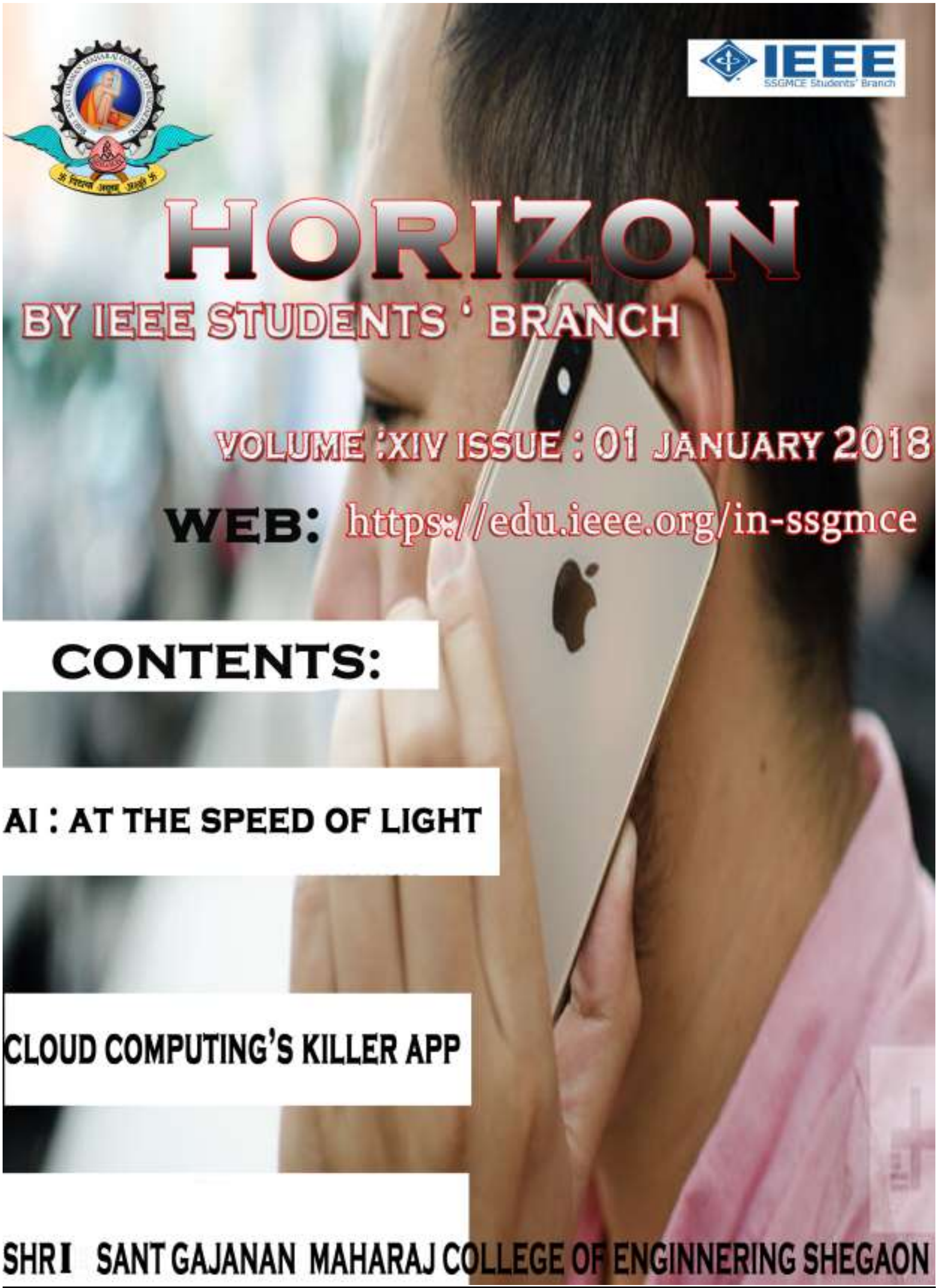

HORIZON

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SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINNERING SHEGAON

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2	Social Activity on "Basics of Computers"	IEEE Coordinators	15/9/2017	150
3	Workshop of "DS7 Solidworks"	Kaustubh Pathak and Swapnil Mistry BE Third Mech Engg	21/9/2017	20
4	Training Program on " Effectively and efficiently utilizing the IEEE Xplore platform for project and research"	Mr. Chandrakant Ganvir, IEEE Certified Trainer, EBSCO Information Service, New Delhi	6/1/2018	20
5	The Ultimate Talk (Public Speaking Competition)	IEEE Coordinators	17/01/201819/01/2018 24/01/2018	11
6	IEEE Paper Presentation	IEEE Coordinators	16/02/2018	4
7	Two Day Workshop on "Hands on VLSI Circuit Design using Cadence"	Prof. S. P. Badar E & TC Dept SSGMCE	17/03/2018 To 18/03/2018	21

EVENT REPORT 2017-18

8	Two Day Workshop on "Hands on VLSI Circuit Design using Cadence"	Prof. S. P. Badar E & TC Dept SSGMCE	31/03/2018 To 01/04/2018	21
9	YP Guest Lecture on 'Cognitive Radio"	Mr. Suyog Vyavahare, YP IEEE Bombay Section	7/04/2018	20
10	Summer School on Internet of Things	Dr. K. B. Khanchandani Prof. P. R. Wankhede	11/06/2018 To 07/07/2018	27
11	Summer School on CMOS VLSI Circuit Design	Dr. K. B. Khanchandani Prof. S. P. Badar	11/06/2018 To 07/07/2018	19

Prof. P. R. Wankhede
Branch Counselor

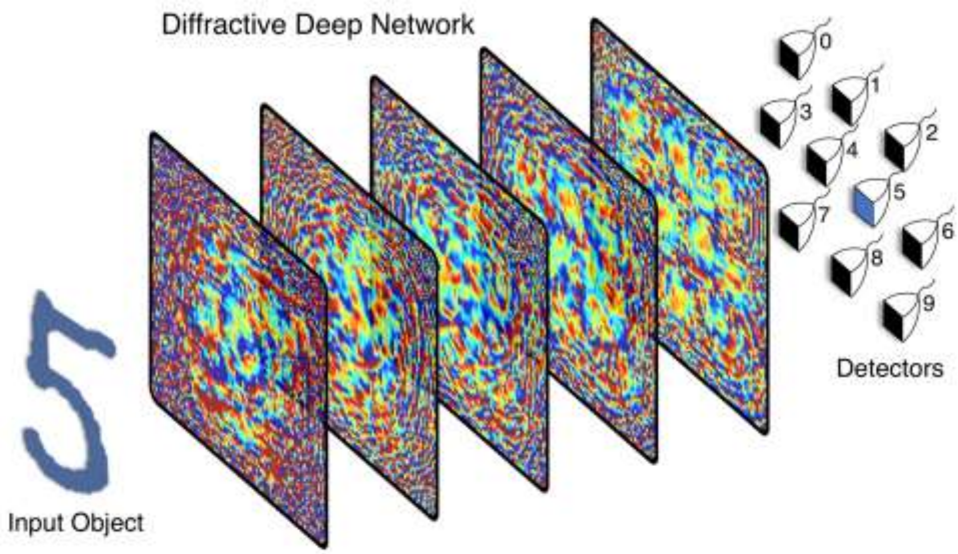
AI: At the Speed of Light

Neural networks shine for solving tough problems such as facial and voice recognition, but conventional electronic versions are limited in speed and hungry for power. In theory, optics could beat digital electronic computers in the matrix calculations used in neural networks. However, optics had been limited by their inability to do some complex calculations that had required electronics. Now new experiments show that all-optical neural networks can tackle those problems.

Glass lenses process optical signals by focusing light, which performs a complex mathematical operation called a Fourier transform that preserves the information in the original scene but rearranges is completely. One use of Fourier transforms is converting time variations in signal intensity into a plot of the frequencies present in the signal.

Today's electronic neural networks have reached eight million neurons, but their future use in artificial intelligence may be limited by their high power usage and limited parallelism in connections. Optical connections through lenses are inherently parallel. The lens in your eye simultaneously focuses light from across your field of view onto the retina in the back of your eye, where an array of light-detecting nerve cells detects the light. Each cell then relays the signal it receives to neurons in the brain that process the visual signals to show us an image.

The key attraction of neural networks is their massive interconnections among processors, comparable to the complex interconnections among neurons in the brain. This lets them perform many operations simultaneously, like the human brain does when looking at faces or listening to speech, making them more efficient for facial and voice recognition than traditional electronic computers that execute one instruction at a time.



Cloud Computing's Killer App: Gaming

In recognition of the huge importance of graphics and gaming to the future of computing. Advanced micro devices (AMD), of Sunnyvale, calif., is building the fastest supercomputer and selling its uses to makers of online games. Games makers would write their software for supercomputer rather than PC, smart phones, or other platforms and then rent computer time and bandwidth on AMD's machine. Cloud computing makes it ridiculously easy for potential customers to try out a game and get hooked—all they have to do is go to web site and start playing. Another plus point is that by offloading most of the computational guts, cloud computing puts the game software out of the reach of the pirates. The super computer will consist mainly of 1000 GPU's each of which can run 800 concurrent computational tasks, or threads. At two chips [s per graphics card, that means 1600 threads at a pop.c

About a quarter of chips will compress or decompress the data, and the rest will render the graphics. That's more than enough muscle, AMD says, to serve the players in any existing massively multiplayer game. The company says it can scale up the machine simply by adding more cards. AMD says the fusion cloud will consume only 150 kilowatts running full tilt, compared to roadrunners' 2.35 megawatts. Amd says it will be able to perform as many operation per second as roadrunner with less power, because its GPU's with their hundreds of cores, can do far more things at once than can central processing units, which have only a handful of cores. That allows GPU's to better render graphics, The fusion cloud is happening now because three things fell into place only recently. Rapid access memory reached the gigabyte range AMD's planning is mearly a battel in the larger war being fought by Intel, AMD, and Nvidia corp. over the advantages of the graphics processing.

A definition for cloud computing can be given as an emerging computer paradigm where data and services reside in massively scalable data centers in the cloud and can be accessed from any connected devices over the internet. Cloud computing is a way of providing various services on virtual machines allocated on top of a large physical machine pool which resides in the cloud. Cloud computing comes into focus only when we think about what IT has always wanted - a way to increase capacity or add different capabilities to the current setting on the fly without investing in new infrastructure, training new personnel or licensing new software. Here ‘on the fly’ and ‘without investing or training’ becomes the keywords in the current situation. But cloud computing offers a better solution. We have lots of compute power and storage capabilities residing in the distributed environment of the cloud.

What cloud computing does is to harness the capabilities of these resources and make available these resources as a single entity which can be changed to meet the current needs of the user. The basis of cloud computing is to create a set of virtual servers on the available vast resource pool and give it to the clients. Any web enabled device can be used to access the resources through the virtual servers. Based on the computing needs of the client, the infrastructure allotted to the client can be scaled up or down. From a business point of view, cloud computing is a method to address the scalability and availability concerns for large scale applications which involves lesser overhead. Since the resource allocated to the client can be varied based on the needs of the client and can be done without any fuss, the overhead is very low.

A stowaway mission to the moon

The Lunar Crater Observation and Sensing Satellite (LCROSS) was a robotic spacecraft operated by NASA. The mission was conceived as a low-cost means of determining the nature of hydrogen detected at the polar regions of the Moon. Launched immediately after discovery of lunar water by Chandrayaan-1 the main LCROSS mission objective was to further explore the presence of water ice in a permanently shadowed crater near a lunar polar region. It was successful in confirming water in the southern lunar crater Cabeus. LCROSS was designed to collect and relay data from the impact and debris plume resulting from the launch vehicle's spent Centaur upper stage (and data-collecting Shepherding Spacecraft) striking the crater Cabeus near the south pole of the Moon.

MISSION

LCROSS was a fast-track, low-cost companion mission to the LRO. The LCROSS payload was added after NASA moved the LRO from the Delta II to a larger launch vehicle. It was chosen from 19 other proposals. LCROSS's mission was dedicated to late American broadcaster Walter Cronkite.

LCROSS launched with the LRO aboard an Atlas V rocket from Cape Canaveral, Florida, on June 18, 2009, at 21:32 UTC On June 23, four and a half days after launch, LCROSS and its attached Centaur booster rocket successfully completed a lunar swingby and entered into polar Earth orbit with a period of 37 days, positioning LCROSS for impact on a lunar pole Early in the morning on August 22, 2009, LCROSS ground controllers discovered an anomaly caused by a sensor problem, which had resulted in the spacecraft using up 140 kilograms (309 pounds) of fuel, more than half of the fuel remaining at the time. According to Dan Andrews, the LCROSS project manager, "Our estimates now are if we pretty much baseline the mission, meaning just accomplish the things that we have to to get the job done with full mission success, we're still in the black on propellant, but not by a lot."Whether or not LCROSS would find water had been stated to be influential in whether or not the United States government pursues creating a Moon base. On November 13, 2009, NASA confirmed that water was detected after the Centaur impacted the crater.

Fusion Factory Starts Up

WHEN THE PROJECT FIRST GOT OFF THE DRAWING BOARD IN 1996, THE U.S. DEPARTMENT OF ENERGY (DOE) HAD HIGH HOPES THAT NIF WOULD STRIKE THREE LICKS WITH THE SAME STICK. NIF'S LASERS, ANY ONE OF WHICH WOULD ALONE BE THE WORLD'S MOST POWERFUL, WOULD HELP THE DOE'S NATIONAL NUCLEAR SECURITY ADMINISTRATION TO SAFELY MAINTAIN THE UNITED STATES' CACHE OF NUCLEAR WEAPONS. WITHOUT ANY TEST DETONATION, NIF WOULD VALIDATE SUPERCOMPUTERGENERATED THREE-DIMENSIONAL SIMULATIONS OF A THERMONUCLEAR BURN. THE PROJECT'S CHAMPIONS ALSO INSISTED THAT THE 30Â¿¿METER-TALL BEHEMOTH WOULD HELP SCIENTISTS TO BETTER UNDERSTAND HOW TO TURN WATER INTO LIMITLESS AMOUNTS OF CARBON-FREE ENERGY.

THE PROJECT, WHICH BROKE GROUND IN 1997, WAS SUPPOSED TO BE COMPLETED IN 2002, AT A COST OF $1.07 BILLION. BUT TECHNICAL PROBLEMS TRIGGERED AN AVALANCHE OF CONSTRUCTION DELAYS AND COST OVERRUNS. SO IN 1999, THE DOE SWEPT THE DECKS OF NIF'S MANAGEMENT. THE FACILITY FINALLY CAME IN AT ABOUT $3.5 BILLION AND HAS MET ALL ITS CONSTRUCTION AND SPENDING TARGETS SINCE 2001, WHEN ITS BUDGET WAS ADJUSTED TO REFLECT WHAT IT WOULD ACTUALLY COST TO COMPLETE. THE DOE SCIENTIST THINKS THE 10- TO 15-YEAR TIME FRAME IS OVERLY OPTIMISTIC. "IT TAKES ABOUT EIGHT YEARS TO BUILD A NUCLEAR POWER PLANT, AND WE ALREADY KNOW HOW TO PUT THOSE TOGETHER," HE SAYS.

Later this month in California, construction will be completed at Lawrence Livermore National Laboratory's National Ignition Facility, or NIF, the world's most powerful laser system—12 years and roughly US $3.5 billion after it was begun. The plan is for NIF's 192 neodymium lasers to create controlled moments of fusion by focusing their energy on 3millimeter-wide pellets of deuterium and tritium. Together, the lasers will produce a 500â¿¿terawatt bolt of energy that will turn the surface of a target capsule to plasma. The plasma will then explode, compressing the hydrogen and creating shock waves that will squeeze the fusion fuel even further. The expected result is ignition, the start of a nuclear fire that will burn through the pellets, ultimately releasing up to 20 times as much energy as that introduced by the lasers.

ADVENTURES IN RESEARCH FUNDING

How do you fund a bunch of researchers, given that little of their work will be readily marketable and the real breakthroughs will often benefit your competitors more than yourself? Though the years, different funding models have come and gone. At the end of 19th century there was what I will call the Marconi model. Marconi was an amateur tinkerer when he invented radio. He went on to became a legendary entrepreneur, creating a number of companies to implement his invention. While Marconi was tinkering with radio in Italy, Thomas Edison was using the profits from his inventions to build the first standalone industrial research laboratory, in west Orange, N.J. It became self-sufficient through the selling and licensing of its patents. You can still visit that lab to see the apparatus, beakers and jars of chemical redolent with the smell of yesteryear.

Next came the “Bell Labs Model” of great industrial research labs that were contained within and funded by the profits of large corporations. Unfortunately, most of them – at companies like IBM, Xerox, HP and Intel – have now disappeared altogether or devoted themselves to directed development instead of research. Along come World war 2 with a new model of research. An unprecedented burst of technical innovations gave us radar, computing, electromechanical cryptography and the Manhattan Project – an existence proof of what can be done when everyone works extremely hard for a common goal under an existential threat. Shortly thereafter, the cold war promoted some of the same government focus on research funding. But, as aerospace expert Norman Augustine has observed, it often takes longer today to get approval for a project than it did to fight the entire world war.
The newest model, the Silicon Valley phenomenon- a lethal mix of great research university, empowered graduates, and hungry venture capitalists – has been extremely successful, although largely by the capitalizing on existing research. Today fundamental research technology is almost the sole province of academia and is almost exclusively paid for the government. Today there is some young Marconi in his or her basement, experimenting with communication via quantum entanglement.