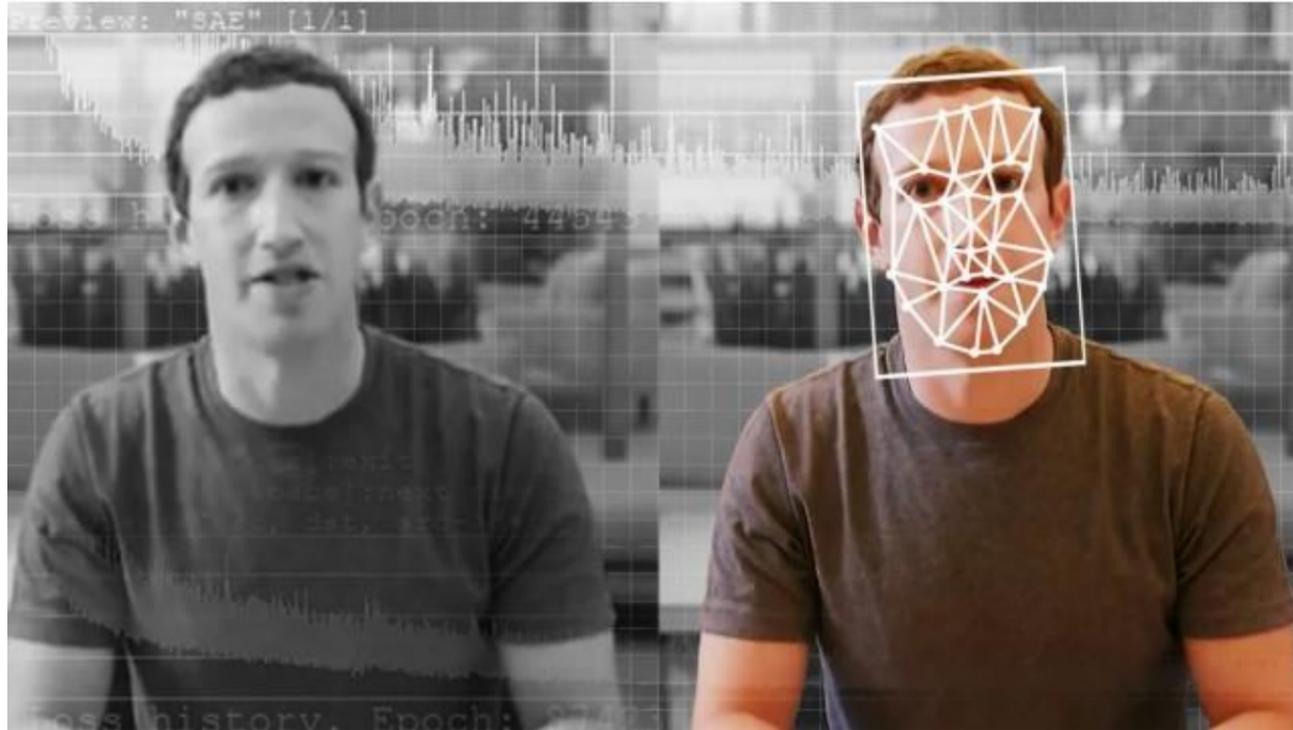
Deepfakes use deep learning artificial intelligence to replace the likeness of one person with another in video and other digital media.. There are concerns that deepfake technology can be used to create fake news and misleading, counterfeit videos. Here is a primer on deepfakes – what it is, how it works, and how it can be detected

Computers have been getting increasingly better at simulating reality. Modern cinema, for example, relies heavily on computer-generated sets, scenery, and characters in place of the practical locations and props that were once common, and most of the time these scenes are largely indistinguishable from reality.

Recently, deepfake technology has been making headlines. The latest iteration in computer imagery, deepfakes are created when .. artificial intelligence (AI) is programmed to replace one person's likeness with another in recorded video. The term "deepfake" comes from the underlying technology "deep learning," which is a form of AI. Deep learning algorithms, which teach themselves how to solve problems when given large sets of data, are used to swap faces in video and digital content to make realisticlooking fake media.

There are several methods for creating deepfakes, but the most common relies on the use of deep neural networks involving autoencoders that employ a face-swapping technique. You first need a target video to use as the basis of the deepfake and then a collection of video clips of the person you want to insert in the target. The videos can be completely unrelated; the target might be a clip from a Hollywood movie, for example, and the videos of the person you want to insert in the film might be random clips downloaded from YouTube.

Another type of machine learning is added to the mix, known as Generative Adversarial Networks (GANs), which detects and improves any flaws in the deepfake within multiple rounds, making it harder for deepfake detectors to decode them. GANs are also used as a popular method for creation of deepfakes, relying on the study of large amounts of data to "learn" how to develop new examples that mimic the real thing, with painfully accurate results. As deepfakes become more common, society collectively will most likely need to adapt to cycle and potentially create more harm
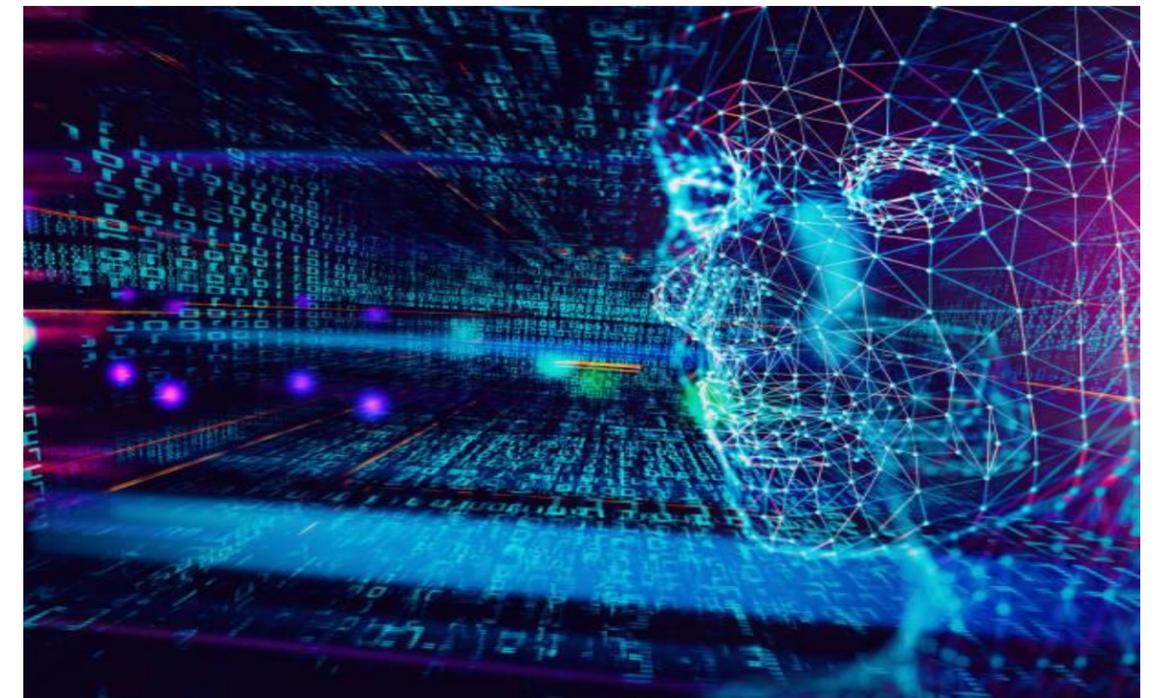
5 | Virtual Reality
Hemanth R (2019 – 2023)

Virtual Reality (VR) is a computer-generated environment with scenes and objects that appear to be real, making the user feel they are immersed in their surroundings. This environment is perceived through a device known as a Virtual Reality headset or helmet. VR allows us to immerse ourselves in video games as if we were one of the characters, learn how to perform heart surgery or improve the quality of sports training to maximise performance

Although this may seem extremely futuristic, its origins are not as recent as we might think. In fact, many people consider that one of the first Virtual Reality devices was called Sensorama, a machine with a built-in seat that played 3D movies, gave off odours and generated vibrations to make the experience as vivid as possible. The invention dates back as far as the mid-1950s. Subsequent technological and software developments over the following years brought with them a progressive evolution both in devices and in interface design.

Virtual Reality is one of the technologies with the highest projected potential for growth. According to the latest forecasts from IDC Research (2018), investment in VR and AR will multiply 21-fold over the next four years, reaching 15.5 billion euros by 2022. In addition, both technologies will be key to companies' digital transformation plans and their spending in this area will exceed that of the consumer sector by 2019. It is, therefore expected that by 2020 over half of the larger European companies will have a VR and RA strategy. Nowadays, the market is demanding applications that go beyond leisure, tourism or marketing and are more affordable for users. Virtual interfaces also need to be improved to avoid defects such as clipping, which makes certain solid objects appear as though they can be passed through. Or to minimise the effects that VR produces in people, among them motion sickness, which consists of a dizziness induced by the mismatch between the movement of our body and what is being seen in the virtual world.

The big technology companies are already working to develop headsets that do not need cables and that allow images to be seen in HD. They are developing Virtual Reality headsets in 8K and with much more powerful processors. There is even talk that in the next few years they could integrate Artificial Intelligence. The latest 5G standard scenarios for the evolution of VR. This standard will allow more devices and large user communities to be connected. In addition, its almost imperceptible latency will make it possible for consumers to receive images in real time, almost as if they were seeing them with their own eyes. All this means that Virtual Reality is no longer science fiction. It is integrated into our present and, in the coming years, it will lead to advances that will shape the future.

6 | Hyper Automation

Sudir P (2017 – 2021)

"The efficient use of automated tools to simplify business operations while still removing information or technical silos from the system." Gartner | 2019 | Go Beyond RPA to Deliver Hyper-automation These techniques include the use of emerging technology such as artificial intelligence (AI), machine learning (ML) , robotic process automation (RPA), business process management (BPM), and data mining. Process automation is critical for companies to remain competitive. At this point, it is safe to say that businesses that have not begun their transition are slipping behind. Many that have already begun must keep reviewing and updating their systems in order to maintain their competitiveness.

According to Gartner, "By 2022, 65% of organizations that deployed Robotic Process Automation will introduce Artificial Intelligence, including Machine Learning and Natural Language Processing algorithms." When starting a hyperautomation project, it is critical to consider the scope of the project and create a roadmap. Based on this strategy, we will choose the right resources and the best way to integrate them in order to accomplish our goals and become more successfuls
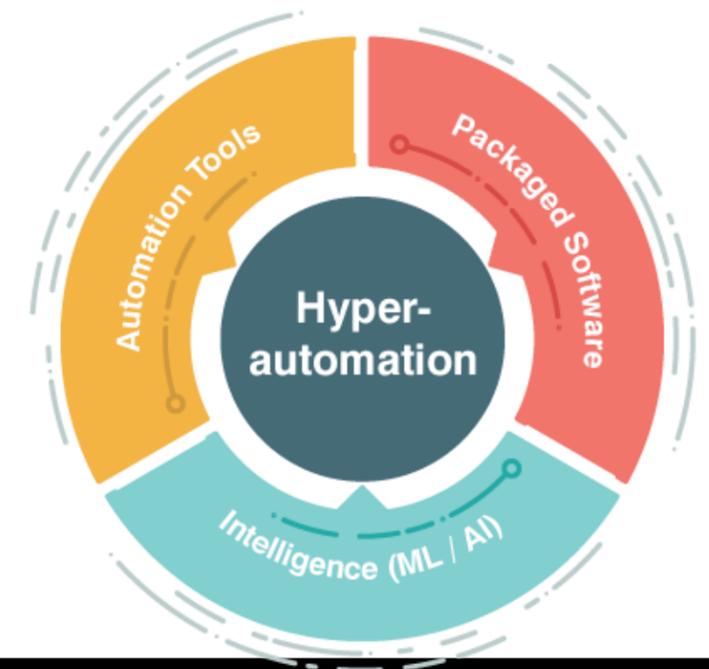
Integration of the tools is more important than ever. Organizations produce much more unstructured data than organized data: text, texting, and so on. This situation compels one to consider automating processes that we previously thought were only for knowledge workers . Furthermore, today's world is intensely dynamic and ever-changing, necessitating companies having the requisite resources on hand and empowering their employees. As a result, we would need software tools that are simple to use, flexible, and capable of extracting data from various sources in the software ecosystem. Machine Learning (ML) and Natural Language Processing (NLP) are increasingly extending the possibilities of hyper-automation, while process mining is making important contributions to developing industry automatisms and finding additional processes that can be automated.

Artificial Intelligence (AI) Machine Learning is an Artificial Intelligence science that produces self-learning systems. Automatic learning and data processing, in essence, make sense of a large amount of data It is always a good occasion to remember shortly our history, where we come from and where we are going. Automation is something that humanity developed many centuries ago and the purpose was and is to increment industrial production, efficiency and job quality. The technology evolution has begun with little steps. Firstly, the wheel was a great tool, it has been helping humanity to move goods and it is largely used today. The building of tools, like a knife, a scissor, a pot helped to produce and to cook food. These permit to improve the efficiency in that field.

Machine Learning

Yuvaraj J (2019 – 2023)

Machine learning represents a large field presented in information technology, statistics, probability, artificial intelligence, psychology, neurobiology and many other disciplines. With machine learning the problems can be solved simply by building a model that is a good representation of a selected dataset. Machine learning has become an advanced area from teaching the computers to mimic the human brain, and has brought the field of statistic to a broad discipline that produces fundamental statistical computational theories of the learning processesThe learning process in a simple machine learning model is divided into two steps: training and testing. In training process, samples in training data are taken as input in which features are learned by learning algorithm or learner and build the learning model [4]. In the testing process, learning model uses the execution engine to make the prediction for the test or production data. Tagged data is the output of learning model which gives the final prediction or classified data.

All of the other nodes have exactly one incoming edge. The node that has outgoing edges is called internal node or a test node. The rest of the nodes are called leaves. Ina decision tree, each test node splits the instance space into two or more sub-spaces according to a certain discrete function of the input values. In the simplest case, eachtest considers a single attribute,such that the instance space is portioned according tothe attribute's value. In case of numeric attributes, the condition refers to a range. Each leaf is assigned to one class that represents the most appropriate target value.The leaf may hold a probability vector that indicates the probability of the target attribute having a certain value. The instances are classified by navigating them fromthe root of the tree down the leaf, according to the outcome of the tests along thepath.As discussed in the paper, for the supervised learning it may be concluded that is one of the dominant methodology in machine learning. The techniques that are used are even more successful than the unsupervised techniques because the ability of labelled training data provide us clearer criteria for model optimization. The supervised learning methods contain a large set of algorithms which are improving allthe time by the data This paper provides an overview of couple of supervised learning algorithms. There is a brief explanation of the machine learning process. This paper also describesthe basic structure of some various machine learning algorithms and their basic structure.

8 | Augumented Reality
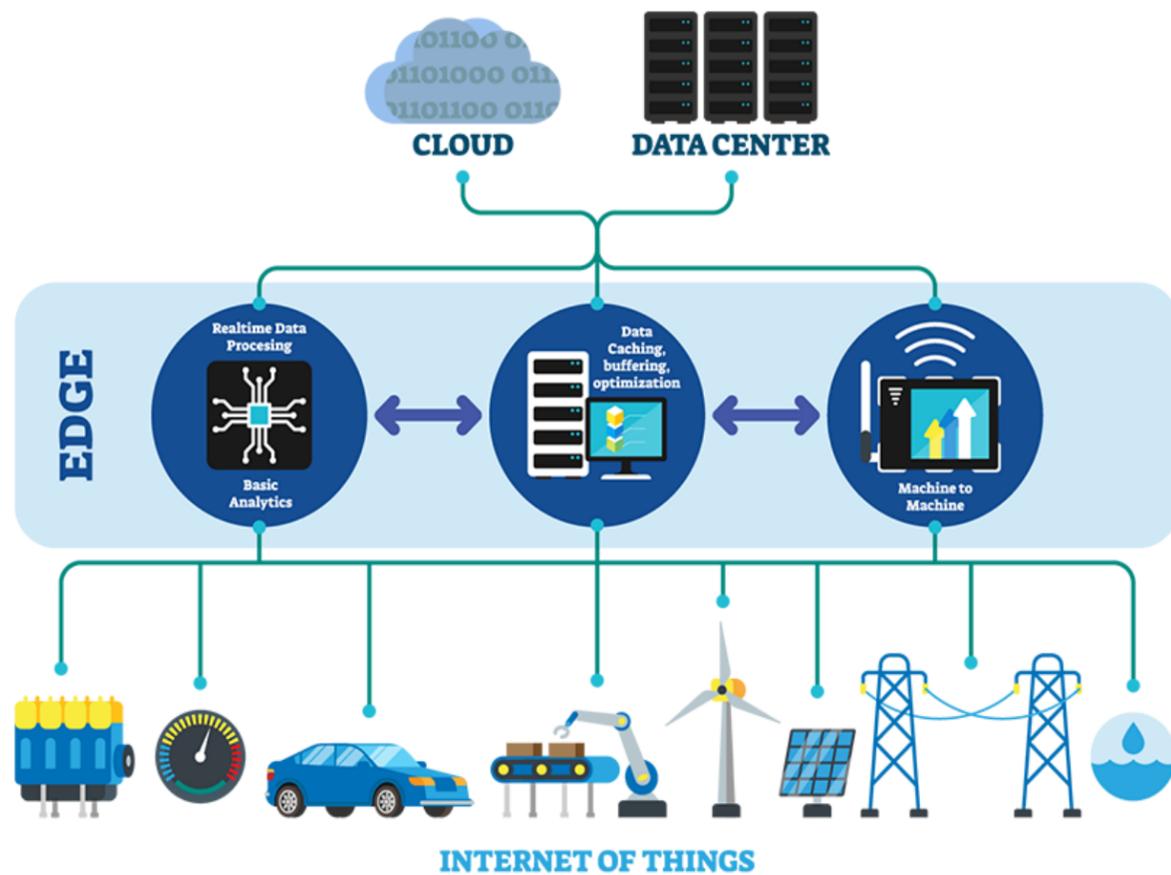
Chandru Y (2019 – 2023)

Innovations in Augmented Reality development have led to new avenues of user experience. Nike's retail stores are one of the most famous examples of AR integrations transforming the user experience. In addition, Augmented Reality market trends are constantly redefining the customer experience, making it an effective approach for higher conversion.

Every business thrives on human interaction! This is where AR can help enterprises with intelligent talking assistants. An Artificial Intelligence (AI) based assistant that mimics human interaction and allows customers to have a natural conversation can help your business grows.

If you have ever come across a web series called "Black Mirror," there is an episode in season 2 called "Be right back." It shows a science-fiction fantasy where an AR-based AI companion in a user's smartphone resembles a dear one who is dead! However,Hybri is an AR-based AI app doing the same thing that Black Mirror showcased back in 2013. It will be one of the most significant Augmented Reality trends in the future, with more people looking to have virtual companiony AR/VR headsets have been favored, but of late, AR glasses are becoming a key trend.

Giants like Apple are already working on bringing unique AR experience through glasses slated to release in late 2025. Metaverse is the new age AR trend revolutionizing the entire UX. Every business domain wants metaverses to engage audiences, from eCommerce companies to audio labels, artists, and fashion houses. Augmented Reality blurs the lines between what is real and what is not! Though you want to create a customized AR experience for your customers, you need reliable solutions.

Edge Computing

Kiran S (2019 – 2023)

Edge computing is a distributed computing paradigm that brings computation and data storage closer to the sources of data. This is expected to improve response times and save bandwidth. Edge computing is an architecture rather than a specific technology, and a topology- and location-sensitive form of distributed computing The origins of edge computing lie in content distributed networks that were created in the late 1990s to serve web and video content from edge servers that were deployed close to users.In the early 2000s, these networks evolved to host applications and application components on edge servers, resulting in the first commercial edge computing services] that hosted applications such as dealer locators, shopping carts, real-time data aggregators, and ad insertion engines.

One definition of edge computing is the use of any type of computer program that delivers low latency nearer to the requests. Karim Arabi, in an IEEE DAC 2014 Keynote and subsequently in an invited talk at MIT's MTL Seminar in 2015, defined edge computing broadly as all computing outside the cloud happening at the edge of the network, and more specifically in applications where real-time processing of data is required. In his definition, cloud computing operates on big data while edge computing operates on "instant data" that is real-time data generated by sensors or users..

In a similar way, the aim of edge computing is to move the computation away from data centers towards the edge of the network, exploiting smart objects, mobile phones, or network gateways to perform tasks and provide services on behalf of the cloud. By moving services to the edge, it is possible to provide content caching, service delivery, persistent data storage, and IoT management resulting in better response times and transfer rates. At the same time, distributing the logic to different network nodes introduces new issues and challenges.

The distributed nature of this paradigm introduces a shift in security schemes used in cloud computing. In edge computing, data may travel between different distributed nodes connected through the Internet and thus requires special encryption mechanisms independent of the cloud. Edge nodes may also be resourceconstrained devices, limiting the choice in terms of security methods. Moreover, a shift from centralized top-down infrastructure to a decentralized trust model is required. On the other hand, by keeping and processing data at the edge,. diffusion

Due to the nearness of the analytical resources to the end users, sophisticated analytical tools and Artificial Intelligence tools can run on the edge of the system. This placement at the edge for many advantages to the system. Additionally, the usage of edge computing as an intermediate stage between client devices and the wider internet results in efficiency savings that can be A client device requires computationally intensive processing on video files to be performed on external servers.

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Training was excellent, It gives us the confident to face challenges in working environment. I've cracked my aptitude and coding rounds only because of training given by CDC team. The way they encouraged and their motivation helped me not to lose my hope. Faculties here in the college are very supportive in terms of placement and academics. The technical knowledge that I have acquired here in Sri Shakthi is massive. I have chosen this College for its well equipped laboratories , clean and eco friendly campus. College develops us not only academically but also encourages to participate in various technical and non-technical events. We are blessed to be in the institution where the faculties and the placement training was remarkable. I have chosen this instituion for its placement. The institution which is so supoprtive to the students and help us bringing the hidden talents out. Technical and enriched knowledge been provided to the students is the biggest benchmark of the institution. I gained more knowledge and learned lot from the practical training given in siet campus.

-Harsh Chetan

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5 | Alumni Stories
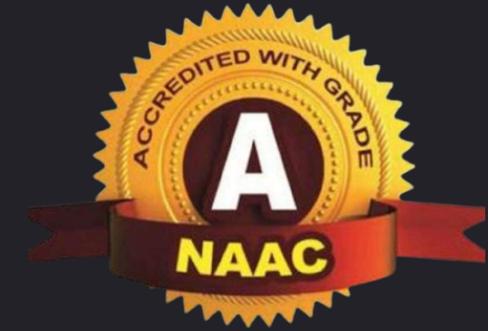

- Anureka

- Harsh Chetan

The training given in our campus is marvellous, it gives us the confident to face any kind of interviews
Excellent placement training (Quants and verbal)
The aptitude part really helped me a lot as I was a little weak in quants. The verbal training also helped me improve my communication and build a strong foundation for grammar.
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- Anureka