IEEE India Info

IEEE India Council
News Letter
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IEEE The Institute of Electrical and Electronics Engineers. Inc

Chairman's Message

Dear Members

It is time for renewal of your valuable membership by paying the annual dues at the earliest.

The All India Student Congress 2010 was successfully organized by the IEEE Students' Branch of Fr. Conceicao Rodrigues College of Engineering on behalf of IEEE India Council, at Mumbai. More than 100 student representatives from IEEE Student Branches participated from all over India. The enthusiasm of the IEEE CRCE Student Branch in organizing the event and the student participants was the highlight of the event. Prof. V K Damodaran addressed the gathering and delivered the keynote talk 'Engineers of the New Decade'.

With a little over two months left to conclude this year's activities, we would like to utilize the NDLP grant from HQ. Sections and other entities organizing seminars and conferences are requested to avail this scheme for inviting reputed speakers for their events. Please contact Dr. G. Sai Narayanan (sai.jgk@gmail.com) and send your proposals to him.

The preparation for INDICON 2010 at Kolkata on December 17-19, 2010 at Jadavpur University Kolkata, India is progressing well under the guidance of Prof. Kalyan Mallik, Chairman of the Kolkata Section.

Prof. Gordon W Day has been elected as the IEEE President-elect 2011 in the recently concluded IEEE Annual elections. Prof. Toshio Fukuda has been elected as the Region 10 Director Elect-2011-12. The IEEE India Council congratulates Prof. Gordon Day on being elected as president-elect 2011 and Prof. Toshio Fukuda as the Region 10 Director-Elect 2011-12. It is gladdening to note that the number of voting members from India increased substantially. It is still not good enough for the Indian contestants to win.

It is a festival season starting from Dussehra, Deepavali, and ending with Christmas and New Year Eve. I wish all the members joy, prosperity, and peace for the festival season.

Kasi Rajgopal
kasi.rajgopal@ieee.org

Message from India Council Secretary

Dear IEEE Members,

Hope you all have become busy now in the process of renewing the IEEE Membership and becoming active in IEEE India once again. I have sent a separate communication giving detailed procedure on how to avail the E-Membership of IEEE which would cost you only US $ 50 (less than Rs.2000/- only) for the entire year 2011. This information also covers the frequently asked questions regarding such E-Membership renewal. Friends! It may please be noted that E-Membership is not available for student community as they are already in the category of paying much reduced dues. However, students' have still the advantage of paying their membership dues in Indian Rupees for the year 2011.

Heartening news is that IEEE President 2010 Dr. Pedro Ray is going to inaugurate the IEEE India office on 29th October, 2010 at Bangalore. All the India Council Executives Committee Members and Section Chairs are invited to grace the occasion. President Ray will be accompanied at the Inaugural Ceremony by IEEE Executive Director James Prendergast, IEEE Staff Executive Matt Loeb, IEEE Chief Marketing Officer Patrick Mahoney, IEEE Chief Financial Officer Tom Siegert, IEEE Managing Director of Member & Geographic Activities Cecilia Jankowski, and Staff Director, Global Business Development, Peter Sobel.

This is a reminder once again for you all to make use of NDLP facility extensively which can definitely cater the greatest technical needs at many places especially the rural areas in India where the student community require such encouragement for sharing technology and knowledge development.

With Best Wishes,

Yours Sincerely,

Ramakrishna Kappagantu
Secretary, IEEE India Council
e-mail: kramakrishna@ieee.org

ALL INDIA STUDENT CONGRESS 2010 REPORT

IEEE is the world's largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities.

The IEEE student members are the leaders of tomorrow. As student members are associated to a particular student branch, they are able to access the world's most comprehensive source of electrical, electronic and computer engineering publications. Student members also benefit by networking with the members and the industry leaders, gaining leadership experience and developing interpersonal skills by getting involved in the local and section activities. In order to consummate the IEEE's goals, it is a necessity for the sections to share the ideas and best practices among themselves thus improving the functioning of their respective student branches.

From 24th September 2010 to the 26th September 2010 IEEE-CRCE and Fr. Conceicao Rodrigues College of Engineering played host to IEEE India Councils' All India Student Congress 2010 organized by IEEE Bombay Section in association with IEEE-CRCE. The inauguration ceremony began at 10 am. The dignitaries who attended the event included Prof. Kasi Rajgopal (Chairperson, IEEE India Council), Prof Ramakrishna Kappagantu (Secretary, IEEE India Council), Prof. V.K. Damodaran (Director General of INGCORE), Prof M.M Shah(Former Students Activity Chair, IEEE Bombay Section), Prof. M.M. Parmar(Students Activity Chair, IEEE Bombay Section).

Prof. V. K. Damodaran giving a presentation

Prof. K. Rajagopal lighting the lamp

The chief guest for the event was Prof. V. K. Damodaran who is the Chairman of Centre for Environment & Development, Vice-Chairman of Energy Management Centre-Kerala and the Director General of INGCORE. The event saw approximately 100 participants majority if which were from outside Mumbai, the most number of participants coming from IEEE Delhi and Bangalore Sections.

After the inauguration which including the lighting of the lamp and speeches by the dignitaries all members present were enlightened by a presentation titled 'Engineers of the New Decade: Need a new Paradigm for Development' by Prof. V. K. Damodaran which covered topics from Challenges of the New Decade to the Ecological Legacy of the 20th Century till Gandhian Innovation.

This was followed by a photo shot presentation by Prof. Kasi Rajgopal which focused on making the participants aware of how they could better utilize the various IEEE services available online.

Later on during the day following the lunch session the second speaker for the day Mr. Ramana Additional Commissioner of MMRDA informed us of the various projects undertaken and to be undertaken by MMRDA which would benefit the infrastructure of the city, this was followed by a speech by the Director of Great Offshore Ship Repairs Pvt Ltd. Mr. Darayas P. Malegam on Attributes: The making of an Engineer which was directed towards five must have attributes in one to make a complete engineer out of oneself.

Mr. Ramana

Mr. Darayas P. Malegam

All the speakers were spectacular and left the students asking for more. Followed by these speakers the students of Fr. Conceicao Rodrigues College of Engineering had planned a splendid cultural night which included dance performances, a small play on AIDS awareness the college orchestra performed in front of the audience which was followed by a band event the total cultural evening lasting for almost 3 hours.

The second day started with the President of Rotract Club of Mumbai Mr. Padmakar Nandekar having an interactive session with the students on the topic – Body, Mind and Soul - Sourcing Energy which concentrated on the importance of meditation in one's life. This was preceded by the former Chairperson of IEEE-CRCE Vivek Agarwal conducting some ice breaker sessions and speaking about his experience as an IEEE Student Member. This session was extremely interactive as it involved all the common problems faced by the individual students' chapters. This session concluded at 1 30 pm after which the students proceed to the buffet counter for lunch. After lunch, the Chairperson of IEEE Bombay Section Mr. Raju Hira address the audience and then conducted a session of common issues pertaining with different IEEE Student Branches and Chapters where the students discussed common problems and possible solutions to the same. Mr. Raju Hira also cleared many doubts that the participants had pertaining to IEEE.

After a small recess our various guests from different colleges, who had submitted their branch reports before the event started, and after careful scrutiny of the same eight privileged colleges were given the opportunity to present their branch report presentations students from Siddaganga Institute of Technology, Bangalore bagging the first spot. The branch presentations were ended by a prize distribution ceremony for the same followed by a vote of thanks.

Though, day 2 marked the official closure of the All India Student Congress 2010, it was followed by a 'Mumbai Darshan' session for outstation participantson the 3rd day. The following day the students went for Mumbai Darshan.

The All India Student Congress 2010 is considered to be the pinnacle of intercollegiate events that any college can undertake. IEEE-CRCE and Fr. Conceicao Rodrigues College of Engineering were given the honor of playing host to such a grand event because of the trust, both IEEE India Council and IEEE Bombay Section had in IEEE-CRCE. The event was a grand success thanks to the hours of effort put in by the entire IEEE-CRCE Council specially by the branch counselor Mrs. Swapnali Mahadik, along with the support and cooperation of the entire faculty both teaching and non-teaching of Fr. Conceicao Rodrigues College of Engineering.

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IEEE-CRCE

The Art of 'State of the Art'

Manoj Mardithaya
Webmaster
NITK - Surathkal Student Branch

Our world is driven by innovation. A company's newest line of products, 'hot' topics for calls for papers, methodologies in teaching, learning, marketing, production, even the crowd-pullers at a technical festival -- everything is guided by novelty. As an undergraduate student in my final year, I recently asked myself the question, "What's next?"

What is next in innovation? Of course, on the surface, it seems like a silly question. Each and every field has its own state of the art. Fields that have been growing recently within mathematics and computation like graph theory have theories proven and dis-proven daily, with implications on what is computationally possible within almost every field of science. Computer science has seen a bubble in distributed and cloud architectures in recent years, extending the paradigm to increase the robustness and efficiency of any kind of system. And not to omit the green movement, with the concept of a 'smart-grid' finally materializing, innovation is happening on a daily basis to invent the power systems of the future.

But beyond this state of the art, there is another. When you consider state of the art in Data Transmission, in particular, Ethernet: a variety of signal-processing and optics research is going into making higher speed Ethernet viable -- a new 40Gbps and 100Gbps standard was ratified last June, the next target for hardware. This is innovation. And once it is made reality, research will begin on designing protocols and architectures to take advantage of the speeds available and the limitations that come with it. That will be innovation. But a physicist in Japan recently proposed a means to teleport energy. Besides the technical details of it, I'd like to have you focus on it in terms of innovation -- is it innovation? yes. Under what field? Quantum physics, of course. But beyond that, I see something*more* in this particular discovery -- I see the potential for a whole new field of science. *That*, is the next level of innovation.

A team at MIT this June worked out so many of the design aspects regarding the practicality of liquid mirrors that they managed to produce one, 5cm across with 91 actuators to tweak its position and angle, bringing liquid mirrors that much closer to reality. That is state of the art. Vinay Deolalikar from HP labs recently attempted to prove that P != NP. While his proof had fundamental flaws, the analogy between areas of mathematics he used is so novel that many other problems are being attempted using a similar construction. That is the art of innovation. As Professor John Hopcroft, a notable author and co-recipient of the Turing Award in 1986, said, "When there's a breakthrough of that nature, usually, then, a sub-discipline forms."

I bring this up because a Google search for "Call for Papers" will return literally millions of results. A literature survey in today's world would require reading easily a hundred papers to truly say that you have read the entire length and breadth of what has been attempted before in the concerned area. And its easy to innovate when there is so much scope for improvement in so many places.

But I know there are minds here much better than that. I'd like to see more people with their minds set to innovate. I'd like to see people who can envision something radically different, which will change the way everything works. Edison patented hundreds of inventions, but the one he's most remembered for is light. I want to encourage all the IEEE members of R10 to look at something more than just optimizing what already exists -- *we should be thinking about how we can change the game*

National Workshop organized at ISTAR on
"Simulation of Networks using NS2 Simulator"

National Workshop under IEEE ISTAR Student Branch (SBT Code 65201), ISTAR in conjunction with the IEEE Computer Society Chapter, India Council was organized on 24th and 25th September 2010 at Computer Science Department, Institute of Science & Technology for Advanced Studies & Research (ISTAR), Vallabh Vidyanagar, Gujarat, India presided by Dr. C.L. Patel, Chairman, Charutar Vidya Mandal and inaugurated by Dr. Akshai Aggarwal, Vice Chancellor, Gujarat Technological University at which 63 researchers and faculty members from 15 states of India from reputed organizations like IIT, BITS Pilani, NIT, ABB, BARC etc. attended the first of its kind workshop which has been organized that provided practical hands on lab session and tutorials on NS2 Network Simulator. NS2 Network simulator is widely used in research and teaching field of Wired, Wireless, Sensor and Satellite communications Networks.

[Inaugural of the Workshop on 24th September 2010: From Left Dr. Priyanka Sharma, Prof. D. N. Bhatt, Dr. Akshai Aggarwal, Dr. C. L. Patel, Principal R. P. Patel, Mrs. Aggarwal and Mr. Nirbhay Chaubey].

[Inaugural of the Workshop on 24th September 2010: From Left Prof. D. N. Bhatt, Dr. Akshai Aggarwal, Dr. C.L. Patel and Principal R.P. Patel]

[A view of Participants]

On First Day:Dr. Pillutla Laxminarayana, Professor of DA-IICT, Gandhingar delivered key note address followed by other expert by Mr. Tejas/aVa^aAssitant Professor, ADIT, Vallabh Vidyanagar, Gujarat, Ms. Payal N. Raj, SVMIT, Bhach, Gujarat took tutorial and hands on lab session.

On Second Day: The workshop was conducted by Mr. Mohit TahilianNIT, Surathkal, Karnataka and Dr. NJ. Kothari, Professor and Head of EC Dept., D. D. University, Nadiad, Gujarat.

Mr. Nirbhay Chaubey, Counsellor, IEEE ISTAR StudeiBranch co-ordinated the workshop along with IEEE ISTAR Student Branch Officer and Dr. Prijmka Sharma, Head, MCA Dept., ISTAR.The participants like Ms. Rakhi Asin from BITs Pilani Hyderabad, Andhra Pradesh, Mr. Ravish Kumar from ABB, Bangalore, Karnataka and Mr. Rakesh Jha from NIT, Surat, Gujarat highly appreciated the efforts put-up by the co-ordinators , IEEE ISTARidfetit Branch Volunteer and Charutar Vidya Mandal in their feed back speech. Dr. C.L. Patel ,Chairman, CVM blessed the ISTAR faculty.

Life with Ctrl C, Ctrl V and Ctrl F

P.G.Poonacha (poonacha.pg@gmail.com)

Poonacha received Ph. D. in Electrical Engineering from IIT Kanpur in 1986. He was a faculty member in EE Department at IIT Bombay between 1986 and 1996. He is currently with Epigon Media Technologies Pvt Ltd.

Books don't have Easy Ctrl F Feature

My daughter tells me that the most important tool she misses while reading books nowadays is the Ctrl F feature available with documents on computer or internet. I asked her to tell me more about it. She told me that in the school or college she and her friends manage well without much thinking but efficiently using Ctrl C, Ctrl V and Ctrl F tools to write assignments, do projects and prepare for exams. According to her, due to too many activities in the college, there is very little time available for reading, understanding and learning. They don't like open book exams for this very reason!

Thinking about what she said made me run down my memory lane to see if I have done anything different in my childhood or in school or in college or in my life in general! Looks like all that we do in life from birth to death is to use copy, paste (memorize) and find (search) tools in various ways and sometimes see interesting connections. In this article we analyze this view point and share some simple thoughts regarding future robots and artificial creativity. Hope it is fine to write articles based on simple observations and thinking just for fun and some profit with no math, physics and logic to support it. Does this analysis lead us to a more tolerant view of the world? Don't believe it. Read on.

Some Useful Examples

Children learn by imitation. They try to copy us, remember what we do, hear all that we say to them and also hear all that we don't want them to hear, see what we touch and touch what we don't want them to touch. In school they are made to read books as the teacher wants, copy what is written in the book in the manner teacher wants and remember as much as possible by good practice at school and home. In exams they find answers to questions from memory. This activity continues through college and even in profession to a large extent.

Let me recall what I did as a kid. My first encounter with writing was on sand. Mother would oil my body and I was supposed to write alphabets using my finger on sand kept outside our house. Don't know why she thought alphabets are so important in one's life. I had to reproduce the letter as they were written by her on sand. There was zero tolerance to any deviation or errors. It was a very boring exercise and I used to run away and she would catch me and pull my ears for not doing the task. With oiled body it was easy to escape from her grip. It was all copy and paste in memory and find the right letter whenever she questioned. I used to do all that just because of great food she used to give after bath! I was not at all interested in doing exactly what she wanted. May be that was the style of teaching she learnt in her school.

It is easy to analyze life in school and college and we see the power of copy, paste and search tools. Hostel is a great place where lot of this happens all the time and more during the exams or assignment submission times. Do we call a person learned if he is able to study, memorize and give good answers to many questions on a given topic? Was the method of obtaining knowledge different during Vedic period? Rishi's would meditate, pray and listen to the nature for answers to their questions and students would listen to their teacher and remember answers as best as possible. Is obeying the teacher (copy and paste in memory) the best way to learn, get appreciated and become a learned person? Many leaders look for obedient followers! Generally, we avoid people who ask too many questions and may kill people like Socrates also.

An Observation

I have observed in almost all instances that people who have similar looking faces speak in the same manner. Do remember to watch Sachin Tendulkar and Kailash Kher on TV next time and hear for yourself. You can also watch people in your locality who look similar and watch them when they talk. Do let me know if you find any counter examples to this observation.

Discovery, Problem Solving and Creativity

If I go by what I am harping on, given that everything is same, two robots will do essentially same things using same copy, paste and find tools and their creativity levels will not differ. But we humans are quite different. Can robots become human like in the future? A person is called creative if the person can see, find or create what is not known to others or seen by others. We do know that all of us behave differently under different conditions. Even with similar education environments some create wonderful things for the world to appreciate. One simple answer to this observation could be that it is a function of when and where we are born as well as the initial conditions with which our sensory organs as well as our brain is turned on and controlled by a genetic code! It is still not clear how all this works and how complex is the set of partial differential equations which control our behavior. Let us explore this aspect further.

We do notice that what I see, remember and recall about a scene is quite different from what my friend will see, remember and recall later. Two people don't write the same way. When two people hear a music piece their interpretations could be quite different. Can we consider the following explanation?

Let us suppose that each one of us come with copy, paste and find tools with different software and hardware and driver complexity. Our copy tools namely, eyes, ears, nose and skin may have different capabilities. Some can see better, some can hear better, some can search better etc... Our brain, where we paste (memorize) such information may have less or more active neurons and connections. Our search techniques may be different. Each one of us may come with different find (search) and express (speech, writing) algorithms, copy algorithms and paste algorithms. To sum up we may all have different hardware and software tools which make us appear different and think differently. The software that helps us understand a question and see right connections may differ from human to human. Some people may be good at using known facts and proper connections and solve a new problem or discover a new result. So creativity is all to do with what tools we are born with and how they are trained, nurtured and used by us. Some tools may have fewer bugs and some may have more bugs.

Can Robots be Creative and have a Soul?

If we create robots with a particular set of hardware parts and soft wares for copy, paste (memorize) and find (search) tools they will all behave the same way. Change the hardware capabilities or software features through a genetic code you have a wide variety of robots. Some of them may be as intelligent as Einstein. Some may be as stupid as me and may write such dumb papers. Does this mean interesting possibilities in the area of robotics?

What about soul for a robot? Don't know. For humans or robots we need one operating system which manages the connection between our genetic code and copy, paste and search tools to activate all the algorithms and run them on some priority basis. Soul may be another virtual system or a virtual body which can stay separate from a human body and monitor as well as control all parts of the human body. May be that is our best friend with whom we can communicate freely. When body is damaged badly or deteriorates a lot soul decides to leave the body. Don't ask me where it comes from and where it goes and what it takes while leaving? More interestingly where does it stay till it gets another opportunity to perform a similar role. For simple

robots will it be just a program in a pen drive to be kept with the master/creator? For a real robot soul can be another virtual robot within the robot so that a robot can communicate with it!

Is soul made out of energy? Don't know. But without soul life will be very boring. Just as we receive and react to external inputs we can have internal communication with soul just like we communicate with another person. Designing a robot with a soul is an interesting challenge. I am sure it will be done in the near future.

A More Tolerant World View

As a result of such thinking we may feel more comfortable interacting with people and don't get angry if some one does not do a job as intelligently or exactly as we want or does not agree with what we say! We may not feel like scolding others by saying, "Why are you acting like a dumb person, can't you understand and do what I do?" I should not get angry with my daughter when she does not do math the way I do or like physics as I do or whistle as I do.

Why then people like or cheat or harm others or lie to others? May be the algorithms or the software for expressing (speech or writing) has options to, like, lie, harm or cheat depending on the responses from the other person or society to our actions! How does one explain anger, sadness etc.? They may be different states of the software which get activated when it receives some special external as well as internal inputs at different points in time during interaction!

A Better Model

Is it all really so simple? No is the best answer. This is just a hardware, software and operating system model for robots. Can we come up with a better model? May be we should develop hardware parts for a robot body which grows with time and then weakens and biologically degrades after death. Software algorithms also should get modified over time and genetic code gets modified to reflect such changes in a clever way. Would this require the robot to have a heart, stomach and all normal organs of a human? When we develop such robots its soul could have communication with a cloud (say Amazon) for special help. After death the soul moves to the cloud and waits for a new opportunity to come back as decided by the cloud manager (God). There may be several clouds(hell or heaven) If the cloud cuts the communication link except for going and coming robots may behave like human beings!

Purpose of Life

Is our robot better than human system with a well organized nervous system, well connected blood circulation system with a whole lot of sensors, responders and very well built communication system and a soul which directs all human actions and monitors the health of various parts and decides to leave the body when the time comes? Interesting aspect of the human system is that it not only responds through sensors and responders to external inputs but also can respond to events from memory which can be input to various sensors to give a virtual or real feeling of talking, seeing and imagining or thinking by connecting various events in interesting ways. Moreover, with the help of soul we can control almost all of our actions with little or more effort.

May be once we perfect our hardware and software based robot with a soul we can map all the functions to a well structured neural network, right sensors and responders to make a human like robot. Most amazing point is that no one knows how and why such a fine human system got created. Was it an attempt similar to our attempt to create a human like robot, namely, some one to give us company and help us with all loyalty and sincerity? Did that effort misfire due to some bugs or design faults or paradoxes which cannot be avoided in any formal system? We have very little or forced upon ideas of who we are and what we are supposed to do. Will robots help us understand more about us? That will be a great plus point and will justify all such research efforts.

That's IT in September 2010

In the general developments,

- **Aadhar** (Universal ID project of UID Authority of India, headed by Nandan Nilekani) started to give IDs to citizens on September 29, 2010; the first ID going to a rural woman Mrs. Ranjana Sonawane in Tembhali village in Nandurbar District in remote Maharashtra (in the presence of Sonia Gandhi and Prime Minister Manmohan Singh) gets India's first unique ID 782474 317884!
- **Sensex** touches 20,000 on Sep 21, 2010
- Navalmal Firodia (the man who created the common object on Indian roads, namely, auto rickshaw) Centenary on Sep 9, 2010
- BHEL & NTPC (giants in power equipment manufacturing & power plants operation respectively) joint venture in the power sector NBPPL is formally launched by the Prime Minister in Tirupati in Andhra Pradesh on September 1, 2010
- Johnson & Johnson completes 100 years on September 1, 2010
- Ban on outsourcing, Visa fee hike and comments from President Obama start worrying the growing Indian IT industry
- Mahindra Satyam announced results for 2008-09 & 2009-10 (delayed due to Satyam Computers scam, CEO confession and Tech Mahindra acquisition that rocked the company from January 2009)
- President Obama ends Iraq war on September 1, 2010
- Ayodhya verdict that was scheduled for Sep 23, 2010 is finally out on Sep 30, 2010

In the **products** arena,

- **Apple** launches new iPod, iTunes 10, Apple TV and social networking Ping on Sep 1, 2010; launches iPhone in China, starts new Apple Stores in China
- **Nokia** launches N8 (high end smart phone), E7 (business phone) and X2 (music phone); launches “dual SIM” phone in India
- **Intel** announces graphics integrated “Sandy Bridge” microprocessors in IDF on Sep 20, 2010
- **Google** launches Google Instant on Sep 8, 2010
- **Oracle** launches “cloud in a box” in their Oracle World on Sep 23, 2010; **Dell** announces 7” Tablet in the same conference
- **Microsoft** launches IE9 Beta (HTML 5 based)
- **HP** launches Web-ready printers on September 20, 2010
- **Amazon** Kindle 3 arrives in stores in September 2010
- **Beetel** (part of Bharti Airtel) launches handsets in India

In the **market-place**,

- **HP** acquires 3PAR technologies for $2.35 billion on September 3, 2010 (after upstaging Dell)
- **IBM** buys analytics company Netezza for $ 1.7 billion
- **Sensex** touches 20,000 on Sep 21, 2010

The **Indian IT Companies** continued to do well

- **Wipro** is global No 1 is engineering testing; joins Dow Jones “sustainability index”
- **TCS** acquires SuperValue's captive unit in India
- **Jet Airways** gives $ 62 million contract to IBM
- **Polaris** starts Chile operations
- **24/7 Customer Service** completes 10 years on September 17, 2010
- **ITC (India Tobacco)** turned 100 on August 23, 2010

MNC Companies in India continue to grow their India operations

- **IBM** gets $ 62 million contract from Jet Airways and much larger contract from African operations of Airtel
- **Ford** India to hire 1,000 this year to take headcount to 3,000
- **Suzuki** to invest Rs 1,925 crores in sixth plant with 250,000 capacity
- **Huawei** plans $ 500 million plant in Chennai in 2010-11
- **SanDisk** to double its R & D count in India in 2010 at its 300 person strong Pune operations
- **LSI** to double its India headcount from 1,000 to 2,000 in the year 2010
- **Citrix** gets a new facility in Bangalore in September 2010
- **Force 10** (data center products company) to pump $ 10 million in Chennai R & D center in 2010
- **Nestle** R & D facility with Rs 230 crores investment to start in India in 2010

In **telecom**

- Vodafone loses Income tax case and faces $ 2 billion liability; appeals to Supreme Court
- Airtel starts mobile shopping up to Rs 5,000 in September 2010

In the **Education & Research** front

- IIT's start country-specific studies center

In the **people** front

- India-bon Professor Deepak Jain of Kellogg Business School (Northwestern University) named Dean of the prestigious European B School INSEAD
- Ex HP CEO Mark Hurd joins Oracle as CEO on September 7, 2010
- Microsoft executive Elop joins Nokia as CEO on September 20, 2010
- Polish Prime Minister visits India during September 2010
- Citrix CEO Mark Templeton visits India in September 2010

On the **applications** front,

- **Aadhar** (Universal ID project of UID Authority of India, headed by Nandan Nilekani) started to give IDs to citizens on September 29, 2010; the first ID going to a rural woman Mrs. Ranjana Sonawane in Tembhali village in Nandurbar District in remote Maharashtra (in the presence of Sonia Gandhi and Prime Minister Manmohan Singh) gets India's first unique ID 782474 317884!
- Mobile trading started on Bombay Stock Exchange on September 21, 2010 (interestingly the day coincided with Sensex touching 20,000)
- Mobile banking up to Rs 5,000 started in India in September 2010
- Bangalore starts automated test-driving based 24x7 service for the award of drivers license

On the **infrastructure** front

- 500 MW of JSW Energy's Ratnagiri project (total 1,200 MW) commissioned on September 1, 2010
- Dragon Air starts direct flights to Hong Kong from Bangalore on Sep 1, 2010
- Tumkur elevated highway commissioned on September 10, 2010
- Shree Cements commissions 1 million tons capacity cement plant in Rajasthan in 330 days on September 15, 2010, a world record

Some **interesting numbers**

- India's Forex reserves on September 30, 2010 stood at $ 289 billon (**Reserve Bank of India**)
- Sensex (Bombay Stock Exchange index) rose to 20,069 by September end; touched 20,000 on September 21, 2010 (**Yahoo Finance**)
- 18.18 million mobile subscribers were added to the Indian telecom network in August 2010 taking the total to 671 million mobile subscribers and 706 overall subscribers (**TRAI** Press Release 53 of October 5, 2010)

With best regards
S Sadagopan

Artificial Intelligence (AI) and the Neuro-Cognitive Revolution

Sutanshu Saksena Raj, USIT, GGS IP Univ. and Palak Jain, IGIT, GGS IP Univ.

I want to start with psychology in the materialistic tradition, i.e. , I say, if there is a psychology that expresses itself with the kind of controlled fashion a sentient being does, then it would be the psychology associated with the field of AI. Now, Black Holes are intrinsically associated with Singularity, which, by definition, is a point where all-known Laws of Nature disintegrate. According to Stephen Hawking, Black Holes have an infinite density from which light cannot escape, thereby showing that Einstein's Laws are not valid. Analogously, Singularity with AI is a point where AI becomes more intelligent than Humans. As per Moore's Law, the brain's capacity to process remains parallel to the x-axis. Also, any asymptote at infinity will pass the Turing Test, which is to say that when a solution reaches infinity on the Moore's Graph, Machines will become more intelligent than Man.

Now, 'Materialism with Passion' does not refer to the idea that we can put together devices that add up numbers faster than we do arithmetic calculations. We are interested in Machines which, according to Strong AI Thesis, can do the same functions as we do, when we consider ourselves engaged in intelligent form of behavior. Machines having a mental life which is close to that lived by Rational Beings and not just restricted to prodigious calculations. But still, a device is just a device. Is it logical that they should be given 'Human Treatment'? What argument would be left to suggest that our functioning is anything different, from what we get as humans, from a certain set of behavior or circumstances?

Shannon-Fano (Law) developed a theory which successfully generated a notion that no matter how complex a problem, it can be broken down into YES - NO or 1-0 type decisions. By corollary, we get, when an event has a high probability, we don't get much information from it. In contrast, when an event has a low probability, it gives us much more information than other events. Following from this, the Game Thesis sheds light on a piece of code which can learn from its own output and then make the new inputs better and more pertinent. This raises the question of an AI rewriting its own source code. Now, Human Intelligence tends to remain stagnant over a period of years, but then a point comes when Human Intelligence becomes aggressive. During WW-II, the Germans came close to developing the 'ideal' code for communication, called ENIGMA, having only one Key to de-code it. For a long time, most nations were unable to break the code. Then Alan Turing developed a heuristic and algorithmic solution to the problem. For the uninitiated, Alan Turing was to Mathematics what Mozart was to Music. The solution, to check whether a problem is solvable, is given through the TURING TEST: "Turing will reflect on our own problem solving heuristic to determine what it would be that a machine would have to do in order to say whether or not it is a solvable problem". But are we aware of the implications for a device to qualify as intelligent? On what basis would we satisfy ourselves that we are dealing with another intelligent form of life?

René Descartes said that we will never be able to produce a machine indistinguishable from a Rational Being because a Machine can never: [1] Attain the idea of God. [2] Engage in Abstract Thinking. (Philosophy of Self-Thinking) and [3] Engage in creative use of Language. Turing requires that the machine / device does all the above three things. According to the Turing Test, we are interested in - Is the device able to respond intelligently to my questions? You deliver a set of questions and identify whether the respondent is relatively like yourself; relatively intelligent like yourself. This is the ONLY test which matters. You throw interrogatives at the machine / device and then judging by their response, decide whether you are dealing with Intelligence or not. Now, if a device mimic's human intelligence, does it make sense to develop it further?

DEEP BLUE (which passed the Turing Test) is a Chess Playing Program (software) used for ranking chess players. In 1997, Gary Kasparov had lost (1-2) to Deep Blue, and since then, every Grandmaster has lost to a newer versions of the same. After the loss, a few questions arose with regard to the software. They were - [1] Does it capture the Emotions involved in playing chess? [2] Whether knowing how to play chess is sufficient to make

the decisions required to succeed in other aspects of life? [3] Is a good chess player a Winner? Honestly, I feel, it's like asking if a plane is flying if it does not flap its wings. We might even ask in the Turing Context, whether it means the same thing to pass a test, as it does to take the test. We might have a device that maybe serving up all the right answers but at the same time is not engaged in anything that the entity itself knows of, such as a sense to recognize the feeling of taking a test (e.g. - Butterflies in the Stomach, etcetera). The very program of AI is built on the proposition that if you can get the Machine functioning in a way that it is indistinguishable from intelligent kind of functioning, even without the movements or parts as Humans, then that is sufficient. The thesis associated with this statement is 'Machine Functionalism'. The only loophole in this theory - Labeling a much higher intelligence than ours as unintelligent, which is ironical.

Now, should such Machines have Rights? When we choose a criterion, e.g. Voting Age, we do so on the basis of intelligence, perspective; so the Rights can be properly engaged and exercised. Could such a highly intelligent being be treated as a fellow human, having Rights inclusive of: Best structure for Society, Trickle-Down Theory, and best Tax Structure? The only thing such devices / machines will be lacking is an anatomy that will locate them within a human community. Now, there are those entities which are human but vegetative and are able to survive on the basis of family, love and sentiments. They are in our circle but coz of one emotion, not entering into a human form of life themselves. So a much more pragmatic answer would be that there are already such devices / machines in place that respond with such originality / creativity and problem solving prowess that their responses are sometimes better than those of other entities which are biologically human. Therefore, the grounds on which to grant them Rights or to deny them the status of Intelligent Beings are merely prejudication grounds filled with vanity.

Talking about Descartes 3 points, as stated in 'Possibility of Science', I wonder whether a computing device can engage in something linguistic. I would like to point out our methods of communicating, our thoughts, and a Machines method of doing so. We have associated meaning with words which can be termed as 'Labels'. Example - A person 'A' is having a headache. He tells 'B'. Now two possibilities arise: (i) 'B' has experienced it, and can relate to it. (ii) 'B' has never experienced it; they'll never know what it feels like. In both the cases, the label used, i.e., headache, is a complex neurological function. Our language is one suited for nearly identical organisms. We can't tell an ant the same. Thus, to be engaged in linguistic activity, means to be already in possession of various (hidden / underlying) meanings. So I ask, can a Machine have such a high level of familiarity with labels that it can use it as a pattern in its response?

If God does not play dice with the Universe, should we try it? And since we are trying to be the creator here, should we not wonder who is the Creator of our Creator? Lastly, can we create an entity more intelligent than ourselves such that the Total Entropy of the System (read Universe) must increase, i.e., the 'life form' must create disorder merely by its presence? This, of course, follows from the 2nd (and most important) Law of Thermodynamics. If we can let go of this moral hassle, then AI Theory will no longer remain a philosophically profound (something not requiring Mathematical Equations to explain itself) thesis. The Main Question remains - What qualifies as Life? Answer - An entity which replicates itself, will do anything for its survival, has capabilities to exist by utilizing available resources and evolving itself. Unfortunately, the only 'life form' which humans have been able to create, in their own image, is a Computer Virus.

Technology influence on the Youth

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The increasing demand and use of technology is largely shaping and turning our future and as many as people assume it's the "computer" doing it all and on contrary which is not the fact. These machines have been with us for decades and now, with their advanced multimedia capability and technology and numerous softwares available, they deserve and justify considerable credit for enhancing the attainment and learning among people of all ages and groups. But I on my end, propose that there is an even greater thirst for technology on the rise, whose power, ability and indicant is far more encompassing, embracing and comprehending. I am uttering about the causative, casual and emerging forms of interactive communications and transmission, such as the Internet, that allow us to exploit and capitalize on our supreme learning resource – the modernistic and innovative minds of people all over the globe.

All have just begin to and experience and expose the impact of this connecting and linking up of people to people, and can only guess and retrieve how enhancing and transforming its consequences will be in the approaching years. I strongly contend, however, that if one makes the better selections now, one can intimately opt for the better and high quality of how one can ascertain, and more imperative, how the youth of today and generations yet to come are tutored and instructed to contemplate.

To triumph at that opportunity requires a resolute and synchronized effort – a coalition if everyone will – among our families, schools, youth and awareness organizations, and social communities, etc. I asseverate that because I am thoughtful and aware that technology itself is never the only reason things change and modify. In fact, it depends on how people decide on to apply technology and its skills – and whether they make wise and smarty conclusions and address the genuine needs – that makes the difference ultimately.

Today, the elementary and the primary question that haunts is if one will share this “magic voodoo” with everyone, or only a few privileged and lucky ones . The remedy depends on the judgements one makes and the conduct one takes from that minute onwards. One must realise that approach to the Internet accessibility needs to be a concern and reality for all the citizens, that the untrammelled, comprehensive and limitless flow of information and the ready availability of computers for individuals are not merely the matters of “technology.” They are, in fact, the significant key that either opens or locks the doors of opportunity for the youth.

Therefore, it is within one's own will to determine if this generation is to experience and benefit from the rewards of self-motivation, determination, self-realisation and self-discovery, a higher standard of life, and overall a renewed sense of community that derives from an innovative and interactive sharing of information and knowledge. If one makes that leap, and assure and ascertain that every individual has access to the technology and its advancement and the opportunity to learn the proficiency to apply these advance technologies for personal and over all advancement as well as for the common good, India will make a successful and brand new transition and transformation to the millennium, and if one fails, one may leave a legacy smaller than our own inheritance and existence.

In addition, when one gets thoroughgoing to it, it hardly matters what activities the youth power gets involved in at events and organizations – thought out so they have a sense of pride, acquisition, ownership and accomplishment and, ultimately in the end, are left with the feeling, “I can and I will.” Working with peers and experts enhances their abilities and experiences, giving a broader aspect and wonderful chance and opportunity to see beyond their own skills and abilities and to develop a sense of pride and honour for oneself. I firmly believe that when one adds the new technologies and skills to the mix, one can broaden that group experience enormously and create learning relationships and opportunities for engaging the youth power and strength which before has not been possible.... And so young people are in a condition like permanent intoxication, because youth is sweet and they are growing...

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