VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY
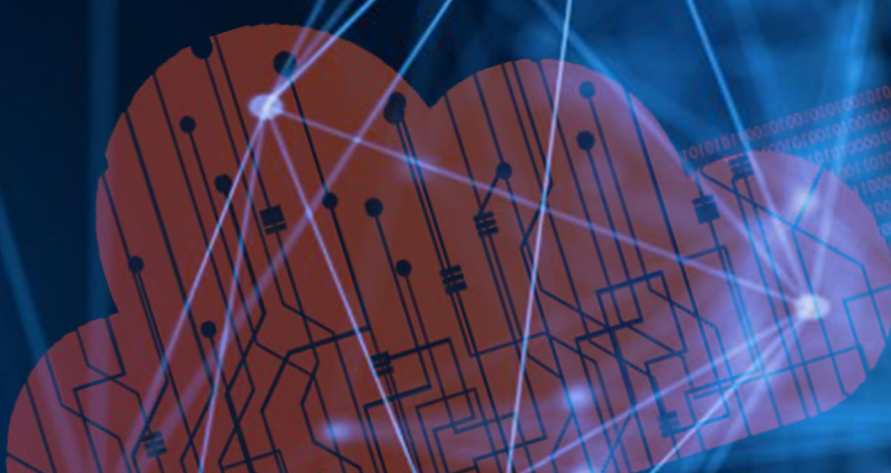
DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION

ETA PULSE

COVER STORY

MACHINE LEARNING

VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY

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From the HOD's Desk

It is an immense pleasure to see the dynamic progress of ETA committee this year. To top it all, ETA has come up with its eighth edition of "PULSE". The PULSE this year reflects departmental information and student activities along with alumni details and interviews. It has been a remarkable year for EXTC department with outstanding exam results as well as a placement of students in various reputed companies like Infosys, Johnson Controls Pvt. Ltd., Verdantis, Feedspot and KPIT. To accrue further, IEEE students' branch & IETE students' chapter organized events like Product showcase, Seminar on 'Recent Trends in Microwave Engineering and its Applications for Fused Power Technology', FE quiz, Oscillations, Industrial Visit to 'TAPS' and a worth reckoning National level project showcase 'VNPS'. We also arranged seminars and workshops for students and teachers to acquire knowledge beyond the realm of the academic syllabus. All this would have been impossible without the great cooperation and understanding between the staff and the students.

I would like to appreciate the efforts of Ms. Ashwini S. Katkar, staff in-charge of ETA for doing such a great job. I would also like to extend my appreciation to the entire team of ETA for their relentless efforts and I hope they continue excelling and growing by leaps and bounds year after year.

Dr. Vikas Gupta

HOD, EXTC Department

From the Staff In-charge

"Education is not the learning of facts, but the training of the mind to think"

- Albert Einstein

It gives me great pleasure to present the eighth edition of 'PULSE' magazine for the readers. Technology is evolving at a dizzying rate and our classrooms may not be designed to keep pace with it. Departmental committee 'ETA' provides a flair to the latest technological advancement. Continuing the trend, this year too 'ETA' published informative and content rich newsletters. The committee has constantly strived to keep the students updated with the latest technology in the field of Science and Engineering.

PULSE'18 has its theme as '**Machine Learning**' that has been highlighted in articles covering everything from 'Virtual Assistant Solution' to 'Self Driving Cars and Robots' that can perform the same tasks as humans. A number of large companies are defining machine learning as…'The Future. This magazine also includes departmental staff and students achievements. I am very pleased to see the student's progress in curricular and extra curricular activities. After all…"Happiness is seeing your student's success".

I would like to express my profound gratitude to our Principal Dr. Ashok Bhonsale for his support & our HOD Dr. Vikas Gupta for his valuable guidance. I would like to appreciate the good work done by the Secretary, Ms. Uzmanaz Shaikh and joint Secretary, Mr. Dipak Gavandi and congratulate the team of students for their tireless efforts that have come to fruition in the form of this magazine and wish all the readers "Happy Reading!!!"

Mrs. Ashwini S. Katkar

Staff Incharge, ETA

From the Secretary's desk

"Technology is not just a tool. It can give learners a voice that they may not had before"

      Following this great thought of one the profound personality the world has ever witnessed, George Couros, ETA, as a committee, has always tried to nurture and spread the spirit of knowledge. It has always given an opportunity to students to gain knowledge beyond the realm of their academic circumference and to showcase and hone their calligraphic talents. At the final stage for this captivating year of ETA, I take this opportunity to bring to you "PULSE", 18, the annual magazine of EXTC department. The magazine for this year is very unique in itself. It gives visual introduction to 'Machine Learning (ML)' which is a first-class ticket to the most exciting careers in data analysis today. The importance of ML is illustrated through a series of subsections such as Artificial Intelligence, Data Science, Deep Learning and many more. The softwares of ML are also introduced which in turn are the major cause for recession in IT industry. At the end it shows how ML is application oriented in today's era and how it can make engineers more productive.

      First and foremost I would like to express my gratitude to our honorable HOD, Dr. Vikas Gupta and our staff in-charge Prof. Ashwini S. Katkar for all their guidance and encouragement. I would like to thank my colleagues especially the Designing and Editing team for their support throughout in compiling this edition. I specially thank the entire team of ETA for their endless hard work throughout the year. This edition of PULSE would not have seen the light of the day without their unified cooperation and belief. I wish the entire team of ETA to keep excelling year after year and I wish all you readers "Happy reading!!!"

Uzmanaz Shaikh

Secretary, ETA

# INDEX

Machine Learning has been with us since a long time ago, but it picked up pace about a decade back, part in thanks to the advancements in the hardware and in part to the Algorithms. Whether you realize it or not, machine learning is one of the most important technology trends; it underlies so many things we use today without even thinking about them. Speech recognition, Amazon and Netflix recommendations, fraud detection, and financial trading are just a few examples of machine learning commonly in use in today's data-driven world.

What is Machine Learning?

Artificial intelligence (AI) also called as machine intelligence (MI) is intelligence demonstrated by machines, in contrast to the natural intelligence (NI) displayed by humans and other animals. In computer science AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals. Machine learning is a core sub-area of artificial intelligence; it enables computers to get into a mode of self-learning without being explicitly programmed. When exposed to new data, these computer programs are enabled to learn, grow, change, and develop by themselves.
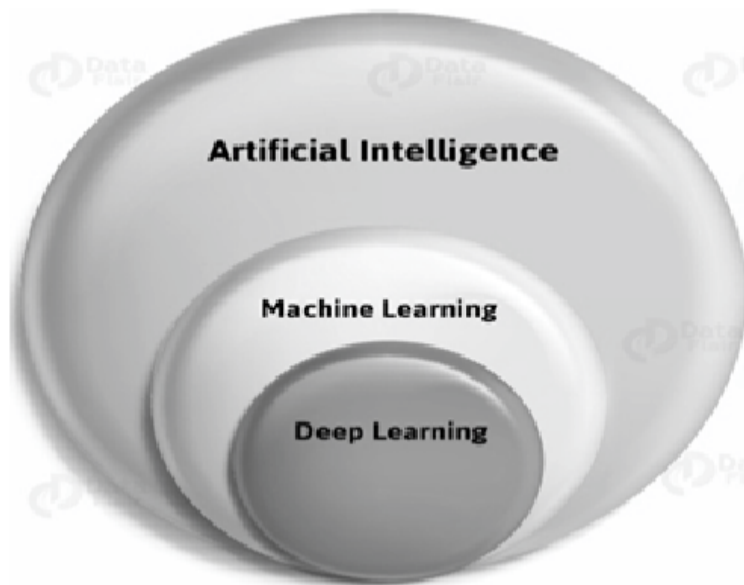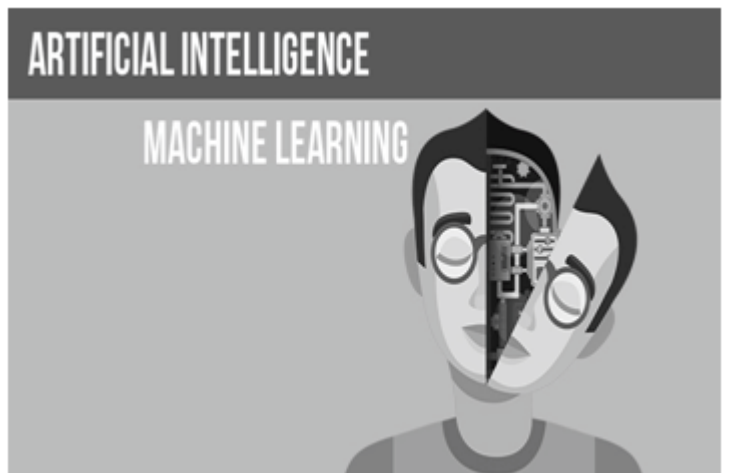
The name Machine learning was coined in 1959 by Arthur Samuel. Evolved from the study of pattern recognition and computational learning theory in artificial intelligence, machine learning explores the study and construction of algorithms that can learn from and make predictions on data – such algorithms overcome following strictly static program instructions by making data-driven predictions or decisions, through building a model from sample inputs. Machine learning is employed in a range of computing tasks where designing and programming explicit algorithms with good performance is difficult or infeasible; example applications include email filtering, detection of network intruders or malicious insiders working towards a data breach, optical character recognition (OCR), learning to rank, and computer vision.

Machine learning is closely related to (and often overlaps with) computational statistics, which also focuses on prediction-making through the use of computers. It has strong ties to mathematical optimization, which delivers methods, theory and application domains to the field. Machine learning is sometimes conflated with data mining, where the latter subfield focuses more on exploratory data analysis and is known as unsupervised learning. Machine learning can also be unsupervised and be used to learn and establish baseline behavioral profiles for various entities and then used to find meaningful anomalies. Within the field of data analytics, machine learning is a method used to devise complex models and algorithms that lend themselves to prediction; in commercial use, this is known as predictive analytics. These analytical models allow researchers, data scientists, engineers, and analysts to "produce reliable, repeatable decisions and results" and uncover "hidden insights" through learning from historical relationships and trends in the data.

Why is Machine Learning important?

Because of new computing technologies, machine learning today is not like machine learning of the past. It was born from pattern recognition and the theory that computers can learn without being programmed to perform specific tasks; researchers interested in artificial intelligence wanted to see if computers could learn from data. The iterative aspect of machine learning is important because as models are exposed to new data, they are able to independently adapt. They learn from previous computations to produce reliable, repeatable decisions and results. It's a science that's not new – but one that has gained fresh momentum.

While many machine learning algorithms have been around for a long time, the ability to automatically apply complex mathematical calculations to big data – over and over, faster and faster – is a recent development. Resurging interest in machine learning is due to the same factors that have made data mining and Bayesian analysis more popular than ever.

How Machine Learning affects everyday life?

The surprising answer is that machine learning and algorithms are currently having a direct impact on many aspects of our lives. Some of these impacts we are very much aware of, others we are less. Most of us have already figured out that when we use websites with recommendation engines such as YouTube, Netflix or Amazon, every selection we make from the videos we like and dislike to how long we watch a film for and the kinds of products we purchase are all being monitored and recorded. Driven by machine learning, these sites are using this data to "recommend" or "suggest" other similar products, videos, or films that we might like. Recommendation engines are an entirely benign use of machine learning in our day-to-day lives. We (generally) give our implicit consent to such uses for machine learning, and sometimes even find the results quite useful. There's also Siri, a machine learning speech recognition program designed to let us talk to the internet and interface with the data it contains without the awkwardness of a keyboard.

– Uzmanaz Shaikh (BE)

DATA SCIENCE

Have you ever looked for shoes online and found related advertisements on facebookand other website continuously foe a week ? Or say, you are chatting wuth your best friend and the the keyboard suggests you the exact words that you want to use in your sentence? How does YouTube show all your favorite videos on your homepage.
well, these are the applications of DATA SCIENCE.

Data science, also called as data-driven science is an inter-disciplinary field about scientific methods, processes,and systems to extract knowledge or insights from data in various forms either structured or unstructured, similar to data mining.

Data science is a "concept to unify statistics , data analysis and their related methods" to order to "understand and analyze actual phenomenon" with data. it employs techniques and theories drawn from many fields within the broad areas of mathematics , statistics,information science and computer science,in particular from the sub-domains of machine learning, classifiaction, cluster analysis, data mining, databases and visualisation. data science is ultimately about using the data in creative ways to generate business value.

It starts from simple data visualization and descriptive statistics to get insights, manipulations like cleansing to prepare data. Before you can use some ML algorithms.
Basically such huge stacks as bigdata, visualization and data preprocessing are out of machine learning scope. And they are all integral parts of "Data Science".

DATA MINING

Data mining, the extraction of hidden predictive information from large databases, is a powerful new technology with great potential to help companies focus on the most important information in their data warehouses. Data mining tools predict future trends and behaviors, allowing businesses to make proactive, knowledge-driven decisions. The automated, prospective analyses offered by data mining move beyond the analyses of past events provided by retrospective tools typical of decision support systems. Data mining tools can answer business questions that traditionally were too time consuming to resolve. They scour databases for hidden patterns, finding predictive information that experts may miss because it lies outside their expectations.

Data mining techniques are the result of a long process of research and product development. This evolution began when business data was first stored on computers, continued with improvements in data access, and more recently, generated technologies that allow users to navigate through their data in real time. Data mining takes this evolutionary process beyond retrospective data access and navigation to prospective and proactive information delivery. Data mining is ready for application in the business community because it is supported by three technologies that are now sufficiently mature:

·Massive data collection

·Powerful multiprocessor computers

·Data mining algorithms

Machine learning aids data mining and science by providing a suit of algorithms for data modeling/ analysis (through training of machine learning algorithms), decision making (through streaming, online learning, real-time testing that are all topics that come under machine learning), and even data preparation (machine learning algorithms automatically detect anomalies in the data).

Data Science along with data mining stitches together a bunch of ideas/ algorithms drawn from machine learning to create a solution and in doing so borrows a lot of ideas from traditional statistics, domain expertise and basic mathematics. In this way, data science is the process of solving a use case, providing a solution as opposed to machine learning that is an important cog in that solution.

BIG SCIENCE

The amount of data we're creating continues to increase rapidly; by 2020, the amount of digital information available will have grown from around 5 zettabytes today to 50 zettabytes.Nowadays, almost every action we take leaves a digital trail. We generate data whenever we go online, when we carry our GPS-equipped smartphones, when we communicate with our friends through social media or chat applications, and when we shop. You could say we leave digital footprints with everything we do that involves a digital action, which is almost everything. The term "Big Data" refers to the collection of all this data and our ability to use it to our advantage across a wide range of areas, including business.

How does Big Data work?

Big Data works on the principle that the more you know about anything or any situation, the more reliably you can gain new insights and make predictions about what will happen in the future. By comparing more data points, relationships begin to emerge that were previously hidden, and these relationships enable us to learn and make smarter decisions. Most commonly, this is done through a process that involves building models, based on the data we can collect, and then running simulations, tweaking the value of data points each time and monitoring how it impacts our results. This process is automated – today's advanced analytics technology will run millions of these simulations, tweaking all the possible variables until it finds a pattern – or an insight – that helps solve the problem it is working on.

To make sense of all of this messy data, Big Data projects often use cutting-edge analytics involving artificial intelligence and machine learning. By teaching computers to identify what this data represents– through image recognition or natural language processing, for example - they can learn to spot patterns much more quickly and reliably than humans.

Machine learning is ideal for exploiting the opportunities hidden in big data.It delivers on the promise of extracting value from big and disparate data sources with far less reliance on human direction. It is data driven and runs at machine scale. And unlike traditional analysis, machine learning thrives on growing datasets. The more data fed into a machine learning system, the more it can learn and apply the results to higher quality insights.

-Kalaksha Gunera (TE)

*Reference- http://datajobs.com/what-is-data-science*

DEEP LEARNING

With massive amounts of computational power, machines can now recognize objects and translate speech in real time. Artificial intelligence is finally getting smart.

Deep learning (also known as deep structured learning or hierarchical learning) is part of a broader family of machine learning methods based on learning data representations, as opposed to task-specific algorithms. Learning can be supervised, semi-supervised or unsupervised.

Deep learning models are loosely related to information processing and communication patterns in a biological nervous system, such as neural coding that attempts to define a relationship between various stimuli and associated neuronal responses in the brain.
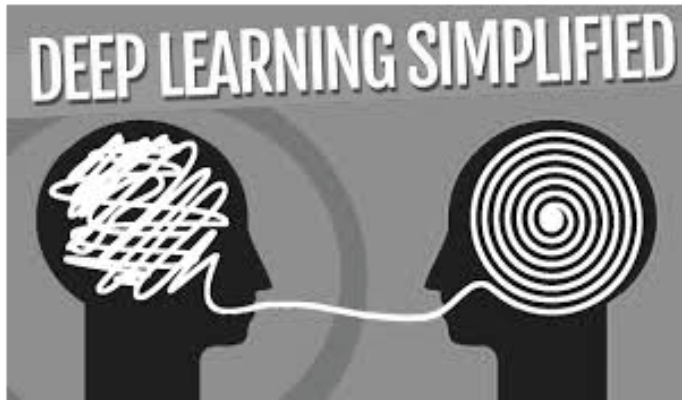
Deep learning architectures such as deep neural networks, deep belief networks and recurrent neural networks have been applied to fields including computer vision, speech recognition, natural language processing, audio recognition, social network filtering, machine translation, bioinformatics and drug design , where they have produced results comparable to and in some cases superior to human experts. Deep-learning software attempts to mimic the activity in layers of neurons in the neocortex, the wrinkly 80 percent of the brain where thinking occurs. The software learns, in a very real sense, to recognize patterns in digital representations of sounds, images, and other data.

The basic idea—that software can simulate the neocortex's large array of neurons in an artificial "neural network"—is decades old, and it has led to as many disappointments as breakthroughs. But because of improvements in mathematical formulas and increasingly powerful computers, computer scientists can now model many more layers of virtual neurons than ever before.

With this greater depth, they are producing remarkable advances in speech and image recognition. Last June, a Google deep-learning system that had been shown 10 million images from YouTube videos proved almost twice as good as any previous image recognition effort at identifying objects such as cats.

BUILDING A BRAIN

There have been many competing approaches to those challenges. One has been to feed computers with information and rules about the world, which required programmers to laboriously write software that is familiar with the attributes of, say, an edge or a sound. That took lots of time and still left the systems unable to deal with ambiguous data; they were limited to narrow, controlled applications such as phone menu systems that ask you to make queries by saying specific words.

Neural networks, developed in the 1950s not long after the dawn of AI research, looked promising because they attempted to simulate the way the brain worked, though in greatly simplified form.
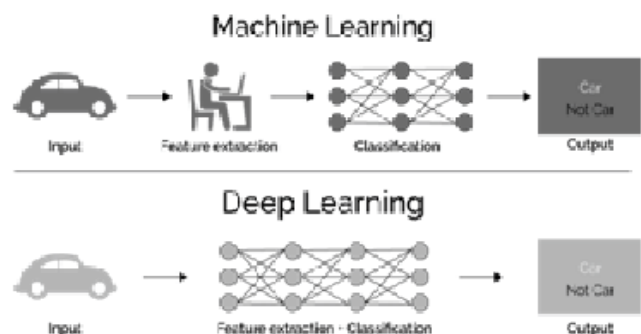
What's Next?

Although Google is less than forthcoming about future applications, the prospects are intriguing. Clearly, better image search would help YouTube, for instance. And Dean says deep-learning models can use phoneme data from English to more quickly train systems to recognize the spoken sounds in other languages. It's also likely that more sophisticated image recognition could make Google's self-driving cars much better. Then there's search and the ads that underwrite it. Both could see vast improvements from any technology that's better and faster at recognizing what people are really looking for—maybe even before they realize it.

In a field that attempts something as profound as modeling the human brain, it's inevitable that one technique won't solve all the challenges. But for now, this one is leading the way in artificial intelligence. "Deep learning," says Dean, "is a really powerful metaphor for learning about the world."
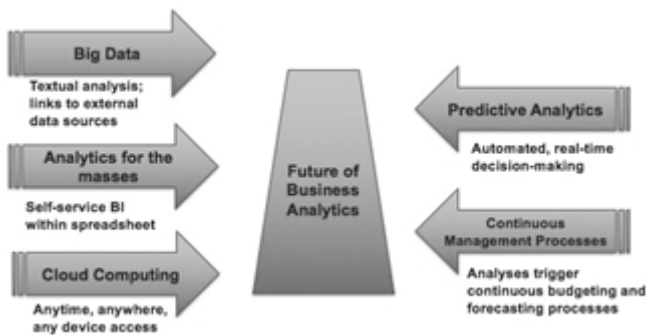
Business analytics (BA) is the practice of iterative, methodical exploration of an organization's data, with an emphasis on statistical analysis. Business analytics is used by companies committed to data-driven decision-making.

Business analytics techniques break down into two main areas. The first is basic business intelligence. This involves examining historical data to get a sense of how a business department, team or staff member performed over a particular time. This is a mature practice that most enterprises are fairly accomplished at using.

The second area of business analytics involves deeper statistical analysis. This may mean doing predictive analytics by applying statistical algorithms to historical data to make a prediction about future performance of a product, service or website design change. Or, it could mean using other advanced analytics techniques, like cluster analysis, to group customers based on similarities across several data points. This can be helpful in targeted marketing campaigns.

CLOUD COMPUTING

Simply put, cloud computing is the delivery of computing services—servers, storage, databases, networking, software, analytics and more—over the Internet ("the cloud"). Companies offering these computing services are called cloud providers and typically charge for cloud computing services based on usage, similar to how you are billed for water or electricity at home.

Uses of Cloud Computing-

You are probably using cloud computing right now, even if you don't realise it. If you use an online service to send email, edit documents, watch movies or TV, listen to music, play games or store pictures and other files, it is likely that cloud computing is making it all possible behind the scenes. The first cloud computing services are barely a decade old, but already a variety of organisations—from tiny startups to global corporations, government agencies to non-profits—are embracing the technology for all sorts of reasons.

- Shrishti Shetty (TE)

Reference- http://technologyreview.com/s/513696/deep-learning/

Programming With
'*R*'

R is a programming language and free software environment for statistical computing and graphics that is supported by the R Foundation for Statistical Computing. The R language is widely used among statisticians and data miners for developing statistical softwareand data analysis. Polls, surveys of data miners, and studies of scholarly literature databases show that R's popularity has increased substantially in recent years. R ranks 8th in the TIOBE index.

R is a GNU package. The source code for the R software environment is written primarily in C, Fortran, and R. R is freely available under the GNU General Public License, and pre-compiled binary versions are provided for various operating systems. While R has a command line interface, there are several graphical front-ends available.

R and its libraries implement a wide variety of statistical and graphical techniques, including linear and nonlinear modeling, classical statistical tests, time-series analysis, classification, clustering, and others. R is easily extensible through functions and extensions, and the R community is noted for its active contributions in terms of packages. Many of R's standard functions are written in R itself, which makes it easy for users to follow the algorithmic choices made. For computationally intensive tasks, C, C++, and Fortran code can be linked and called at run time. Advanced users can write C, C++, Java, .NET or Python code to manipulate R objects directly. R is highly extensible through the use of user-submitted packages for specific functions or specific areas of study. Due to its S heritage, R has stronger object-oriented programming facilities than most statistical computing languages. Extending R is also eased by its lexical scoping rules.

Python is an interpreted high-level programming language for general-purpose programming. Created by Guido van Rossumand first released in 1991, Python has a design philosophy that emphasizes code readability, and a syntax that allows programmers to express concepts in fewer lines of code, notably using significant whitespace. It provides constructs that enable clear programming on both small and large scales.

Python features a dynamic type system and automatic memory management. It supports multiple programming paradigms, including object-oriented, imperative, functional and procedural, and has a large and comprehensive standard library.

Python interpreters are available for many operating systems. CPython, the reference implementation of Python, is open source software and has a community-based development model, as do nearly all of its variant implementations. CPython is managed by the non-profit Python Software Foundation. Python is a multi-paradigm programming language. Object-oriented programming and structured programmingare fully supported, and many of its features support functional programming and aspect-oriented programming(including by metaprogramming and meta-objects (magic methods)). Many other paradigms are supported via extensions, including design by contractand logic programming.

Python uses dynamic typing, and a combination of reference counting and a cycle-detecting garbage collector for memory management. It also features dynamic name resolution (late binding), which binds method and variable names during program execution.

- Amit Kanswal (TE)

RECESSION IN IT SECTOR AND OTHER FIRMS DUE TO MACHINE LEARNING

The rapid increase in Machine Learning technologies suggests that they are having a substantial impact on the workforce. Many of the large tech firms have achieved broad economic scale without a large number of employees. For example, Derek Thompson writes that "Google is worth $370 billion but has only about 55,000 employees – less than a tenth the size of AT&T's workforce in its heyday [in the 1960s]." According to economist Andrew McAfee, "we are facing a time when machines will replace people for most of the jobs in the current economy, and I believe it will come not in the crazy distant future."

In a number of fields, technology is substituting for labour, and this has dramatic consequences for middle class jobs and incomes. Cornell University engineer Hod Lipson argues that "for a long time the common understanding was that technology was destroying jobs but also creating new and better ones. Now the evidence is that technology is destroying jobs and indeed creating new and better ones but also fewer ones."

Firms have discovered that robotics, machine learning, and artificial intelligence can replace humans and improve accuracy, productivity, and efficiency of operations. During the Great Recession, many businesses were forced to downsize their workforce for budgetary reasons. They had to find ways to maintain operations through leaner workforces

The U.S. Bureau of Labour Statistics (BLS) compiles future employment projections. In its most recent analysis, the agency predicts that 15.6 million new

Figure: Future employment projections by sector, 2012-2022 (in millions)

positions will be created between 2012 and 2022. This amounts to growth of about 0.5 percent per year in the labour force.

The figure above shows the distribution by sector for that period. The health care and social assistance sector is expected to grow the most with an annual rate of 2.6 percent. This will add around 5 million new jobs over that decade. That is about one-third of all the new jobs expected to be created.Other areas that are likely to experience growth include professional services (3.5 million), construction (1.6 million), leisure and hospitality (1.3 million), state and local government (929,000), finance (751,000), and education (675,000).
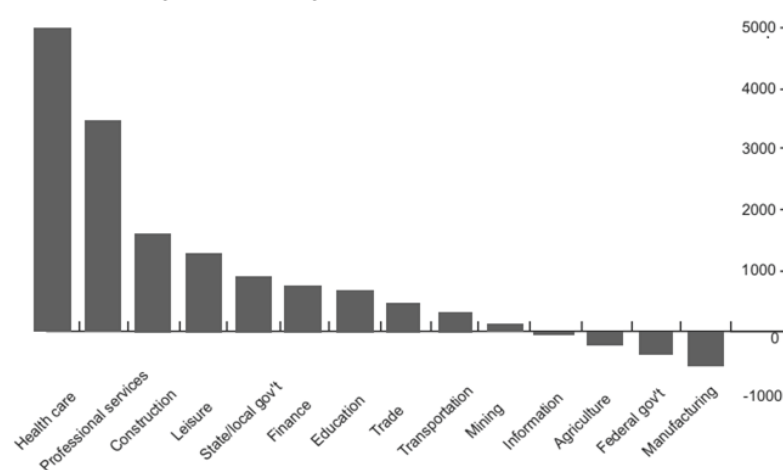
Interestingly, in light of technology advances, the Information sector is one of the areas expected to shrink in jobs. BLS projections anticipate that about 65,000 jobs will be lost there over the coming decade. Even though technology is revolutionizing many businesses, it is doing this by transforming operations, not increasing the number of jobs. Technology can boost productivity and improve efficiency, but do so by reducing the number of employees needed to generate the same or even higher levels of production.

Manufacturing is another area thought to lose jobs. The BLS expects the U.S. to lose 550,000 jobs, while the federal government will shed 407,000 positions, and agriculture, forestry, fishing, and hunting will drop 223,000 jobs. These sectors are the ones thought to be least likely to generate new positions in the coming decade.

- Pratik Jadhav (TE)

Applications of Machine Learning

1. IN MANUFACTURING

Machine learning in manufacturing will help core technologies to align well with complex problems. It will help to operate supply chains smoothly and build products on time. The algorithms are designed to learn continually and seek optimized outcomes in minutes rather than months, enabling customers to correct mistakes on the go.
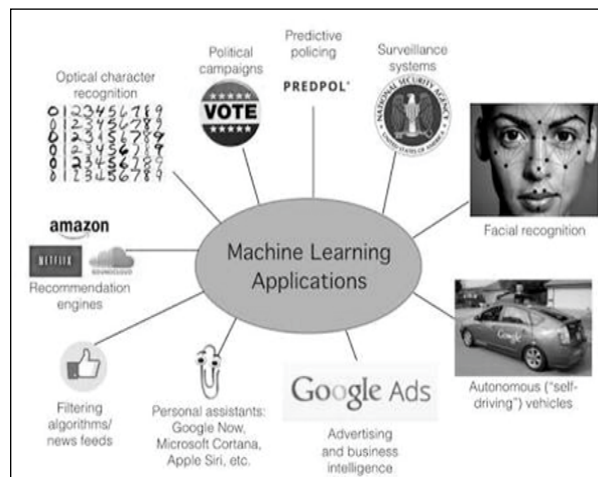
Machine learning improves MRO performance, with higher predictive accuracy, to the part and component level. Missing or inaccurate data is a predominant problem in MRO inventory management in many organizations. The criticality of inventory management is an important data for deciding optimal stocking level. Similarly, maintenance work requires the breakdown of labor hours for scrutinizing, process improvement, and management, but such data is usually unavailable.

2. IN TELECOM INDUSTRY

The telecoms industry is uniquely prepared for machine learning, since network operators already have masses of data; they already collect and store customer data, network performance data, network traffic data, and social media data to name just a few sources. They are also familiar with looking for patterns in data with applications such as network planning and root cause analysis. However, there is a limit to the number of user profiles that can be identified, managed and kept up-to-date. To tackle this, unsupervised machine learning algorithms that are fed data on user behaviour across the network have the potential to identify new user profiles that have previously gone unnoticed, and continually develop these to match the subscriber with the most appropriate service package, in turn improving service uptake.

3. IN E-COMMERCE

With the explosive growth of data, it is one of the most important challenges of modern businesses to develop data-driven infrastructures.One area that is particularly affected by this development is retail. The number of purchases made online is steadily increasing, which allows companies to gather detailed data on the whole customer experience. With AI, this data can then be used to improve this experience to make it easier, more efficient, more engaging, and more adapted to personal needs.Innovations in this area are based on methods from machine learning, which is the subfield of AI that develops autonomous learning algorithms.Providing quality customer service in e-commerce is challenging. Doing so at scale is daunting. But one answer is to use machine learning technology like chatbots. Intelligent chatbots are able to use natural language to communicate with a customer, identify an issue, and resolve the issue.

4. IN SOCIAL MEDIA

For social media analysis, a machine learning algorithm combines human understanding with the scale and speed automation. Analysis built on machine learning allows you or your analysis team to train the algorithm to categorize posts just a human would.Machine learning-powered social analysis enables you to pinpoint exactly what you're looking for (here, the brand Tide) by using example posts to train the algorithm to recognize the patterns of language that indicate that a post is about Tide the brand, instead of something else.Machine learning's ability to interpret the nuances of language and return the most relevant results reaches far beyond identifying brand mentions. Machine learning opens up the ability analyze previously unmeasurable aspects of consumer behavior. With the right training data, you can categorize posts by their stage in the buying cycle.
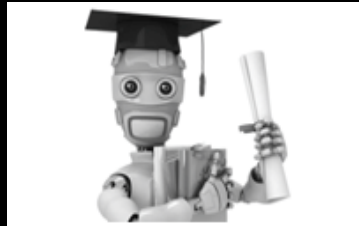
– Jahnvi Mehta (TE)

Reference - https://www.applications-of-machine-learning/

Trending Information
on
Machine Learning

BREAKING DOWN PRINTED INFORMATION FROM FACEBOOK CAN BE DONE USING MACHINE LEARNING.

MACHINE LEARNING NOT ONLY IMPROVES THE ACCURACY, SPEED AND RELIABILITY OF THE ANSWERS, BUT IT CAN COMBINE DIFFERENT SETS OF PRE-EXISTING INFORMATION TO ANSWER NEW QUESTIONS.

MACHINE LEARNING OPENS UP THE ABILITY ANALYZE PREVIOUSLY UNMEASURABLE ASPECTS OF CONSUMER BEHAVIOR. WITH THE RIGHT TRAINING DATA, YOU CAN CATEGORIZE POSTS BY THEIR STAGE IN THE BUYING CYCLE.
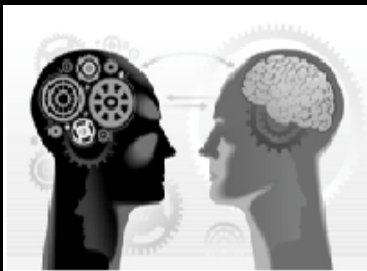
NO HUMAN IS PERFECT, AND THE SAME GOES TECHNOLOGY. ADDING A HUMAN TO THE MACHINE LEARNING PROCESS INCREASES THE LEVEL OF ACCURACY AND SELF-AWARENESS

WHILE MANUAL HUMAN ANALYSIS IS STILL THE MOST ACCURATE, MACHINE LEARNING COMES MUCH CLOSER THAN THAN TRADITIONAL RULES BASED ANALYSIS.
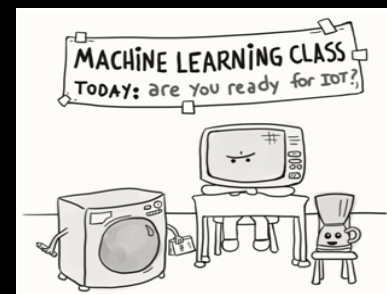
MACHINES CAN QUANTITATIVELY EVALUATE THE CONSUMER JOURNEY OF MILLIONS OF INDIVIDUAL CUSTOMERS MORE QUICKLY, EFFICIENTLY, AND EFFECTIVELY THAN ANY HUMAN PLANNING TEAM COULD EVER HOPE TO REPLICATE.

MACHINE LEARNING ALGORITHMS ARE USED TO DETECT WHEN A WORD IS SPELLED INCORRECTLY AND IS ABLE TO SUGGEST A NEW ONE, SAVING YOU TIME AND EMBARRASSMENT.


THE SCRAPING PHASE RELIES ON A KEYWORD SUCH AS THE BRAND OR PRODUCT NAME. FOR DEDICATED CAMPAIGNS, THE SEARCH COULD BE DONE USING A HASHTAG, BUT THIS IS JUST THE BEGINNING.
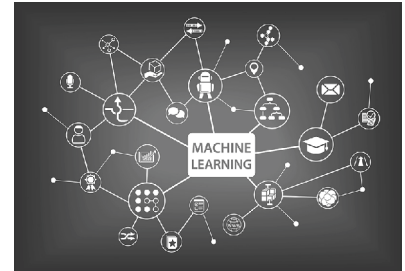
IN SOCIAL MEDIA, IT IS IMPORTANT TO IDENTIFY INFLUENCERS—WHETHER THEY ARE INDIVIDUALS OR AGENCIES—SINCE THESE ARE CENTRAL NODES IN THE NETWORK AND CREATING A PARTNERSHIP WITH THEM CAN CREATE VIRAL CONTENT WHICH BOOSTS MARKETING.
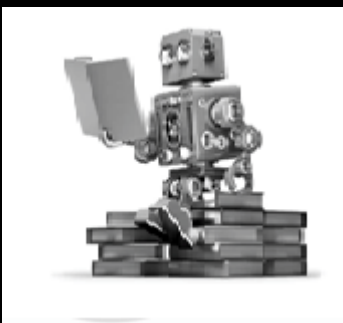
MACHINE LEARNING AND BOT TECHNOLOGY ALLOWS HUMAN TEAMS TO FOCUS THEIR ENERGY ON PROVIDING THE BEST, IN A SAFE, MODERATED ENVIRONMENT BY REPLICATING AND AUTOMATING REPETITIVE FUNCTIONS.
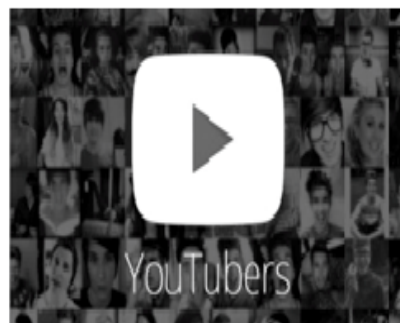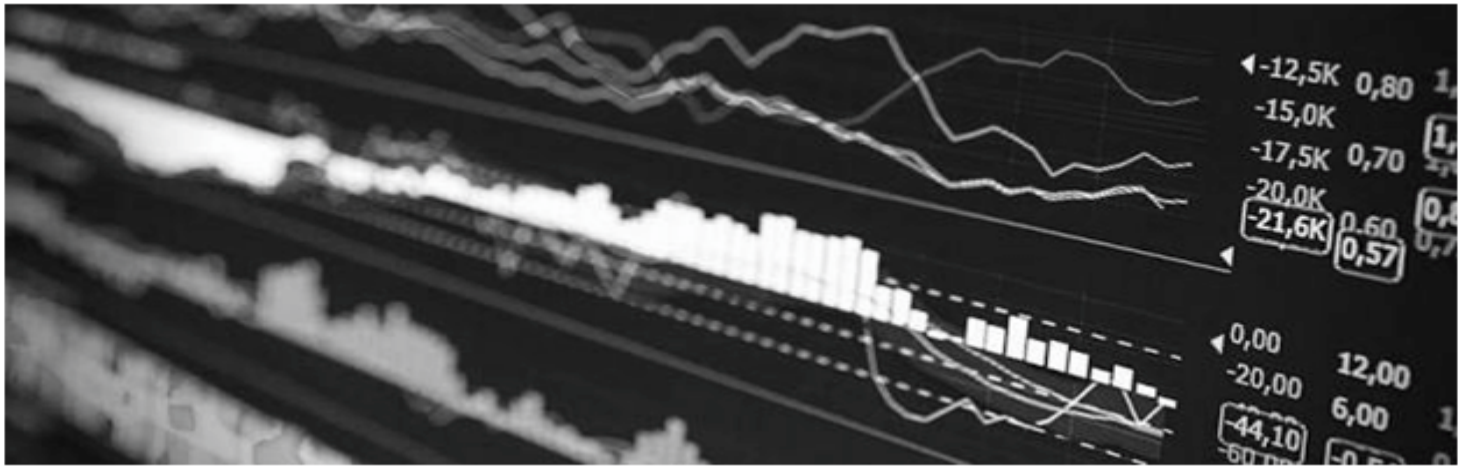

AFTER SMARTPHONE DEMOCRATIZATION, EACH OF US IS A CONTENT CREATOR AND THE ENTRY BARRIER TO BECOMING AN INFLUENCER HAS BEEN LOWERED, THUS ALLOWING ANYONE TO CREATE ACCOUNTS AND POSTING THEIR THOUGHTS.

Machine learning and AI offer the most efficient means of engaging millions of social media users

Machine Learning in Finance

Portfolio Management –

The term "robo-advisor" was essentially unheard-of just five years ago, but it is now commonplace in the financial landscape. The term is misleading and doesn't involve robots at all. Rather, robo-advisors (companies such as *Betterment*, *Wealthfront*, and others) are algorithms built to calibrate a financial portfolio to the goals and risk tolerance.

The system then calibrates to changes in the user's goals and to real-time changes in the market, aiming always to find the best fit for the user's original goals. Robo-advisors have gained significant traction with millennial consumers who don't need a physical advisor to feel comfortable investing, and who are less able to validate the fees paid to human advisors.

Algorithmic Trading –

With origins going back to the 1970's, algorithmic trading (sometimes called "Automated Trading Systems," which is arguably a more accurate description) involves the use of complex AI systems to make extremely fast trading decisions.

Algorithmic systems often making thousands or millions of trades in a day, hence the term "high-frequency trading" (HFT), which is considered to be a subset of algorithmic trading. Most hedge funds and financial institutions do not openly disclose their AI approaches to trading (for good reason), but it is believed that machine learning and deep learning are playing an increasingly important role in calibrating trading decisions in real time.

Fraud Detection –

Combine more accessible computing power, internet becoming more commonly used, and an increasing amount of valuable company data being stored online, and you have a "perfect storm" for data security risk.

While previous financial fraud detection systems depended heavily on complex and robust sets of rules, modern fraud detection goes beyond following a checklist of risk factors – it actively learns and calibrates to new potential (or real) security threats.

This is the place of machine learning in finance for fraud – but the same principles hold true for other data security problems. Using machine learning, systems can detect unique activities or behaviors ("anomalies") and flag them for security teams. The challenge for these systems is to avoid false-positives – situations where "risks" are flagged that were never risks in the first place.

Loan / Insurance Underwriting –

Underwriting could be described as a perfect job for machine learning in finance, and indeed there is a great deal of worry in the industry that machines will replace a large swath of the underwriting positions that exist today.

The results have a tremendous tangible yield for companies – but at present are primarily reserved for larger companies with the resources to hire data scientists and the massive volumes of past and present data to train their algorithms.

Future Value of Machine Learning in Finance Security 2.0 –

Usernames, passwords, and security questions may no longer be the norm for user security in five years. User security in banking and finance is a particularly high stakes game. In addition to anomaly-detection applications like those currently being developed and used in fraud, future security measures might require facial recognition, voice recognition, or other biometric data.

– **Ashwini Rathod (SE)**

Reference - https://www.techemergence.com/machine-learning-in-finance/

Machine Learning is at the core of many innovations that are set to improve our daily lives this year

Machine learning has been quietly working in the background for years, powering mobile applications and search engines. But recently it has become a more widely circulated buzzword, with virtually all recent technological advancements involving some aspect of machine learning. An impressive rise in data and computing capabilities has made this exponential progress possible. There's so much data out there, it's hard to wrap your head around it. Luckily you don't have to. Technology is available to do the work for us with massive data sets, often in the blink of an eye. And more importantly, computers can learn while doing so. Machine learning has been around for a while, and it's being applied in some very interesting areas.

Google's own implementation of the idea, an open-source software suite called TensorFlow, was built from the ground up to be useable by both the researchers at the company attempting to understand the powerful models they create, as well as the engineers who are already taking them, bottling them up, and using them to categorize photos or let people search with their voice.

One of the nice things about the machine learning community right now is how open it is for sharing ideas and research. When Google made TensorFlow open to anyone to use, it wrote: "By sharing what we believe to be one of the best machine learning toolboxes in the world, we hope to create an open standard for exchanging research ideas and putting machine learning in products". And it's not alone in that: every major machine learning implementation is available for free to use and modify, meaning it's possible to set up simple machine intelligence with nothing more than a laptop and a web connection.

Machine learning can be applied in almost any industry and has a few key distinctive benefits: It self learns gets better over time as it gets exposed to new data, and it can be applied in real time. For example, IBM's Watson got really good at playing chess and won the game show Jeopardy. It is now being applied in situations like replacing contact center representatives to handle straightforward queries, or playing the role of personal care physician for a routine checkup. Machine learning, however, is not just for the straightforward and the routine. It can also handle very complex tasks, such as self-driving or learning Japanese, as Watson recently did.

The remarkable growth in sophistication and applications of machine learning will define the technological trends of 2018. Their effects will depend on whether the application adds value and benefits to society as a whole and whether it has the potential to solve real world problems.

In order to satisfy the global demand for highly skilled professionals in the field, basecamps, universities and other educational organizations need to collaborate with big companies in order to teach a new generation of data scientists. They are the ones who will define our future and replace engineers, who, ironically, may be working hard to design robots that will one day take over their jobs.

– Saili Sakpal (SE)

Reference - https://www.networkworld.com/article/3196633/artificial-intelligence/5-machine-learning-trends-that-will-define-2017.html

Machine Learning Paradigms for Wireless Sensor Networks

Wireless Sensor Networks (WSNs) is a technology that needs to be applied in real world to detect or predict events. The events of interest could be land slide detection, volcanoes, forest fires, earthquakes, etc. WSN is composed typically of multiple autonomous, tiny, low cost and low power sensor nodes. These nodes gather data about their environment and collaborate to forward sensed data to centralized backend units called base stations or sinks for further processing. The sensor nodes could be equipped with various types of sensors, such as thermal, acoustic, chemical, pressure, weather, and optical sensors. Because of this diversity, WSNs have tremendous potential for building powerful applications.

In particular, WSN designers have to address common issues related to data aggregation, data reliability, localization, node clustering, energy aware routing, events scheduling, fault detection and security. Wireless sensor networks monitor environmental conditions,either caused by external factors or initiated by the system designers themselves. To adapt to such conditions, sensor networks often adopt machine learning techniques to eliminate the need for unnecessary redesign. Machine learning also inspires manypractical solutions that maximize resource utilization and prolong the lifespan of the network.

Machine learning (ML) was introduced in the late 1950's as a technique for artificial intelligence (AI). Over time, its focus evolved and shifted more to algorithms which are computationally viable and robust. In the last decade, machine learning techniques have been used extensively for a wide range of tasks including classification, regression and density estimation in a variety of application areas such as bioinformatics, speech recognition, spam detection, computer vision, fraud detection and advertising networks. The algorithms and techniques used come from many diverse fields including statistics, mathematics, neuroscience, and computer science.

The following two classical definitions capture the essence of machine learning:

1) The development of computer models for learning processes that provide solutions to the problem of knowledge acquisition and enhance the performance of developed systems.

2) The adoption of computational methods for improving machine performance by detecting and describing consistencies and patterns in training data.

Applying these definitions to WSNs, the promise of machine learning lies in exploiting historical data to improve the performance of sensor networks on given tasks withoutthe need for re-programming. More specifically, machine learning is important in WSN applications for the following main reasons:

1) Sensor networks usually monitor dynamic environments that change rapidly over time. For example, a node's location may change due to soil erosion or sea turbulence. It is desirable to develop sensor networks that can adapt and operate efficiently in such environments.

2) WSNs may be used for collecting new knowledge about unreachable, dangerous locations (e.g., volcano eruption and waste water monitoring) in exploratory applications. Due to the unexpected behavior patterns that may arise in such scenarios, system designers may develop solutions that initially may not operate as expected.
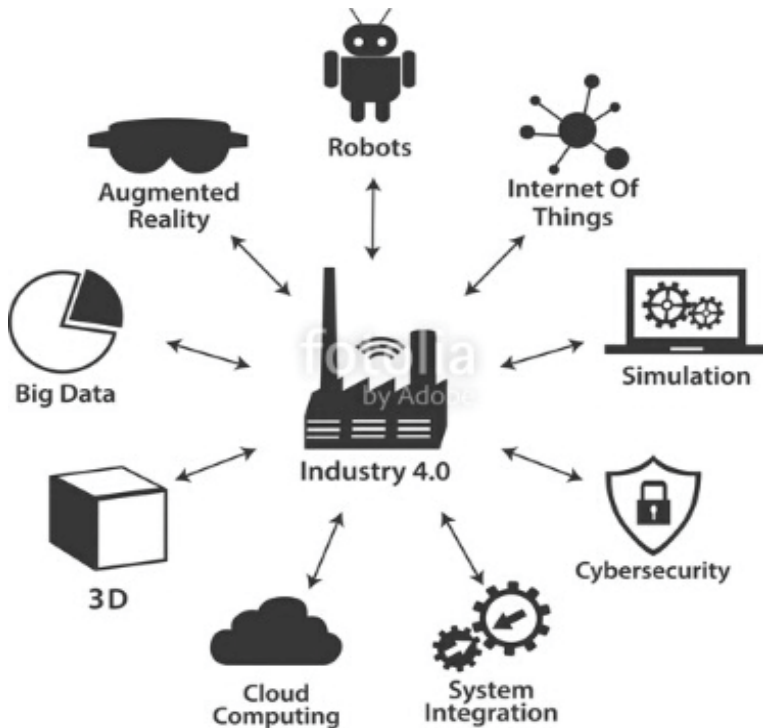
3) WSNs are usually deployed in complicated environments where researchers cannot build accurate mathematical models to describe the system behavior. Meanwhile, some tasks in WSNs can be prescribed using simple mathematical models but may still need complex algorithms to solve them (e.g., the routing problem). Under similar circumstances, machine learningprovides low-complexity estimates for the system model.
.

4) Sensor network designers often have access to large amounts of data but may be unable to extract important correlations in them. For example, in addition to ensuring communication connectivity and energy sustainability, the WSN application often comes with minimum data coverage requirements that have to be fulfilled by limited sensor hardware resources. Machine learning

methods can then be used to discover important correlations in the sensor data and propose improved sensor deployment for maximum data coverage.

5) New uses and integrations of WSNs, such as in cyber physical systems (CPS), machine-to-machine (M2M) communications, and Internet of things (IoT) technologies, have been introduced with a motivation of supporting more intelligent decision-making and autonomous control.

Machine learning provides a collection of techniques to enhance the ability of wireless sensor network to adapt to the dynamic behavior of its surrounding environment. In summary, adopting machine learning algorithms in wireless sensor networks has to consider thelimited resources of the network, as well as the diversity of learning themes and patterns that will suit the problem at hand. Moreover, numerous issues are still open and need further research efforts such as developing lightweight and distributed message passing techniques, online learning algorithms, hierarchical clustering patterns and adopting machine learning in resource management problem of wireless sensor networks.

- Prof. Sunayana Jadhav

Carrier Opportunities

Big Data Analyst

Key Roles:
- Big data analyst should have a broad understanding and have experience with real time analytics and business intelligent platforms such as Tableau software.
- An analyst should be able to work with SQL databases and several programming languages and statistical software packages such as R, Java, Matlab or SPSS.
- At least basic knowledge of working with HADOOP and MapReduce is required.

Skills Required:
- Strong intrapersonal, oral and written communication and presentation skills.
- Ability to communicate complex findings and ideas.
- Should be able to work with SQL databases proficiently.
- Enjoy discovering and solving problems.
- Ability to change direction quickly based on data analysis

Qualifications required:
- Must have a Master's degree in Computer Science or Electrical engineering or in a related field.
- Must be an Oracle 10g certified associate DBA and an Apache Cassandra DBA certified.

Business Intelligence Analyst

Key Roles:
- A business intelligence analyst plays a professional role where the individual is responsible for analysing the data for business organisations.
- Data used in BI generally supports decision-making. The BI analyst works with this kind of data to maximize its utility.

Skills Required:
- Good communication skills.
- Data analysis.
- Industry knowledge and working processes.
- Programming and database software's like C, C++, SQL, tableau, etc.

- Business strategy management.

Qualifications Required:
- Bachelor's degree in Computer science, electronics engineering or related.
- A bachelor's degree in business administration is must. More complicated jobs require a Master's in business administration.

- Yash Kumthekar (SE)

Faculty Corner

1.Dr. Vikas Gupta
Ph.D(EXTC)
M.tech(Digital Comm)
Area Of Interest: VLSI,
Signal Processing,
Digital Communication
Satellite and Radar Comm.

2.Prof. A.Ruperee
M.Tech(Digital Comm)
Ph.D Pursuing
Area Of Interest:
Wireless Communication

3.Prof. S.Jadhav
M.E (Electronics)
Ph.D Pursuing
Area Of Interest: Wireless
Networks

4.Prof. A. Vanmali
M.tech, Ph.d(Electrical)
Area of Interest: Image,
Video Processing,
Signal Processing

5.Prof. S.Khan
M.E (Electronics)
Area Of Interest: Image
Processing, Microprocessor and
Microcontroller,VLSI

6.Prof. S.Gosavi
M.E (EXTC)
Area Of Interest: Speech
Recogniton
Optical Fiber Communication

7. Prof. S.Supalkar
M.Tech(Electronics)
Area Of Interest: Image
Processing, VLSI.

8.Prof. A.Katkar
M.E (EXTC)
Area Of Interest: Speech
Processing, Computer Networking

9.Prof. N.Gharat
M.E (EXTC)
Area Of Interest: Image
Processing

10.Prof. E.Naik
M.E (Digital Electronics)
Area Of Interest: Neural
Networks

Faculty Corner

11.Prof. T.Shah
M.E (Electronics)
Area Of Interest: Image
Processing

12.Prof. S.Pawar
M.Tech(EXTC)
Area Of Interest:
Microwave and Antenna Theory

Non-Teaching Staff

Mrs. Madhu Lade

Lab Technician

Mr. Prabhakar Patil

Lab Technician

Mrs. Bhagyashree Rane

Lab Technician

Mrs. Harita Raut

Lab Assistant

Mr.Ashok Vartak

Lab Assistant

Mr.Prakash Bhobhate

Peon

Mr.Hemant Patil

Peon

Departmental Events (2017-18)

Product Showcase

The students of IEEE VCET-SB & VCET IETE-SF committees of EXTC department had organized a technical event-Product Showcase'2017 on Engineer's Day, dated 15th of September 2017.

The product showcase aimed to provide a platform to young budding engineers where they can be exposed to recent products along with test and measurement equipments in the broad field of Electronics & Telecommunication Engineering. The product showcase displayed new varied scientific products. The Product Showcase consisted of various products like sensors, touch screens, wireless devices, measuring devices, motors, cables & many more. 3D-printer and the products from Siemens(airoli) company were one of the Blockbusters in our event. Total 18 companies showed interest in our event upbringing their 50+ valuable products. The companies provided the orators with a one-day training program to explain the detailed working & applications about the given products.Showcase'17 was successful in fulfilling all it's above mentioned objectives. The event was efficiently organized &handled by the entire EXTC dept. All credit goes to the committee members,volunteers, teaching and non-teaching staff who displayed immense character and response at our very best "PRODUCT SHOWCASE 2K17".

FE Quiz

On 6th February 2018, the IEEE-SB committee of Vidyavardhini's College of Engineering and Technology had organised a Quiz Competition for the First Year students. This was a team event, where each team had maximum three participants. This event was completely based on the IQ and general knowledge of the participants. The final was held on 6th February 2018, where five different rounds were conducted. The first round was Rewind 2017, where each group was asked questions based on activities that took place in 2017. The second round was Memory Round, where teams were shown some pictures and they need to name the pictures in the same sequence as shown to them. After the second round, the two teams with the least score were eliminated. The third round was Personality Round where clues were provided for a well known personality and the team need to guess the eminent personatily. The fourth round was Rapid Fire. The final round was Sections. Here the team out of two with the maximum score was allowed to select a particular section such as Politics, Sports, History etc. and the questions based on that particular section was asked to them. The remaining team was then allowed to select the section of their choice and based on that questions were asked to them. The winning team was awarded prize money of Rs. 2000 and the Runner ups were awarded prize money of Rs. 1000. The event was accompanied by faculties of ASH department and cheering audience.

Technical Workshop on "MATLAB Simulations"

On 1st February 2018, the IEEE-SB of Vidyavardhini's College of Engineering and Technology had organised technical workshop on "MATLAB SIMULATION". The event was technically sponsored by IEEE Bombay section. It aimed at giving knowledge and practical experience to the Second Year, EXTC students about the MATLAB simulations. The workshop was conducted by Assistant Professor, Ms. Trupti Shah (M. E. (Electronics)) of the EXTC department of Vidyavardhini's college of engineering and technology. The workshop started with basic introduction to the program. Simple examples of small simulation programs were taken at the start. The various operation that can be done on input data such as addition, multiplication etc was explained and also practically shown. Small examples were taken to display the waveforms of various equation which can be used in modulation and demodulation techniques. The workshop was a course of great knowledge in MATLAB and students will able to use it in their course study.

Technical Seminar on
'Recent Trends in Microwave Engineering and its Applications for Pulsed Power Technology'

On 15th December, 2017 the IEEE-SB of Vidyavardhini's college of Engineering and Technology had organized one day technical seminar on "Recent trends in Microwave Engineering and its application for pulsed power technology.This event was technically sponsored by IEEE Bombay section.It aimed at giving knowledge to students and faculty about recent trends in microwave engineering. The first guest speaker for the seminar were Prof. Dmitry Kholodnyak from Russia, a diploma holder in Radio engineer, Ph.D. degree and doctor of science degree in antennas and and microwave devices from St. Petersburg. He is also the Vice-chair of the IEEE Russia North West section.He has authored and co-authored 5 monographs and book chapters, and many journal papers and 13 patents. During the seminar he talked about meta materials.He did explain us about its various applications. The second guest speaker for the seminar was Dr. K.C.Mittal, Msc.(Hons.) degree holder in Physics from Punjab University and a Ph.D. degree in physics from Bombay University. He has been with BARC, since 1975. His work is mainly based on high power electron Beam Generation, high-power microwave generation,etc. His session began by an introduction to an electron beam, how it is generated,its working and its applications in numerous fields.

OSSCILATIONS

On 16thMarch 2018, the IETE-SF committee of EXTC department of Vidyavardhini's College of Engineering & Technology organizedan event 'Technical Paper Presentation' under 'OSCILLATIONS 2018'. The aim of this event was to share knowledge about the research done by the students of Third Year & Final Year on projects related to hardware & software. The event began with the inauguration ceremony which was done by the chief guests for the day. Mr. Selvin Furtado, alumni of VCET and Mrs. Archana Ingle, professor of Electronics & Telecommunication Department were the chief guests for the day. More than 30 groups of students from different colleges participated in this event. The students were judged on the basis of their knowledge about the project, speaking skills and time limit taken for the presentation.

Anveshan 2017

Anveshan is a national level project showcase competition organised by VCET IEEE-SB & VCET IETE-SF since last 11 years. The project showcase gives an opportunity to the students to implement the technical knowledge gained during their course of engineering . It serves as a common platform where all the engineering projects being worked on by students across India are showcased. The students design and implement the project and present the final outcome of their work. The projects simulate a real- world work environment in a variety of engineering and science fields. The students apply theory and developed practical skills such as a teamwork, professionalism and leadership. This year we would be conducting Anveshan with same zeal and enthusiasm.

PAPERS PRESENTED/PUBLISHED

1. Dr. Vikas Gupta, "Design Data for Quick Development of Folded H Plane Tee", in Sadhana, Springer, SCI Indexed, Accepted for publication.

2. Dr. Vikas Gupta, "Design of a 500 kW CW Water load at 3.7 GHz for the LHCD system of SST-1 tokamak", Fusion Engineering and Design, Volume 121, October 2017, SCI Indexed.

3. Dr. Vikas Gupta, "Design of the 3.7 GHz, 500 kW CW circulator for the LHCD system of the SST-1 tokamak", Fusion Engineering and Design, Volume 119, June 2017, SCI Indexed.

4. Dr. Vikas Gupta, "Multiphysics Analysis of High Power CW Ferrite Phase Shifter Designs for Application in Circulators", in 2017 Progress In Electromagnetics Research Symposium – Spring (PIERS), St. Petersburg, Russia, 2017.

5. Prof. Amrita Ruperee, "Asynchronous Pilot Transmission with Pilot sequence hopping for Improved Channel Estimation in Massive MIMO System", International Conference on Recent Innovations in Signal processing and Embedded systems (RISE 2017) Jointly Organised by ECE department MANIT Bhopal & ESIEE Paris France from 27 to 29 Oct 2017.

6. Dr. Ashish Vanmali presented a paper, "An Image Fusion Based Approach For Predicting Growth of Urban Agglomerations", at 17th ESRI India User Conference, New Delhi, and received 'Best Student Paper Award'.

7. Dr. Ashish Vanmali, "Weight Map Guided Visible and NIR Image Fusion for Improved Scene Visibility", is published in 42th Vol. of journal 'Sadhana' in July 2017.

Students Activities:

The second year EXTC students Amit Bhagat, Navneet Prajapati and Pritesh Chavan in co-ordination with mechanical students had build a solar electric car under the VCET SOLECTHoN committee. They have contributed in power and transmission system. The team has challenged up for National Solar Vehicle Challenge (NSVC) 2017-18. They had secured 23rd rank in Virtual Round and also succssfully cleard the Dynamic Round which was conducted between 18th-22nd March 2018 in Mehsana, Gujarat.

STAFF ACTIVITIES

Workshops Conducted:

1. Prof. Shaista Khan and Prof. Trupti Shah conducted a workshop on **"Introduction and Hands-on Arduino "** for SE EXTC students, organized by IEEE-SB.

2. Prof. Trupti Shah conducted a workshop on **"Introduction to Matlab"** for SE EXTC students, organized by IETE-SF.

Seminar Attended:

1. Prof. Shaista Khan, Prof. Sandhya Supalkar, Prof. Shraddha Gosavi, Prof. Ashwini Katkar, Prof. Ekta Naik and Prof. Trupti Shah has attended a ISTE approved STTP course on **"IoT in Energy Utilities"** organized by IT and Mechanical Department.

Distinguished Performance:

1. Dr. Vikas Gupta is invited as a Speaker and given a Technical Seminar on **"Design of High Power Circulator for Application in Nuclear Fusion Systems"** at IEEE Student Branch, Poornima University, Jaipur.

2. Prof. Amrita Ruperee is invited as a Judge in **"In-house Technical Paper Presentation CETE-2018"** at Thakur College of Engineering & Technology on 03-02-2018.

3. Prof. Amrita Ruperee has conducted seminar on **"Scope of Basic Communication Systems"** at Shree L. R. Tiwari College of Engineering on 06-03-2018.

Training Program:

Maneesh Singh and Ankur Tiwari from 'Intuitive Embedded Tech' conducted a 42 hours duration course based on **"Embedded C with ARM 7 Programming (LPC 2148)".** This course would provide the participants knowledge and experience on the fast growing field of a 32 bit RISC based microcontroller from Philips (LPC 2148). The program is an ideal foundation for engineering and experienced graduates striving to enter this exciting field.

Hearty Congratulations!!!

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Prof. Ashish V. Vanmali completed his Ph.D from Department of Electrical Engineering, IIT Bombay. The title of his thesis is "Multi-data Analysis and Fusion: Approaches for Reduction of Complexity and Improvement in Quality ".

TOPPERS

Dept. Result :

BE (2016-17)

TOPPERS NAME	VII SEM SGPI	VIII SEM SGPI	AVG	RANK
Someshwar Nimaje	9.05	9.26	9.155	1st
Neelam Yadav	8.86	8.96	8.91	2nd
Suvarna Sangle	8.7	9.11	8.905	3rd

TE (2016-17)

SEM V Result=82.66%   SEM VI Result=86.66%

TOPPERS NAME	V SEM SGPI	VI SEM SGPI	AVG	RANK
Bhavesh Naik	9.11	9.5	9.30	1st
Anurag Baurai	9.56	8.86	9.21	2nd
Nishita Shetty	9.34	8.86	9.1	3rd

SE (2016-17)

SEM III Result=64%   SEM IV Result=78%

TOPPERS NAME	III SEM SGPI	IV SEM SGPI	AVG	RANK
Pratik Negi	9.38	10	9.69	1st
Vrutika Patelia	9.23	9.14	9.185	2nd
Shubham Tiwari	8.62	9.46	9.04	3rd

Best Outgoing Student Year 2016-2017

Mr.Parth S. Shah

Hearty Congratulations!!!

PLACEMENTS
Year 2017-18
Till date 15 February, 2018

Name Of Students	Company
Dheeraj Bisht	Infosys
Saeel Borkar	Infosys
Aditi Dave	Infosys
Harshada Sonaware	Infosys
Lohit Nambiar	Infosys
Darshit Patil	Infosys
Urvi Bhanage	Infosys
Sneha Jadhav	Infosys
Shraddha Chawda	Johnson And Control
Utsav Roy	Vardantis
Sunil Ghadwal	Vardantis
Prathamesh Gupta	Feedspot
Divya Salian	Feedspot
Mayuri Mandole	Feedspot
Mayuri Mhatre	Feedspot
Nishita Shetty	Feedspot
Darshit Patil	Feedspot
Tejas Shinde	Feedspot
Richa Sinha	Feedspot
Parikshit Keni	KPIT
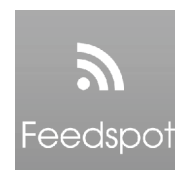
ACHIEVEMENTS

IInd
Utsav Roy
(Neon Carrom)

IInd
Franklin Nadar
(Western Vocals)

IInd
Ashish Mhatre
(Rangoli)

IInd
Prashant, Utsav
(Carrom Doubles)

Ist
BE-EXTC (Street Play)
BE EXTC (Kho-Kho dept.)

Ist
Franklin Nadar
(Instrumentals)

Ist
Parikshit Keni, Utsav
Roy, Sahil Kachrekar
(Box Cricket)

Ist
Utsav Roy
(Carrom singles)

IInd
Prashant Chile, Shraddha Chawda
(Carrom mixed doubles)

IInd
Divya, Siddhi Thakur, Jagruti Tiwari
(Dumb Charades)

IInd
Yash Lal, Viraj Jadhav
(Travel Quiz)

IInd
BE-EXTC (Girl's Cricket)
EXTC - Kabaddi (Departmental)

Ist
Franklin Nadar
(Talent Hunt-SFIT)

Ist
Sahil Kachrekar, Alkesh
Khedekar (spoorthi intercollege
Kabaddi)

Ist
Siddhita & Utsav
(Carrom doubles)

Ist
Kalaksha
Gunera
(Duet Dance)

Ist
Shraddha Chawda
(Carrom singles-girls)

Ist
Uzmanaz Shaikh, Vivek Vishwakarma,
Shubham Mahale (TPP Osc. (Software))

ACHIEVEMENTS

IInd — EXTC (Badminton (Deptartmental))

IInd — Franklin Nadar (Beat-boxing @ Vartak diploma)

Ist — Parikshit Keni, Utsav Roy (Intercollege Cricket Tournament @ Yudh (TSEC) & Zodiac(RGIT))

Ist — Shraddha Chawda, Sahil kachrekar, Parikshit Keni (TPP Osc. (Hardware))

IInd — Kalaksha Gunera (Kavi Sammellan)

Ist — Parikshit Keni, Utsav Roy (Intercollege Cricket Tournament @ ICT Sports Saga & Olympia (RGIT))

IInd — EXTC Girls (Intercollege Girls Kabaddi @ Atharva College)

Ist — EXTC Girls (Intercollege Girls Kabaddi @ ICT Sports Saga)

IInd — Harshada Sonawane, Pratik Mhatre, Sanket Rane (National Level TPP Milestone)

IInd — Saylee Patil, Sampada Raut, Divya Salian (TPP Osc. (Hardware))

IInd — Parikshit Keni, Utsav Roy, Prashant Chile (Spoorthi Intercollege Box Cricket)

IInd — Tejas Shinde, Kamlesh Ramin, Prashant Chile (TPP Osc. (Software))

Congratulations!

Alumni Pursuing Higher Education

Vinit Kanvinde
Masters in Interdisciplinary
Telecom Program
University of Colorado Boulder
Email Id - vinitvk007@gmail.com

Sudhanshu Kulkarni
Masters in Information
management
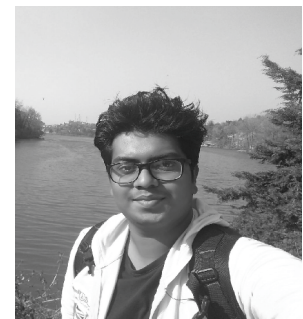Syracuse University
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ALUMNI TALK

THE ONLY WAY TO DO GREAT WORK IS TO LOVE WHAT YOU DO

.... is what **Anirudh Iyer** has to say, who completed his post Graduation from McMaster University, Electrical & Computer Engineering in 2011 and currently working for CISCO Systems as a Systems Engineer since last 5 years.

Q.1. Sir tell me about your journey from academics to industry and how it helped you to stand well in CISCO?

Once I graduated, I was applying to technology sales/consulting roles and that is how I began my career in pre-sales at a local Broadcast technology vendor where I worked for a year before moving to Cisco as a systems engineer (Also called Sales Engineer). The journey from academics to industry taught me the value of a focused approach to solving challenges and perseverance. These two values have served me well over the last 6 years in my career.

Q.3. What are good aspects of your profession? What are the challenges?

In my role as a sales/systems engineer, I enjoy the interactions I have with customers. I am able to work with customers to understand some of their biggest challenges and help them identify technologies to mitigate those challenges. It is really business outcomes that matter more than the technology itself and this role helps me get a healthy balance of being tech as well as business savvy. The biggest challenge is one has to constantly update skills and keep abreast of technology – therefore, choose a career in technology wisely based on strengths, interests and aptitude.

Q.4. What are you achievements? What are the most important rewards you expect in your business career?

Prior to my moving to Canada, I did very well on the GRE and TOEFL and got a scholarship to study abroad. Following my master's degree, I worked hard at getting an opportunity at Cisco and that is a significant milestone in my professional career. At Cisco, we are recognized for how much of an impact we have on sales revenue, technical excellence and customer satisfaction. I have received quarterly and annual awards here. Going ahead forward, no one can know for sure what awards or recognition they will receive. You should only continue working diligently and not focus on the rewards too much.

Q.5. Are there sufficient job prospective for EXTC students in their core branch? How students can improve their employability?

An EXTC engineering degree is an excellent foundation for what lies ahead. I think this whole fixation with core vs non-core is quite a myth that most of us subscribe to in college, especially in Mumbai University. As I have said before, spend lots of time to really understand where your talents lie, what you naturally enjoy doing and try to identify where you can make an impact. However, most of us will end up working in IT or jumping ship to management. Even then, it will pay you tremendously to explore your passions. If there is ever a time to do so, this is it. That is the best way to improve employability because companies will appreciate your passion.

Q.6. Lastly, give some piece of advice to students that will be helpful in making their future bright and successful.

Think for yourself rather than ONLY consuming content and ideas from others, make goals and stay focused on achieving them, keep abreast of the latest political and economic trends, build solid relationships with your friends and family but also expand your professional network and spend some time on growing spiritually.

As Interviewed by -
Omkar Samant

SUCCESS COMES TO THOSE WHO BELIEVE IN PERSEVERANCE

...feels **Amit Mane** currently working as a train pilot in Mumbai metro.He joined Mumbai metro on 7th April 2014. Initially he worked as a station controller for one year where he managed all the metro stations.

Q.1. Tell me about your experience in working government organization i.e. Mumbai Metro Railways. How is it different from the private sector?

Metro one operation is semi government organization. Reliance and MMRDA formed joint venture and named as metro one Operation. Pvt. Ltd. Yes, it is different from purely private sector in terms of training and other policies for employees. It is a dream of many to drive a train some day but I was lucky enough to have this opportunity. Currently working as a train pilot and holding competencies of Rolling stock (metro train),CMV (Catenary maintenance vehicle) & diesel loco.

Q.2. What added features the PSUs (Public Sector Undertakings) offer to its employees that are not provided by the private sector?

The distinguished feature as per my four years of experience in PSU is that you directly get to serve the citizens. ln my line of operation, I directly get response from commuters. Government Jobs are more secure because along with good salaries, they get add on benefits like pension, medication, free transportation for them as well as their family. Staying loyal to your organization gives you more opportunity to deserving upper management position.

Q.3. How do you define success? And how you measure it up to your own definition?

Everybody has their own definition of success. For me success is being able to deliver a 100% of your effort and ability in your job on daily basis. Success comes to those who are believe in perseverance.

Q.4. What are the challenges in this field? Which skills are required to sustain our job requirements?

Being calm and always under control is the most essential yet most difficult skill to achieve in my line of work. Along with the same time punctuality and quick decision making power is a must.

Q.5. What is the scope of an EXTC engineer in this field? What opportunities are provided by this field?

We have many departments which requires the knowledge and skills of telecommunication engineer like Rolling stock, signaling, power supply and traction department etc. working in these fields gives you more insight and in-depth knowledge about the theories which you have learnt in text book so far.

Q.6. Enlist some guidelines for the job seekers who want to fulfill their dream to have a job in government sector. How one should prepare to crack exams and interviews?

In my opinion, multitasking between preparing for aptitude test along with staying up to date with latest surrounding technologies is a must. As for the appearing in competitive exams, "PRACTICE" is my only mantra.

As Interviewed by-
Rajas Patil

Success is not just about what you accomplish in your life; It's about what you inspire others to do...

.... says **Maneesh Singh** who has more than 5 Years of Experience as Software Development in Embedded domain. He is currently working as a Sr. Software Engineer in Acclivis Technologies, Pune and he is Co-Founder and CTO in Intuitive Embedded Technologies. He previously worked as Software Engineer in Hewlett-Packard Enterprise(R&D), Banglore.

Q.1. What are your achievements? What rewards you achieved during your education and industrial life?

In my engineering I received various state level and national level awards and appreciationfor my final year engineering projects. And In my professional life I am doing work which I love to do and in my own area of interest, getting an appreciation for your work and doing a work of your own choice gives very much satisfaction and this is what I always wished for.

Q.2. Is there something in current events or the forefront of technology that has caught your attention?

After industrial revolution the world has witnessed the IT revolution where information and data are everything. Internet, computers, smartphones became part of our daily life and now we cannot think of our life without these things.
On similar steps world is now moving toward artificial intelligence and internet of things (IoT).These technologies are still evolving and tremendous opportunity and potential is available in these areas.
The next 10-15 years will be dominated by AI, ML, IoT, Deep learning and Embedded systems.If anyone looking for long term career then this is the best time to start learning these new technologies and trends.

Q.3. If you were hiring an engineer to work with you, what qualities would you look for?

As a senior Engineer in my organization I usually takes interview and for me only below points matters -

1.Candidates approach towards any given problem, his attitude, how he response when I ask him tricky question, how much effort he puts to come to any solutions. whether he try or he just give up for any unknown or tough questions.
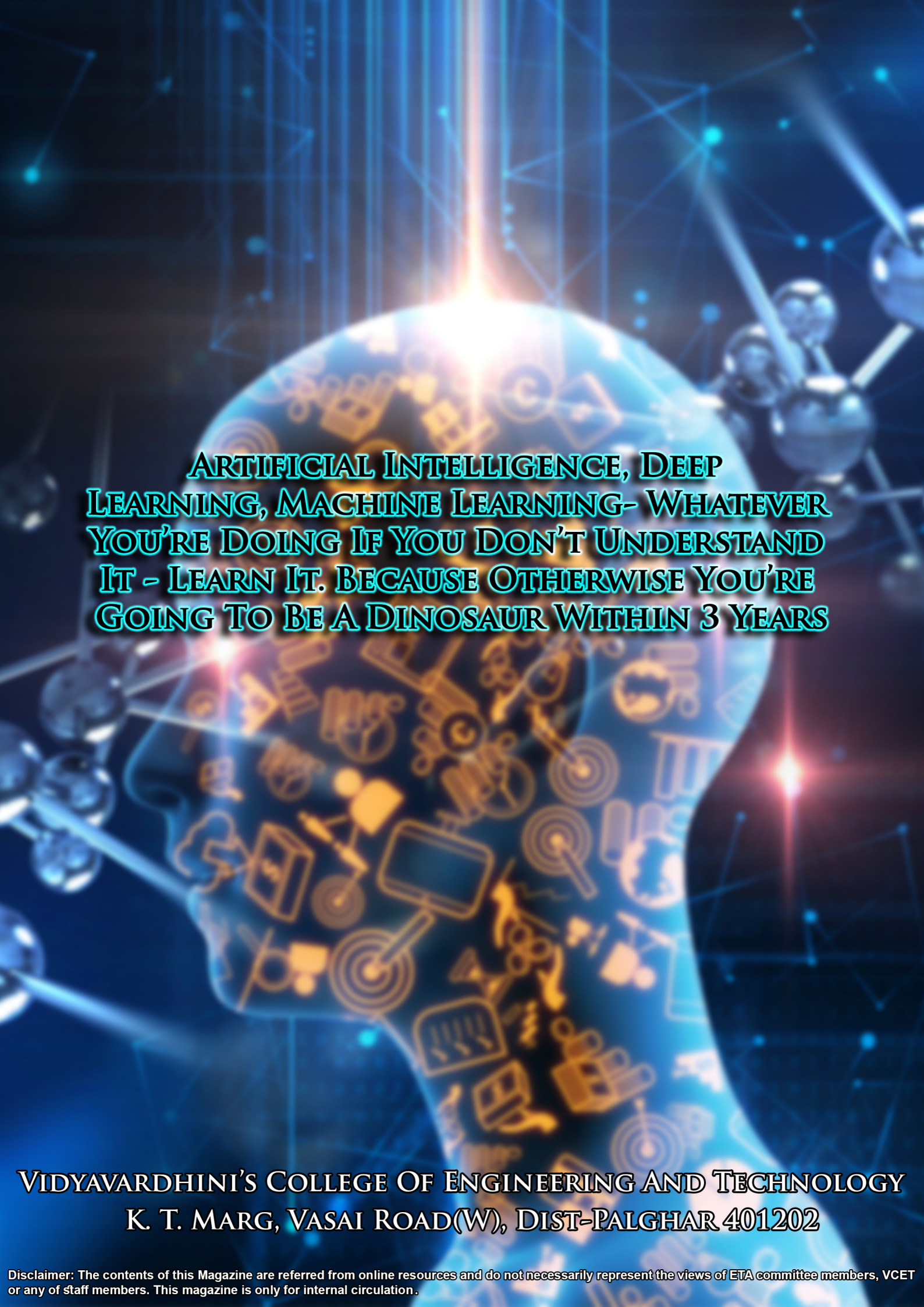2.His Technical skills and hands-on experience.
If a person is technically good and have positive attitude thenhe is good to get hired.

Q.4. What extra courses are helpful for students after their engineering? How they increase employability of students?

Students who are ready to work on projects from day one surely is preferred employees for the companies. Unlike other fields, technology is constantly evolving and to keep pace with this change students need to look outside the university curriculum, and here extra certification courses helps them.In my opinion all the students must do some certifications and extra course before completing their engineering. It will help them to understand technology, Industry expectation and prepare for the technical interviews.But again, which course or certification to do is totally depends on individuals interest and technology in which he wants to make his career. Similarly, for other technology also such as Java, .NET, Web design etc. lots of online, offline courses are available and Students must do these courses based on their area of interest.

As Interviewed by-
Pankaj Gidwani

Artificial Intelligence, Deep Learning, Machine Learning- Whatever You're Doing If You Don't Understand It - Learn It. Because Otherwise You're Going To Be A Dinosaur Within 3 Years

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