STACS MAGAZINE

DEPARTMENT OF CSE

2016-2017

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Vision and Mission statements of the Institute

EN VISION ED FUTURE "MORE GENIUS PER GENIUS"

To be recognized as the #1 engineering institutions regionally and nationally by all stakeholders including employers, faculty and society

CORE MISSION QUESTION- HOW CAN WE MAXIMIZE LEARNER TRANSFORMATION IN 10,440 HOURS?

We are coresponsible for producing remarkable behavioral traits such as deep enquiry (self generated questions, curiosity, research), an intrinsic desire for uncomfortable struggle (for employable skills, specific interests, big ideas) and an inclusive mindset (real world projects, collaboration, compassion)

Vision and Mission statements of the Department of Computer Science and Engineering

Vision

To promote industry embedded education there by creating computer science Professionals with exceptional intellectual skills that has a transformative impact on the soceity.

Mission

- To inculcade a remarkable behavioral traits and industry embedded research, leading to face uncomfortable struggle
- To foster the spirit of deep enquiry and imagination among students by bringing the curiosity to come up with innovative ideas for well-being of the society
- To fasten with individuals and organizations for realizing supreme potential for solving real-world problems

Programme Educational Objective (PEO)

PEO1: To enable graduates to pursue higher education and research, or have a successful career in industries associated with Computer Science and Engineering, or as entrepreneurs.

PEO2: To ensure that graduates will have the ability and attitude to adapt to emerging technological changes.

PEO3: To attain professional skills by ensuring life-long learning with a sense of social values.

Programme Outcomes (POs)

At the time of graduation, the students of Computer Science and Engineering should have the

PO1 ENGINEERING KNOWLEDGE: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

PO2 PROBLEM ANALYSIS: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 DESIGN /DEVELOPMENT: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 CONDUCT INVESTIGATIONS OF COMPLEX PROBLEMS: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 MODERN TOOL USAGE: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6 THE ENGINEER AND SOCIETY: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 ENVIRONMENT & SUSTAINABILITY: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 ETHICS: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 INDIVIDUAL AND TEAM WORK: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings**.**

PO10 COMMUNICATION: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one‘s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 LIFE LONG LEARNING: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

About The Department:

- Computer science is at the forefront of the digital revolution that continues to define the 21st century.

- It helped introduce innovations like the smartphone and the ‘gig’ economy. In future, computer scientists are expected to completely reshape the world we live in with technologies like Augmented Reality, the Internet of Things, and distributed ledgers like Blockchain.

- At KGiSL, CSE department is committed to develop young minds to make creative engineers in industries, business and to play a positive and useful role in social transformation.

- Our department offers its students the very best exposure in terms of technology, infrastructure and resources.

- The college lays great emphasis on Industry-Embedded quality education. Its unique learning approach is designed to contribute significantly to the growth and development of each and every student.

- CSE department has been in the forefront in recognizing the needs of the industry and integrating knowledge with professional inputs.

- The final goal is achieved through our unyielding efforts to enhance Quality in Industry Embedded Education, Research and Diversity in order to serve the society at large.

Articles

TESLA - A True Innovation

Anitha .S.S of 1st year CSE-A

Tesla was founded in 2003 by a group of engineers who wanted to prove that people didn't need to compromise to drive electric – that electric vehicles can be better, quicker and more fun to drive than gasoline cars.

Today, Tesla builds not only all-electric vehicles but also infinitely scalable clean energy generation and storage products. Tesla believes the faster the world stops relying on fossil fuels and moves towards a zero-emission future, the better.

To create an entire sustainable energy ecosystem, Tesla also manufactures a unique set of energy solutions, Powerwall, Powerpack and Solar Roof, enabling homeowners, businesses, and utilities to manage renewable energy generation, storage, and consumption. Supporting Tesla's automotive and energy products is Gigafactory 1 – a facility designed to significantly reduce battery cell costs. By bringing cell production in-house, Tesla manufactures batteries at the volumes required to meet production goals, while creating thousands of jobs.

And this is just the beginning. With Tesla building its most affordable car yet, Tesla continues to make products accessible and affordable to more and more people, ultimately accelerating the advent of clean transport and clean energy production. Electric cars, batteries, and renewable energy generation and storage already exist independently, but when combined, they become even more powerful – that's the future we want.

In May 2002, Musk founded SpaceX, an aerospace manufacturer and space transport services company, of which he is CEO and lead designer. He joined Tesla, Inc., an electric vehicle manufacturer, in 2004, the year after it was founded, and became its CEO and product architect.Sarvesh Lautner In 2006, he inspired the creation of SolarCity, a solar energy services company (now a subsidiary of Tesla) and operated as its chairman

In addition to his primary business pursuits, Musk has envisioned a high-speed transportation system known as the Hyperloop, and has proposed a vertical take-off and landing supersonic jet electric aircraft with electric fan propulsion, known as the Musk electric jet

Augmented Reality

Ganesh.M of 3rd year CSE-A

Augmented reality (AR) is an interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information, sometimes across multiple sensory modalities,

including visual, auditory, haptic, somatosensory and olfactory. AR can be defined as a system that fulfills three basic features: a combination of real and virtual worlds, real-time interaction, and accurate 3D registration of virtual and real objects.

AR apps typically connect digital animation to a special ‘marker’, or with the help of GPS in phones pinpoint the location. Augmentation is happening in real time and within the context of the environment, for example, overlaying scores to a live feed sport events

Abstract

This report should help developers and content publishers who want to take advantage of thelatest developments in smartphone and augmented reality (AR) technology to create novel and exciting new learning experiences.

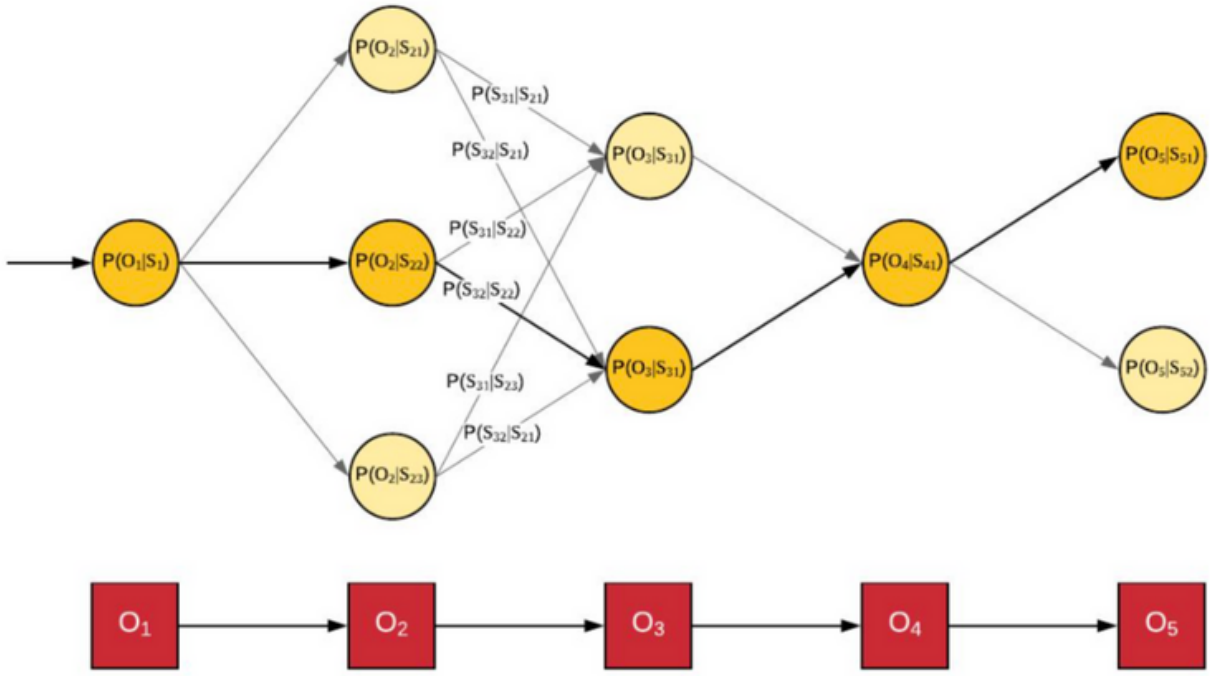
Not so long ago, augmented reality was an experimental technology that rarely left the lab and required a high level of technical expertise and knowledge to create new applications. Now, thanks to advances in smartphone hardware, AR technology is much more available and easily accessible for users and developers alike.

Markov Chains

Sambath Kumar.P of 3rd year CSE-A

A Markov chain is a mathematical system that experiences transitions from one state to another according to certain probabilistic rules. The defining characteristic of a Markov chain is that no matter how the process arrived at its present state, the possible future states are fixed.

In other words, the probability of transitioning to any particular state is dependent solely on the current state and time elapsed. The state space, or set of all possible states, can be anything: letters, numbers, weather conditions, baseball scores, or stock performances



Markov chain is based on a principle of “memorylessness”. In other words the next state of the process only depends on the previous state and not the sequence of states.

This simple assumption makes the calculation of conditional probability easy and enables this algorithm to be applied in number of scenarios. In this article we will restrict ourself to simple Markov chain. In real life problems we generally use Latent Markov model, which is a much evolved version of Markov chain.

Markov chains have many applications as statistical models of real-world processes, such as studying cruise control systems in motor vehicles, queues or lines of customers arriving at an airport, exchange rates of currencies, storage systems such as dams, and population growths of certain animal species. The algorithm known as PageRank, which was originally proposed for the internet search engine Google, is based on a Markov process

Discrete-time Markov chain

A discrete-time Markov chain is a sequence of random variables X1, X2, X3, ... with the Markov property, namely that the probability of moving to the next state depends only on the present state and not on the previous states:

Tensorflow

Meganisha.B of 2nd year CSE-A

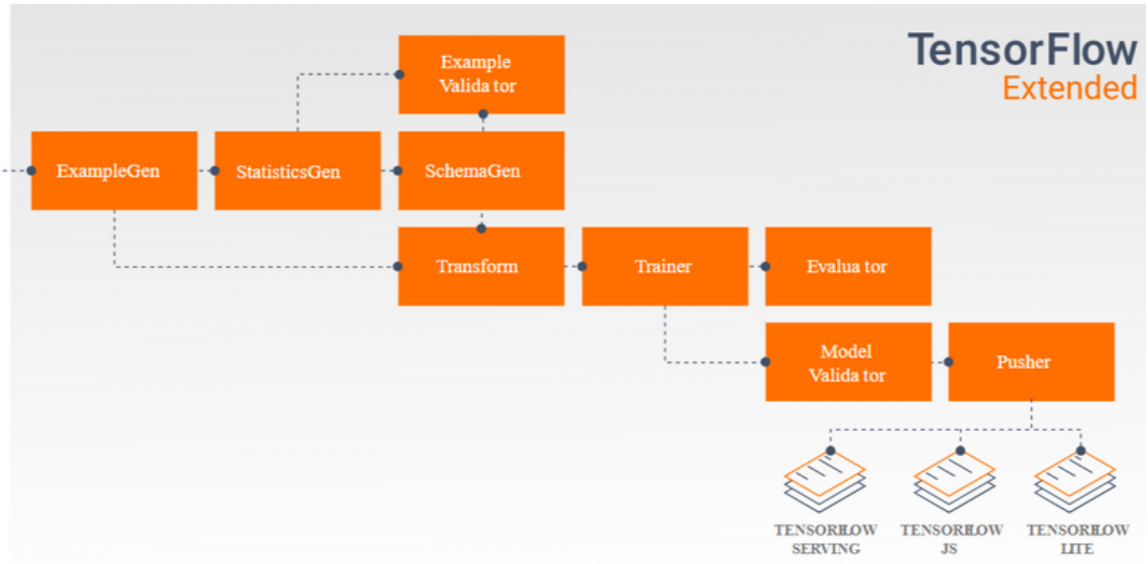
TensorFlow has APIs available in several languages both for constructing and executing a TensorFlow graph.

The Python API is at present the most complete and the easiest to use, but other language APIs may be easier to integrate into projects and may offer some performance advantages in graph execution.

Model Building

TensorFlow offers multiple levels of abstraction so you can choose the right one for your needs. Build and train models by using the high-level Keras API, which makes getting started with TensorFlow and machine learning easy.

If you need more flexibility, eager execution allows for immediate iteration and intuitive debugging. For large ML training tasks, use the Distribution Strategy API for distributed training on different hardware configurations without changing the model definition.



Machine Learning (MLCC)

On March 1, 2016, Google released its Machine Learning Crash Course (MLCC). Originally designed to help equip Google employees with practical artificial intelligence and machine learning fundamentals, Google rolled out its free TensorFlow workshops in several cities around the world before finally releasing the course to the public.

Application

Among the applications for which TensorFlow is the foundation, are automated image-captioning software, such as DeepDream. RankBrain now handles a substantial number of search queries, replacing and supplementing traditional static algorithm-based search results

Mechanical-switch keyboard

Bhavadharini.K of 2nd year CSE-A

Each key on a mechanical-switch keyboard contains a complete switch underneath. Each switch is composed of a housing, a spring, and a stem, and sometimes other parts such as a separate tactile leaf or a clickbar. Switches come in three variants: linear with consistent resistance; tactile with a non-audible bump; and clicky, a tactile with an audible click.

Depending on the resistance of the spring, the key requires different amounts of pressure to actuate and to bottom out. The shape of the stem as well as the design of the switch housing varies the actuation distance and travel distance of the switch.

The amount of sound produced by actuation can also be changed by the addition of rubber dampeners. Like other types of keyboards, mechanical keyboards allow for the removal and replacement of keycaps, but replacing them is more common with mechanical keyboards due to common stem shapes.

Mechanical switches

one of the most popular technologies. Keyboards that use mechanical key switches tend to have a positive, tactile touch and generate audible clicks when keys are depressed. The feel and sound result from the contact that occurs between conductive materials on the plunger; the conductors are often made of gold, gold alloy, or mylar with silver-carbon overlay.

Some membrane keyboards (notably from Lexmark and Tandy) use mechanical spring actuators as the mechanism in the keys but a different technology to close the electrical connection. This allows them to retain the solid feel of mechanical switches without compromise;