VASIREDDY VENKATADRI INSTITUTE OF TECHNOLOGY
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NBA Accredited: B. Tech Programs– CE | CSE | ECE | EEE | ME | IT
DEPARTMENT OF INFORMATION TECHNOLOGY

IT PRAGNA – Department Magazine

Contents

## Machine Learning: Programs That Alter Themselves

In 1959, Arthur Samuel, one of the pioneers of Machine Learning, defined machine learning as a "field of study that gives computers the ability to learn without being explicitly programmed". The, machine-learning programs have not been explicitly entered into a computer. Machine-learning programs, in a sense, adjust themselves in response to the data they're exposed to (like a child that is born knowing nothing adjusts its understanding of the world in response to experience).

Machine learning is a subset of AI. That is, all machine learning counts as AI, but not all AI counts as machine learning. For instance, symbolic logic – rules engines, expert systems and knowledge graphs – could all be described as AI, and none of them are machine learning.
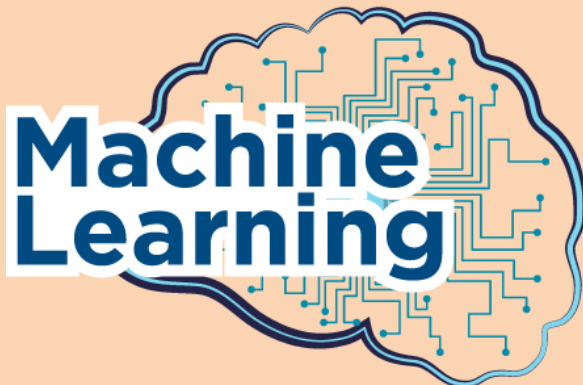

The "learning" part of machine learning means that ML algorithms attempt to optimize along a certain dimension; i.e. they usually try to minimize error or maximize the likelihood of their predictions being true. It posses three names: an error function, a loss function, or an objective functions. Here a ML algorithm has an objective to accomplish a task. When someone says they are working with a machine-learning algorithm, we can get to the gist of its value by asking: What's the objective function? So a ML algorithm always define a set of tasks along with the objective function to meet the requirements of the user in the network.

A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P.

If its performance at tasks in T, as measured by P, it improves the system performance with experience E.

One aspect that separates machine *learning* from knowledge graphs and expert systems is its ability to modify itself when exposed to more data; i.e. machine learning is *dynamic* and does not require human intervention to make certain changes. This will make it less brittle and less reliant on human experts.

The errors during ML may be minimized through a framework that multiplies inputs in order to make guesses as to the inputs' nature. Different outputs/guesses are the product of the inputs and the algorithm. Usually, the initial guesses are quite wrong, and if user is lucky enough to have ground-truth labels pertaining to the input, User can measure the intensity of errors by contrasting them with the reality, and then use that error to modify the algorithm. They keep on measuring the error and modify the parameters until they achieve less error in the system.
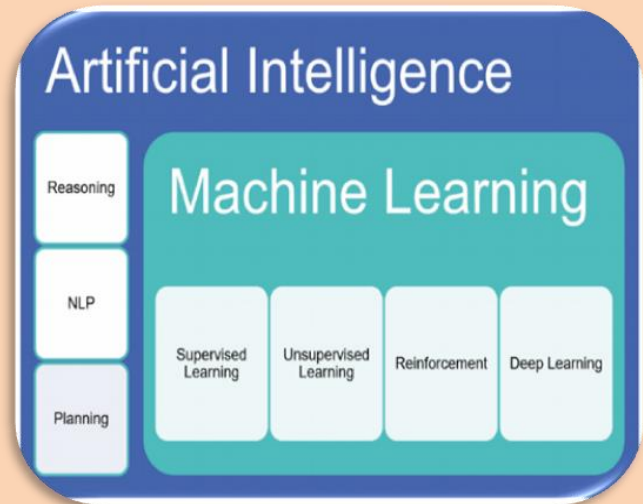
Python and R-Codes may be implemented in the implementation of supervised, unsupervised and Reinforcement ML algorithms. Some of the ML algorithms which are used in real time systems are Linear Regression, Logistic Regression, Decision Tree, Support Vector Machines, Naive Bayes, K-Means, Random Forest, and Dimensionality Reduction Algorithms.

Article by: Dr. Kishan Kumar

Professor

IT Department

Introduction to NoSQL Databases

A database is just collection of data, your telephone directory or even your class notes are also databases, but for now we're just interested in a database that's in digital form such as marks of students in a spreadsheet.

A database (in digital form) is not much of a use itself so we create a computer program/system that manages (writes, reads, searches, implies access restrictions etc) it and then call it a Database Management System.

Fig-1: Data organized in Relational Model

Then what does a *"Relational Database Management System"* mean! In simple terms, it would mean that the data in the database is organized in relations/*tables*. A RDBMS follows a Relational Data Model for storing the database and to perform various operations on database.

RDBMSs are generally referred to as SQL systems. SQL stands for *Structured Query Language*. It is a querying language that has been developed to use with RDBMS. SQL has various categories of queries- DDL, DML, TCL etc, for various types of operations, but that's another story. But for now, let's get into our actual topic, shall we!

Introduction& History:

NoSQL means "Non-SQL" or "Non-Relational" or sometimes "Not only SQL". The acronym NoSQL was first used in 1998 by Carlo Strozzi while naming his lightweight, open-source "relational" database that did not use SQL. The name came up again as a hashtag (#*nosql*) in 2009 when Eric Evans and Johan Oskarsson organized an event to discuss "open source distributed, non-relational databases".

NoSQL does not have a prescriptive definition but we can make a set of common observations, such as:

- Not using the relational model
- Running well on clusters
- Mostly open-source
- Built for the 21st century web estates
- Schema-less

Why NoSQL?

The main advantage of NoSQL systems is their ability to run in clusters. RDBMSs were not designed to run efficiently on clusters.

RDBMS are only good at scaling vertically (*scale-up*) – when the current system's resources are not sufficient you will by more resources and add it to the system to make it more powerful. But this has a limitation, you cannot go on increasing resources to the system, at a certain point it becomes impossible.
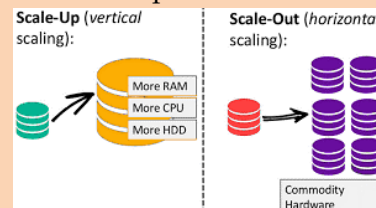

Fig-2: Difference between Scale-up and Scale-Out

The solution is to scale horizontally (*scale-out*) – instead of buying a bigger and more powerful system, you just buy a system with same resources and tie it to the old one in a cluster and share the load between them. NoSQL systems were designed to scale-out, which is cheaper and efficient for companies that handle large amounts of data.

The most important result of the rise of NoSQL is *Polyglot Persistence*. It is the concept of using different data storage technologies for different data storage need, which means a software application can make use of a NoSQL database along with a RDBMS.

Another important shortcoming of RDBMS is, *impedance mismatch* – difference of representation of an object in an application and in a database (table). The information in a single application object has to be mapped to different tables in a database.
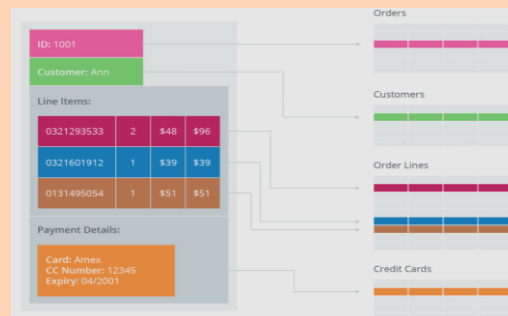

Fig-3: Impedance mismatch between an order object in application and it's mapping in tables

How data is stored in a NoSQL database?

Well it's an entirely different story, we'll get there soon...!

Article by: B. Ajay Kumar
Assistant Professor

New Year's Resolutions

Made in Mind and Maintained by heart

A Resolution is a form of being resolute towards a particular event. When it comes to a company , Board Resolution and Special Resolution are more resolute but the most brittle Resolution is a " NEW YEAR RESOLUTION" it may be little sarcastic but a new year resolution is more complicated to continue with the passage of time. The initial enthusiasm we had in January fizzles out later. I too was travelling in the same boat as you well.

I remember an incident that took place in my uncle's family. Unlike me, my uncle was successful in achieving his resolution, that to become healthy by exercise. My uncle took a resolution of getting up early and go for jogging. So, he asked his wife to wake him up at 5'O clock in the morning. Every day his wife used to get him up at 5 o clock and goes back to sleep. He was very happy that his wife was very supportive in reaching his goals. But do you know the real reason why she woke him up?????My uncle snores a lot during sleep. So, she thought that if she wakes him at 5 AM , She can get at least few hours of peaceful sleep in the morning. My uncle thought my aunts love was selfless but it was not so. She had her own reason of escaping his snoring.

Somehow my uncle was lucky in achieving the resolution because of his wife. But, usually I think the failure rate will be high in achieving resolutions. So I thought of suggesting you few tips to reach your New Year resolutions effectively.

Try "to GET" instead of "to GET RID OF"

Many a time New Year Resolutions fail because "People try to desperately RUN AWAY from their bad behaviors". Instead of RUNNING AWAY from something, focus on RUNNING TOWARDS something. The only time RUNNING AWAY FROM SOMETHING works is, when you are chased by a dog. When you try hard to UNLEARN your bad habits, you focus too much on the BAD than focusing on the GOOD. For example, when delivering a speech, the more you focus on getting rid of nervousness, the more nervous you become. Instead, you should focus on that feeling of a successfully delivered speech.

One of my uncles had a habit of smoking. He wanted to quit, but couldn't. One fine New Year, he took a resolution of not smoking further. A few days passed, and he kept feeling the urge to smoke. He was very much disheartened. Then, I suggested him to, maintain it by heart. I asked him to focus on the positive. Instead of having the thought of not smoking, I asked him to develop the thought of desiring for more fresh air, and to stay healthy. He tried it, and eventually had very less urge to smoking.

"Life" is just like a Google search engine. What would you see if you browse 'Not Rajnikanth' on Google?? Of course, Rajnikanth! Life also works similarly .It only takes the keywords. Negatives aren't a welcome!

Even I took a resolution to stop eating fast foods. I used to follow it initially, but after few days I thought nothing would happen if I eat my favourite food once, and started eating it continually. #Loop mode On! But I have my resolution in mind which was not implemented later. . Then, I thought for a while about my resolution. My mind made a resolution, and I convinced it to give up! I shouldn't focus on not having fast-food, but I should focus on staying fit and slim! Focus on the positives of any case, and it would be maintained by your heart, further beyond!

I want to end this with a line that is frequently said by my brother i.e taking a resolution is like judging an Oscar nominated movie after watching it. But achieving it is like making that Oscar nominated movie .New year resolutions are easy to make but hard to sustain. Finally, the New Year is a great time to review your past and plan for your future, but for any real change to occur there has to be a long term commitment.

Article by: CH. Yasaswini
Regd No: 17BQ1A1226
III Year IT-A

NEWS MAKING FEATURES

Guest Lecture

Guest Lecture on Artificial Intelligence, Data Mining and Deep Learning on 05-01-2019 by Dr. V. C. V. Rao, CDAC, and Associate Director.

Seminar

Mr.Tadionda Ganesh Babu, Senior Animator, Symbiosys Tech, Vizag. 2017 Passed Out MCA Student (14BQ1F0026) From Department of Computer Applications, gave a seminar on Industry Scenario in Animations to II-IT Students on 22.01.2019.

Guest Lecture

Guest Lecture on Technology trends and Job Opportunities by TCS on 01-03-2019, by Mr. Krishna Mohan Jampala, Enterprise Architect, TCS.

Workshop

A 2-day workshop on "Web Application Security" during 6- 7th March 2019 demos by Mr. Neel, Sr. Cyber Security Analyst / IT Security Consultant (Cyber Forensic Expert and Cyber Crime Investigator)

Guest Lecture

Guest lecture on Emerging Technologies on 14-03-19 by Mr. Herr Axel Angeli, Founder Logos World, Germany

IT- Student as UIF

VVIT - IT Student Shine At Silicon Valley Meet-Up As University Innovation Fellows

Placement offers

Placement offers to II-IT Students through Internship on 15-03-2019

IT Students @Theatre Day

Prize winning performances by IT students in Sports day & Theatre day Celebrations on 16th March 2019

Farewell to Final Year

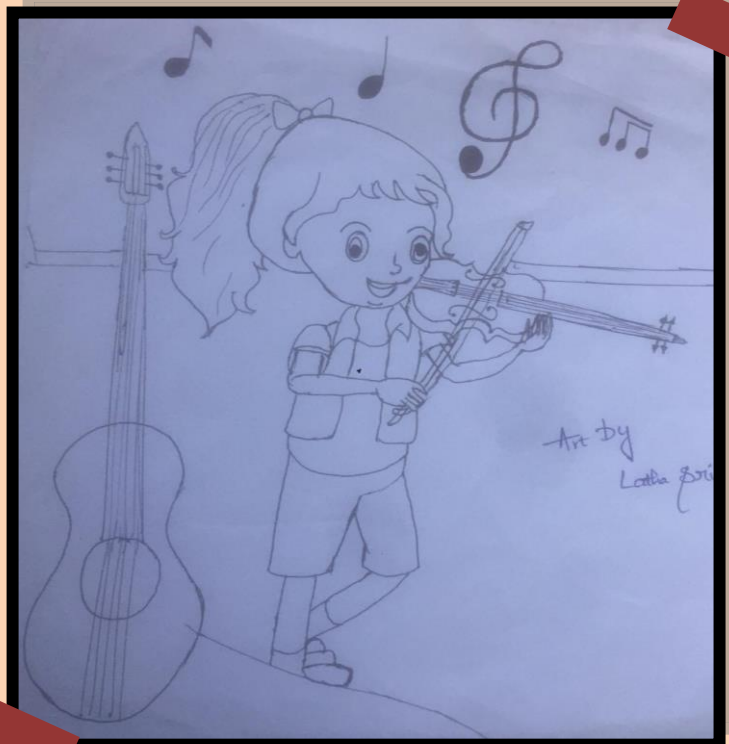Farewell Meeting to Final Year IT Students in VVIT on March 18, 2019

NBA Accreditation

Department of IT Gets Extension of NBA Accreditation for 3 More Years

STUDENT CORNER

Art by: Taruni Anjani
Regd No: 17BQ1A12D5
III Year IT-C

Art by: Kesani LathaSri
Regd No: 17BQ1A1269
III Year IT-B

Art by: K. Haritha
Regd No: 17BQ1A1285
III Year IT-B

📷 Photography Skills

Photography by Lalith Venkata Sai
Regd No: 16BQ1A1226
IV Year IT

I am Enumula Manoj Kumar, Student of your esteemed organization during 2015-2019. I feel great and fortunate to join in the organization and elated a part of it. The organization is very supportive in all the facilities like infrastructure, placements, faculty, extra-curricular and co-curricular activities. I'm blessed to be placed in a good no of companies with descent packages. I really thank the placement department for all their efforts to see placements to the students and also respective department faculties for their support to students morally and knowledge wise. I wish to give my support in the development of the organization in future.

E. Manoj
15BQ1A1212
S/W Engineer
Byjus, HYD

K. Ajay
14BQ1A1225
S/W Engineer
Snovasys

I K. Ajay Kumar had a good experience with VVIT. College helped me in doing Nano degree in Android. I have hosted the activities In and Out side of the campus through "ACM STUDENT CHAPTER". I feel grateful to contribute to the college as a ACM-Chair Person. It meant be a lot to me with a great experience and good memories. I personally developed my abilities and skills to present me in every aspect. I have lot of emotions, love, enjoyment, egos and many more. I never forget my friends who supported me.

Mr. Sai Krishna Pinapala, 2010 batch B.Tech IT student, currently working as a Chief Consultant at, Mercedes-Benz Research and Development India, Bangalore since 2018. Earlier he worked for L&T as Software Engineer for 5 years. He is a very steadfast, expressive and programming lover. Now he is proficient in skills like Oauth 2.0 OIDC, SQL, GIT, Certified Azure Database Administration, C# Developer, .NET Web API expert, Business Analyst with knowledge in several Testing Tools.

Mr P.Sai Krishna
10BQ1A1239
Consultant
Mercedes-Benz

He visited campus and interacted with the students of IT to dwell out his experiences in the campus. He also oriented the students with his so far accumulated industry experience. He nicely presented the importance of some curricular aspects that are useful from the very first day of every IT profession.

He emphasized the soft skills importance and the classes conducted by T&P department in our Institute in general and Department of IT in specific. The policies adopted and practices followed by VVIT were very much lauded by him. He urged all the students to be having more insight in the technologies in vogue through the Professional Activities and Guest Lectures conducted by the department. The Role of a software engineer is deeply and very nicely illustrated by him. Mr. Sai Krishna, advised all his juniors not to get complacent with the Grades or percentages that they get, but the amount of techno-savvy they accrued through the courses across the semesters is important.

He revealed that their batch-of- students used to participate in sports and games during the seasonal events, which elevated confidence in them through rest of the year. As a final note he advised all the students to do smart work and utilize all facilities being provided by the institutes to their fullest extent, to rise up to the occasion in proving their candidature in interviews for job or higher education or in becoming an entrepreneur. After that several students interacted with him to get their doubts cleared in industry perspective.

Department Vision:

To produce IT professionals who can develop globally competitive and socially useful information technology enabled solutions and products that offer cost effective solutions, for organizations, in particular and society in general, through their innovative ideas, and to create a knowledge pool through research in this field.

Department Mission:

1. Producing information technology professionals for the Global IT industry.
2. Developing student centric and qualitative teaching-learning practices.
3. Establishing infrastructure that endows cutting edge technology requirements of the industry.
4. To extend service to the public, the state and the nation at large by building quality engineers.
5. To carve disciplined and socially, technologically better responsible citizens.
6. To make the students pursuing information technology the technological ambassadors of VVIT in whatever part of the world they find themselves in their future careers.

Program Educational Objectives (PEO'S):

PEO-1: Solid Foundation and Core Competence
To provide the graduates with concrete base in Information Technology, to pursue higher studies and to succeed in industry / technical profession with global competence by imparting acute technical skills like designing, modelling, analyzing and problem-solving on top of solid foundation in mathematical, scientific, computing and engineering fundamentals.

PEO-2: Employability & Research Spur
To train the graduates for a higher degree of employability in both public and private sector industries at national and international level by imparting ability to Re-learn and innovate in ever-changing global economic and technological environments and to contribute effectively in research and development.

PEO-3: Professional Skills and Societal Contribution
To inculcate the graduates to have basic interpersonal skills, effective communication skills to teamwork/ lead in multidisciplinary approach, under diverse professional environments by handling critical situations through lifelong learning with an ethical attitude(administrative acumen) and an ability to relate engineering issues to broader social context.

PEO-4: Real World Competency & Innovation
To enable students with good scientific and engineering breadth and technology skills so as to comprehend, analyze, design, and create novel products and solutions for the real life problems to emerge as researchers, experts, educators & entrepreneurs.