IEEE India Info
IEEE India Council Newsletter

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Chair: Deepak Mathur Editor: N T Nair

Message from Chairman

Dear Friends,

I feel honoured to have been selected as the Chair of IEEE India Council. I have interacted with most of you on many occasions while I was serving as the volunteer at the Region 10 level and am grateful for the tremendous support you gave me then. I am sure I would be getting the same backing with renewed enthusiasm now, when I serve you as the India Council Chair.

I would like to take this opportunity to congratulate Dr Ponnavaikko and his team for a very successful term. Dr Ponnavaikko and Mr.Rangarajan provided exemplary leadership during a very difficult time and set a good direction for the Council.

We, the IEEE members, in India are very active and organize various conferences and events apart from doing research and contributing papers. Our IEEE student members are also immersed in technical, scientific and social work that they get to participate in as student members and student volunteers. There is a need to customize IEEE activities to our need which add value to our competency and profession. Members should strive for continuous improvement as stated in our IEEE Code of Ethics.

There is need to create an environment when Indian researchers do quality work that gets them nominated for Fellowships of the IEEE. Grade elevation from member to senior member has also to be taken up because this is the highest grade of membership for which application can be made. This has to be followed aggressively as it promotes retention of memberships.

Quality work in IEEE designated fields has to be facilitated in the country so that our counts of IEEE Fellowships rise from its present alarmingly low numbers. Similarly students should also focus on technical research activities instead of just those that develop organizing and networking skills.

Recently there has been lots of interest in IEEE members to serve the underserved. IEEE has instituted a special interest group on humanitarian technology (SIGHT) to carry out humanitarian activities by its volunteers. We need to follow two prong approach while looking at the problems of underserved community – bringing out new sustainable technology by doing research and making existing technology to find the solution to the problems. Let us make world a better place to live for all.

In the quest of achieving our technical and professional goals with IEEE's mission and vision – I would like to invite your suggestions and inputs to make IEEE India Council more relevant to its sections and members.

Deepak Mathur
Chair, IEEE India Council

N T Nair, Editor, writes...

A new year has dawned, bringing with it new hopes, aspirations and opportunities to be tapped, to usher in a better world order. We, the IEEE community, supposed to be the practitioners of the most advanced technologies, do have our roles to play in this endeavour, to pass on the benefit of our technology wisdom for the benefit of the society. A new approach in applying our high-end technologies to solve some of the trivial problems faced by the common man is to be evolved with end results achieved.

Here are some thoughts. Though several water purifying systems are in the market, a really low cost, less cumbersome water purifier utilising sunlight and for use in rural India is a case in point. In yet another scenario, if solar energy could be harnessed to provide lighting and TV watching capabilities for the rural poor, at affordable cost, that will be another case of rural empowerment. To do such things and a host of many others in the similar category, adoption of existing technologies only are required and of course, the willingness too. What may be standing in the way could be the lack of lustre, associated with high tech events. I am reminded of a technology feat achieved in an African country to harness atmospheric humidity to provide drinking water at the wayside.

There may be many such avenues to be explored by the experts and IEEE entities can chip in with their expertise, vision and willingness to come down (or up?) to such levels and play our humanitarian roles. Let the new year witness many such initiatives bringing IEEE in the service of the society.

I am sure this newsletter could be used as a forum for exchanging such ideas. Let us wait for many such creative thoughts and actions. Kindly send your innovative ideas to the editor at: ntnair@ieee.org

With best wishes to all members of the IEEE family for a new year of ever memorable achievements, good health and societal contributions,

N T Nair

Words of Wisdom

Your life will be no better than the plans you make and the action you take. You are the architect and builder of your own life, fortune, destiny.

- Alfred A. Montapert

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All of life is interrelated. We are all caught in an inescapable network of mutuality, tied to a single garment of destiny. Whatever affects one directly affects all indirectly.

- Martin Luther King

IT in December 2014

Prof. S. Sadagopan Director, IIIT-Bangalore s.sadagopan@gmail.com

General

- ISRO (Indian Space Research Organization) successfully tested out GSLV MK III with a **crew module** that will be used in **future unmanned space**ships on December 18, 2014
- Wholesale **Inflation** drops down to 0% in December 2014
- With support from 175 countries United Nations declared June 21st as International **Yoga Day** (initiated by Prime Minister Modi during his visit to UN in September 2014) on December 11, 2014
- Government confers the highest Civilian Award **Bharat Ratna** on former Prime Minister **Atal Behari Vajpayee** and Benares Hindu University Founder Late **Madan Mohan Malaviya** on December 25, 2014
- BJP gets clear majority in **Jharkhand** and second position in **Jammu & Kashmir Elections** in December 2014; Raghubar Das becomes **Jharkhand Chief Minister** on December 28, 2014; Shiv Sena joins BJP government in Maharashtra in December 2014
- Government introduces **GST Bill** in Parliament on December 19, 2014; it takes Ordinance route to **Coal allocation, FDI in Insurance and Land acquisition Bills** in December 2014
- **Kailash Satyarthi** from India receives **Nobel Peace Prize** on December 10, 2014
- **Huffington PostIndia Edition** goes live on December 8, 2014 (in partnership with Times of India)
- After Nokia, EMS major **Foxconn** is close to shutting operations in Chennai in December 2014
- Pakistan militants strike on December 15, 2014 and kills many innocent children; Sydney hostage on December 15, 2014 kills one; Assam incident on December 21, 2014 leads to loss of 65 lives; Bangalore blast on December 28, 2013 kills 3; AirAsia plane disappears on December 28, 2014 killing over 200 passengers onboard

Technology

- India's communication satellite **GSAT 16** was launched successfully on December 5, 2014 by **ISRO**
- **US NASA** test fired the new space vehicle **Orlon** (after Shuttle) getting closer to manned flight to Mars on December 5, 2014
- **ISRO** tests out unmanned spaceship on December 18, 2014 with a mock set up, marking the first step in India's endeavor of manned space flights

Markets

- Indian stock markets **BSE&NSE gain 30% in year 2014**, the best growth in 5 years

- FII (Foreign Institutional Investors) inflow cross $ 42 billion in the year 2014
- Global **oil price** (Brent crude) goes **below $ 58** on December 28, 2014 (the lowest since 2009)
- **Flipkart** raises $ 700 million in December 2014; its market value touches $ 11 billion on December 20, 2014
- Public sector steel major **SAIL** (Steel Authority of India) **IPO** in December was a success
- **Intel** buys Montreal, Canada based password manager software **Password Box** on December 1, 2014
- **NewsCorp** buys Indian start-up Mumbai-based **BigDecisions** on December 19, 2014
- **Amazon** picks up 15% stakes in Indian start-up specializing in gift cards **QwikCilver** for $ 10 million on December 23, 2014

Products

- **HTC** launches Nexus 9 (8.9" Tablet) exclusively on Amazon on December 10, 2014 at Rs 28,900
- **Google Chromecast** gets launched in India for Rs 2,999 on Snapdeal on December 10, 2014
- **TrueCaller** lunches **True Dialer** App for Android & Windows

Indian IT companies

- **Salem Steel** starts selling steel utensils over **Flipkart** e-commerce platform in December 2014
- **TaxiForSure** (Taxi aggregator using Apps) trains taxi drivers in India in December 2014
- Indian start-up Mumbai-based **BigDecisions** acquired by media Mogul **News Corp** on December 19, 2014

MNC companies in India

- **Adobe**, **SanDisk**, **24/7Customer** lap up 1 million square feet of office space in Bangalore in December 2014
- **Amazon** to hire 14,000 to man logistics in 2015; it picks up 15% stakes in Indian start-up specializing in gift cards **QwikCilver** for $ 10 million on December 23, 2014
- **Google** launches Hindi Ad service in India in December 2014
- **Microsoft** launches e-commerce store on Amazon in India on December 15, 2014
- **NewsCorp** buys Indian start-up **BigDecisions** on December 20, 2014
- **TrueCaller** to set up R&D office in India
- **BASF** to invest Rs 360 Crores in Navi Mumbai Innovation campus in 2015
- **Ericsson** bags $ 1 billion contract for Reliance in December 2014
- **Ness Tech** to up India headcount by 1,000 in 2015

Education & Research

- **Indian Institute of Science** & **IIT Bombay** in Times Higher Education Top 40 global rank
- **ToI** (Times of India group) building **Bennett University** in NOIDA (Delhi)
- **XPrize** comes to India in December 2014

- **IIT Delhi Director** Prof RK **Shevgaonkar** quits suddenly on December 27, 2014, two years ahead of his retirement

People

- **ISRO Chairman Dr. K Radhakrishnan** in **Nature's** "**Top Ten List 2014**"; retires on December 31, 2014
- Prime Minister **Modi** wins Reader Poll for **TIMEPerson of the Year 2014** (as per TIME Magazine December 8, 2014)
- Government confers the highest Civilian Award **Bharat Ratna** on Former Prime Minister **Atal Behari Vajpayee** and Benares Hindu University Founder **Madan Mohan Malaviya** on December 25, 2014
- **Amit Ranjan** (Co-Founder of **SlideShare** that was sold to **LinkedIn**) tipped to head technology for Modi Government in December 2014
- **Microsoft** CEO **Satya Nadella** meets PM Modi in December 26, 2014
- **Russian President Putin** and Ms. **Tulsi Gabbard**, the first Hindu Member of the US Congress (who represents the second congressional district in Hawaii) visited India in December 2014
- **Shinzo Abe** is back as **Japanese Prime Minister** after his record victory in the Elections on December 14, 2014
- **Anoorud Jugnauth** becomes **Mauritius Prime Minister** after landslide victory on December 14, 2014
- Vice Admiral Vivek Murthy was confirmed as the 19th **US Surgeon General** on December 15, 2014
- Indian American **Richard Rahul Verma** sworn in is the **US Ambassador to India** on December 20, 2014
- **Justice** V R **Krishna Iyer** passed away on December 4, 2014; **Satyam** founder Ramalinga **Raju** gets 6-month imprisonment on December 8, 2014

Infrastructure

- **State of Meghalaya** on put on Indian Railway map on December 1, 2014 with the first train from Guwahati getting flagged off by Prime Minister Modi
- **Mumbai Metro** moves 50 million passengers in 5 months of operation in 2014
- **Kudankulam nuclear power plant** started commercial production of 1,000 MW on December 31, 2014
- Tata Singapore Airlines joint venture **Vistara** gets final permission to fly on December 15, 2014; announces its decision to start operations on January 9, 2015 on December 22, 2014
- **E-Auction for coal block** allocation starts on December 25, 2014
- **WelSpun** (World's Top 3 towel manufacturer) mill with 1,70,000 spindles goes on stream in Gujarat in December 5, 2014
- **SpiceJet** shuts down practically in December; December 31, 2014 marks the demise of **Kingfisher Airlines**

Interesting Applications

- President of India inaugurated **MobileOneApp** that offers 600+Karnataka Government services over mobile phones, on December 5, 2014
- **You Tube offline** video watching service was launched in India on December 10, 2014
- **Uber** and other Radio taxi services suffer on account of temporary ban on Uber after a rape accident involving Uber driver in Delhi
- **OlaCabs** launches App for autorickshaw in India in December 2014
- **Taxiforsure** launches car pooling service
- **Disney Learning** launches its first App **ImagicademyApp** for kids on December 10, 2014
- **AADHAR** links 100 million bank accounts by December 15, 2014
- **DCB** and **iKaaz** offer "tap & pay" solutions in the Indian market in December 2014

Interesting numbers

- **Telecom subscriber** base on November 30, 2014 stood at 964.20 million with 937.06 million mobile subscribers and 27.14 million wire-line subscribers (with net addition of 1.71 million mobile subscribers and net reduction of 0.14 million wire-line subscribers in November 2014)' of the 964.20 phone subscribers 568.72 were in urban area, while 395.48 were from rural area (TRAI Press Release No. 04/2015 dated January 7, 2015)
- **India's Foreign Exchange** on December 30, 2014 was at $ 320 billion (RBI)
- **Indian Rupee** stood at 63.03 against USD on December 31, 2014 (RBI)
- On December 31, 2014 **BSE Sensex** and **NSE NIFTY 50** (Indian stock market indices) were at 27,499 and 8,283 respectively (Reuters)
- □plunges to record low on December 29, 2014 (□63.67 for $ 1)
- Wholesale inflation drops to 0% (5-year low) in December 2014
- FII (Foreign Institutional Investors) inflow in 2014 cross $ 42 billion
- Oil price hits four year low of $ 60 on December 31, 2014 a new record
- Chinese train covers 13,000 Km - longest ever - in December 2014
- Factory output in October 2014 plunges to 3-year low of 4.2%
- On December 15, 2014 Flipkart is worth (in terms of market value) half of Wipro
- BJP has 1058 MLA's while Congress has 949 as of December 2014
- Mumbai Metro moves 50 million passengers in 5 months of operation in 2014
- Jan Dhan Yojana reaches 10 Crores new bank accounts on December 29, 2014 (ahead of January 26, 2015 target)

14 Key developments in IT in the year 2014

1. **Modi** makes it to the top: Thanks to his tech-savvy advisers, Prime Minister Narendra Modi has been using social media very effectively. He made it to the No 1 position of Reader Poll of **TIME** person of the year (**TIME** Magazine, December 8, 2014)

2. **Nokia** is no more: **Nokia** dominated global market for mobile phones for nearly 20+ years; at its peak, Nokia manufactured nearly 500 million handsets a year! With Microsoft purchasing Nokia handset business in 2012 and Microsoft Devices launching Lumia 535 without **Nokia** brand in November 2014, Nokia is no more!

3. Indians matter in IT: With India-born Microsoft employee **SatyaNadella** taking over as the third CEO of Microsoft in February 2014, history was made; in the past ten months Microsoft stock price has steadily increased and on November 20, 2014 Microsoft became the No 2 global brand, surpassing Exxon Mobile!

4. **AADHAR** gets its *aadhar*: With change of government and Chairman Nandan Nilekani entering politics, there was uncertainty about the fate of AADHAR (ID for every Indian); with renewed push from Modi government for DBT (Direct Benefit Transfer), AADHAR is getting its due, as a truly transformational project.

5. *Raja* (Government) goes to *Praja* (Citizen) thru IT: With President of India launching **Karnataka Mobile One** on December 8, 2014 that 600+ government services are available to citizens on their mobile phone, truly transforming governance.

6. Cities to go smart thru IT:100 **Smart Cities** project is a reality today; it was discussed during Prime Minister's visit to Japan, Chinese Premier's visit to India and Cisco / Google / Microsoft C.E.Os.' visit to India.With IoT (Internet of Things) getting enough attention in the year 2014, IT will transform city and municipal lives for the betterin the next decade.

7. IT makes city travel Uber cool: **Ola Cabs** and **TaxiForSure** successfully launch Apps-based taxi hailingin several Indian cities in the year 2014. In many cases travelling public is able to hire a taxi at the cost of an auto-rickshaw. Such services will fundamentally improve access to public transport for ordinary citizens in future, notwithstanding aberrations like Uber taxi case in Delhi in November 2014.

8. IT reaches healthcare to Indian homes: Serial entrepreneur K Ganesh brings down information asymmetry between healthcare providers and healthcare consumers thru **Portea**, leading to more efficient delivery of healthcare services at the doorsteps of customers.

9. IT to power the most demanding economic reform in India, viz., **GST**: Finally, the Government introduces GST (Goods & Services Tax) legislation in the Parliament in December 2014 and paves the way for a sophisticated and efficient tax administration on par with other developed countries. GST will be supported by an IT backbone (GST Net) so that GST will start rolling from April 1, 2016.

10. IT start-ups make waves: Indian e-commerce company**Flipkart** creates history; hits **run-rate of $ 1 billion** for the year 2014-15; attracts millions of dollars investment from global investors; forces Amazon CEO to announce $ 2 billion investment in India; has **Rs 610 crores sales in 10 hours** on October 6, 2014; becomes the **exclusive platform** of sale for iconic products like **Moto G** and **XiaomiMi3**; becomes the **No 1 recruiter** in IIT's, IIIT's and IIM's; e-commerce enters mainstream in India in the year 2014

11. Indian IT companies make history:**TCS** market capitalization exceedsRs 5 Lakh Crores in July 2014 (more than the combined vale of CSC, Fujitsu, Xerox, Unisys and CapGemini); another iconic company **Infosys**founders leave management control completely to professionals led by Vishal Sikka (ex SAP) in October 2014.

12. Indian Science reaches global headlines: With major successes in the year 2014 – Mars Orbiter Mission (MoM) (November 5, 2013 to September 24, 2014), satellite-launching-as-service for Germany, Canada & Singapore (June 2014), making the first moves for India's own GPS equivalent (October 2014) and stepping towards manned spaceships (December 18, 2014) - it has been a wonderful year for India. *Mangalyaan*becomes Best Inventions of 2014 (**TIME** Magazine); ISRO Chairman Dr Radhakrishnan is Top 10 List (**Nature**)

13. Global IT companies in headline news: The iconic company **HP** splits into two corporations – **HP Enterprise** and **HP Inc**., with nearly $ 56 billion turnover each on October 31, 2014; **IBM** selling off its low-end x86 server business to Lenovo in September 2014 and exiting semiconductor business in October 2014, IBM will be very different from the year 2015!

Finally, the year 2014 will be etched in gold for India (with or without IT)

14. Nobel Prize for an Indian of post-independent India: With KailashSatyarthi(born in 1954) getting Nobel Peace Prize in October 2014, history was made in India. The last time Nobel Prize was bagged by a person born in India and worked in Indiawas Sir CV Raman; it was way back in 1930. Hargobind Khorana (1968), Mother Teresa (1979), S Chadrasekhar(1983), Amartya Sen (1998) and VenkiRamakrishnan(2009) either did their Nobel Prize winning work outside India or not born in India.

Words of Wisdom

If you don't design your own life plan, chances are you'll fall into someone else's plan. And guess what they have planned for you? Not much.

- Jim Rohn

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I soon found out you can't change the world. The best you can do is to learn to live with it.

- Henry Miller

IEEE Standards Development Initiative in India

Welcome to the series of articles over this year focused on standards engagement activities of the IEEE in India. This is the first of the series which gives a brief overview of the engagement in India and over this year I plan to publish series of articles focused on key technology sectors with focus on Smart Grid, Power & Energy, Telecommunication, Cloud Computing, including standards focus on emerging technologies like IoT, Smart Cities, Software Defined Networks and eHealth. I hope you will find these articles engaging and informative and motivating to start contributing to standards development.

IEEE Standards Association (IEEE-SA), the standards development body of the IEEE, is a global SDO with over 900 standards in active publication and more than 400 standards in active development across various technical societies. These standards are developed by over 20000 volunteers globally, and 200 corporate members. The IEEE-SA is an independent organization where participants (volunteers) come together to develop standards independent of any government organization and is governed by volunteers.

IEEE-SA recognized India and its growing R&D engineers as a key community to work with as part of its global standards development program and started a focused engagement in 2012 in line with the increasing commitment of IEEE-SA to the Indian market. The engagement of the IEEE-SA started in a small way by creating a Standards Interest Group (SIG) in various key technology sectors to bring together the engineering community around core areas to understand, discuss and identify need for new standards. The SIG in many areas has now grown to a more formal engagement and participation of the technical experts in various standardization groups within the IEEE-SA.

IEEE-SA is actively looking at forging strategic partnerships in the region with government institutions, corporates and industries, R&D labs, academiaand other relevant stakeholders important to the standards development activity in India. This focused engagement will not only enable a 2-way dialog between IEEE and the Indian entities with regards to standards requirements including regulation and policy, but also disseminate IEEE's vast experience in standards development with key stakeholders and most importantly encourage development of future global standards from India. A good standard provides a balanced blend of technical alternatives, economic needs and ensures that the standards are able to be adopted across regions and countries globally. I would like to highlight that the only way that standards can become global and global standards be relevant for India is for the Indian engineering community to participate actively in standards working groups. This will enable engineers to understand the evolution and growth of various technologies and also ensure that the standards capture the Indian requirements adequately. For example, in the area of Smart Grid, IEEE-SA with over 100 standards and standards-in-development spanning the entire Smart Grid spectrum is playing the role of an ecosystem facilitator in India investing in awareness and education initiatives as well. More standards are in the pipeline providing among the most comprehensive, globally accepted and validated set of standards that enable better interoperability, connection, communication and management of the various elements that go into a Smart Grid system.

Before I talk about technology specific standards of the IEEE-SA, in my next article I will talk briefly about the standards development process, including the life-cycle of standards development, the types of standards and most importantly "How can I participate in IEEE-SAs standards development program".

Finally I would like to thank the IEEE India Council for providing me an opportunity to talk about IEEE-SA's program in India and engage into a discussion with the technical experts in this country. Please feel free to reach out to me at sri.chandra@ieee.org if you have any queries, or comments.

Srikanth Chandrasekaran
(Standards Senior Manager at IEEE India Office, Bangalore)

Information Resources

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The 11 most influential microprocessors of all time: Microprocessors are wondrous devices: They integrate the brain of a computer onto a single electronic component. The computing power that once required a room full of equipment now fits onto a razor-thin slice of silicon, usually no larger than a centimeter square. Almost everything we do these days -- such as cooking our food, driving our cars, doing our laundry, and, of course, reading articles just like this one -- depends on these mighty mites. In the wide field of microprocessors, some chips have stood out for the influence they've had technologically, culturally, and economically. They aren't necessarily the most successful, the best selling, or the most powerful, but they each started an important and persistent trend -- an architecture, a marketing concept, or a whole new use for computing. http://goo.gl/Kvr6Co

7 security mistakes people make with their mobile device: Mobile devices, especially smartphones, have ushered businesses into a new era of productivity and working on-the-go. But with those advances and added convenience comes a wealth of security blunders just waiting to happen. Here are some of the worst mistakes users can make with their mobile devices and how to avoid them. http://goo.gl/XT3ucq

8 tips to improve cyber security in the New Year: More of the same for 2015 in the security landscape: While we can—and certainly will—leverage cutting-edge technology to address new threats, we can—and must—leverage human behavior and best practices as a means for shoring defenses. Let's take a look at some ways organizations can minimize risks. http://goo.gl/yHyRuq

New Form of Memory Could Advance Brain-Inspired Computers: IBM researchers say they have developed a new form of computer memory that could help future technology match the capabilities of the human brain in terms of interpreting images or video footage. The researchers used phase-change memory to build a device that processes data in a way modeled after a biological brain. They developed a prototype phase-change memory chip that acts like a network of 913 neurons with 165,000 connections, or synapses, between them. The strength of the connections change as the chip processes incoming data, altering how the virtual neurons influence one another, a property that enabled the researchers to teach the system to recognize handwritten numbers. Phase-change memory is particularly well suited to neuromorphic computer systems because it stores data very densely, making it possible to create brain-inspired systems with many more synapses, according to IBM researcher Geoff Burr. The system is more than 1,000 times larger than previous efforts to use phase-change memory to build neuromorphic systems, which had 100 synapses or less. The researchers say they were able to build a more advanced system because they developed techniques to measure and compensate for the natural variability in the performance of each unit of phase-change memory. http://goo.gl/cZ1ecB

Evolvable Internet Architecture: The ability of the underlying infrastructure and protocols of

the Internet to grow and adapt over time is an increasingly important issue and a team of researchers at China's Tsinghua University are working to develop a framework for an "evolvable" Internet. The team, lead by professor Xu Ke at the Tsinghua National Laboratory for Information Science and Technology, seeks to combine and improve upon two previous theoretical approaches to managing the growth of the Internet, known as the "clean slate" and the "dirty slate" approaches. The evolvable Internet framework is meant to be more flexible and more stable than other models and allow for relatively easy transitions and transformations to the Internet architecture. The evolvable approach is defined by three major constraints: evolvability, economic adaptability, and management. The three constraints are meant to create an Internet infrastructure that will take into account the likely needs for growth and change, the economic circumstances of users and service providers, and the numerous network management issues that are likely to arise. One of the major features of the evolvable model is a flexible Internet address system that would allow native support for multiple regional address systems, rather than a single, worldwide system. http://goo.gl/JmTt2Y

IoT groups are like an orchestra tuning up: The music starts in 2016: If the Internet of Things didn't quite proliferate in 2014, at least IoT industry groups and standards bodies did. At least five efforts at bringing order to IoT began in 2014, and another that launched in late 2013 found its legs this year. That caused some confusion in an industry that was vast and multifaceted already. Unfortunately, all those groups will probably be here a year from now, too -- maybe even more of them. http://goo.gl/29SXPX

Undo! How Gmail Let's You Unsend Emails: Uh oh. You hit send. Was that really the way you spelled the boss' name? And you CC'd how many people in the company on that email? To rescue you from that nightmare scenario, Gmail has a great feature to make sure those emails never get opened. It's called the Undo Send feature. When you set up your Gmail account to give you the option, you are given up to thirty seconds to hit "Undo" and make sure no one ever sees your email mistakes. Here is how to set up your Gmail account to offer you the Undo Send option. http://goo.gl/jx1iB7

2014: The tech year in cartoons: From Satya Nadella's rise to the top spot at Microsoft to the emergence of 3D printing and the Internet of Things, here's a look at some of the year's biggest IT stories from the pen of Computerworld's editorial cartoonist, John Klossner. http://goo.gl/RjrPQa

8 Free Online Courses to Grow Your Tech Skills: The cost of learning just got cheaper. CIO.com tracked down these eight free ways to grow your technology skill set. http://goo.gl/l1qMLH

Texas Instruments builds an alternative energy for the Internet of Things: The Internet of Things is nothing without batteries and plugs. But it's possible to build a sensor network that uses harvested energy that comes from changes in temperature, vibrations, wind and light, as Texas Instruments (TI) will demonstrate at the Consumer Electronics Show in January 2015. The idea of harvesting power has a long history and there are many applications of it today. However, big solar panels or large sensors that can capture energy from vibrations, heat and light are impractical in many Internet of Things sensor applications, which are tiny in size. http://goo.gl/1iUrSY

Top 10 Tech stories 2014: Backlash! Disrupting the disruptors: Blowing up entrenched business models and picking up the profits that spill onto the floor is a time-honored tradition in tech, these days known by the cliche of the moment, "disruption. This year everyone was trying to push back against those upstarts, whether by buying them like Facebook did, reorganizing to compete with them like Hewlett-

Packard and Microsoft have done, or just plain going out against them guns blazing, as it seemed that every city and taxi company did with Uber. European courts fought the disruptive effect Google search has had on our very sense of the historical record. But meanwhile, legions of net neutrality supporters in the U.S. spoke up to save the Internet's core value of disruption against the oligopoly of a handful of communications carriers. http://goo.gl/5RSWcp

10 Social Networks Aimed at Improving Enterprise Collaboration: Historically, social networks were designed for consumers to keep in touch with friends or find out what family members are doing. Friendster and MySpace were once dominant in social networking, but are now distant memories. Today, the king of social networking is Facebook, followed by Twitter, Google+ and many others, and social networking is alive and well. Perhaps that's why social networking is increasingly making its presence felt in the enterprise. On Jan. 14, Facebook launched a limited release of its enterprise social networking service, Facebook At Work. The offering is designed to allow companies to create their own social networks to improve productivity and efficiency. More importantly, the announcement puts Facebook in direct competition with a range of major competitors. Whether it's Microsoft's Yammer or Slack or one of the many other services out there that cater to companies' social needs, the corporate world is embracing the idea of collaboration more and more. Now, Facebook is playing a major role in that space. eWEEK examines Facebook at Work and several other social networks that take aim at the enterprise and try to help companies collaborate far more effectively. http://goo.gl/oidUwh

15 Out-of-the-Box Predictions for IT This Year 2015: Years ago, when he was asked whether Web services were going to be the "next big thing," Oracle co-founder and then-CEO Larry Ellison responded: "I've spent too much time in Italy to know that you shouldn't ignore fashion." In tech, we like nothing better than a new trend, because they become new products—and eventually new income streams—for enterprises. We also know that fashion matters, so we've learned that it's generally best to get on board with it—or at least become familiar with fashionable trends—if at all possible. In the IT industry, we also like to look ahead, based on what we experienced in the past, to anticipate what important trends are coming, so that we can be aware of new ideas in order to stay competitive. "IT marketers have proven to be masters at hyping new trends, setting unrealistically high expectations for them and then, when the dust settles, sometimes making money," wrote Jeremy Burton, EMC's president of products and marketing. In this eWEEK slide show, we offer 15 predictions for IT in 2015 from industry executives that may raise an eyebrow or two, depending upon your own knowledge of the industry. http://goo.gl/038pIA

10 questions to ask when interviewing candidates for IT positions: Finding the best person for an IT position requires more than just matching up skills with job requirements. These questions will help you determine how well a candidate can really meet your needs. Hiring IT staff is a difficult task, and too many IT leaders leave it solely in the hands of HR. Here are 10 questions you can ask potential IT hires -- and an explanation of what each question can tell you about the candidate. Useful to hirers and candidates. http://goo.gl/Z9bXb5

10 lessons IT learned in 2014: From implementing real-time big data processes to managing internal social media, 2014 brought many changes and challenges. Drawing on those experiences can help you build your strategy for 2015. http://goo.gl/yJSeIZ

10 ways IT can hit the ground running in 2015: Kick off the New Year with these smart practices for propelling your IT department -- and your company -- toward success. http://goo.gl/5nY4NN

Ten industries that IT will revolutionize in the years ahead: Almost every industry — from food to education to healthcare — is adding IT services. Here are ten places to watch for high-tech disruption in the coming years. http://goo.gl/JyQLzP

2014 Global Report on the Cost of Cyber Crime: The incidence and cost of cyber crime is escalating. The headlines show us that. But now the Ponemon Institute provides the numbers you need to plan and manage your investments in cyber security. One of the major findings of the 2014 Global Report on the Cost of Cyber Crime is that investments in security personnel, processes, and technology can reduce your losses. Download the complete report to learn: What kind of attacks are most common and most costly; Which security activities receive the most investment by respondents; and How deployed security information and event management (SIEM) affected losses. http://goo.gl/0y78Cc

10 enterprise startups to watch in 2015: Enterprise startups proved a hot commodity in 2014, and there is no sign of slowed growth for these new companies looking to impact the business world. Big investments and big exits accompanied massive valuations for enterprise stalwarts such as Box, Dropbox, MongoDB, and Zendesk. This stoked the interest in the enterprise space for entrepreneurs and investors alike, and we are just starting to see the fruits of that renewed interest. Additionally, venture capital investing hit its highest point since 2001 early in 2014, setting a strong foundation for startups in the coming years. Here are 10 enterprise startups that you should keep an eye on in 2015. http://goo.gl/IHk528

Tech doing good: 10 inspiring stories on TechRepublic in 2014: This year, TechRepublic published a lot of stories about companies that use technology to solve real problems. This includes stories about technology's positive effects on the conservation efforts, technological advancements in medicine, and the increasing awareness and education about women in STEM fields. Here are 10 stories we published this year that focused on businesses and organizations using technology for the good of the world. http://goo.gl/gFwmrm

How recycled solar powered phones could save rainforests and change how the tech industry tackles climate change: An old cell phone is encased in solar panels, perched high in the tree canopy in the middle of the rainforest in Sumatra, Indonesia. It's constantly listening to the sounds of the forest -- the insects, the leaves, the wind, the hundreds of species of animals. Inevitably, the phone will catch one more sound: that of a chainsaw, cutting down a tree up to one square mile away. The sound and location data is automatically sent to the cloud, and an alert is sent to rangers patrolling the forests who can stop the loggers in their tracks. Stopping them could change the course of climate change. About 17% of greenhouse gas emissions come from deforestation, according to the World Wildlife Fund. One of these devices protects enough trees from logging to prevent 15,000 tons of carbon emissions from entering the atmosphere. Rainforest Connection is the startup behind this project, and it was recently fully crowdfunded on Kickstarter, raising $167,000. The goal was $100,000. It's no $5 million like the Veronica Mars movie raised, but that's not the point. The Rainforest Connection team is trying to do much more than just save the rainforest and decrease greenhouse gas emissions. They want to completely transform how we understand and use technology to solve global problems. It's an experiment, and so far, it's worked the way they hoped it would. http://goo.gl/EvunqJ

10 big data projects that could help save the planet: Conservationists have been gathering data on the natural world for years. They analyze it as best they can and use it to make important conservation decisions to ensure the protection of wildlife and habitats. With big data and cloud technology, however, conservationists are starting to open that process to the public. Crowdsourced information is allowing them to more quickly receive updates, and better analytics platforms are improving accuracy. Here are 10 conservation projects around the world -- from tropical rainforests to the Arctic tundra -- that use big data technology. http://goo.gl/Q38BhU

40 under 40: Real difference makers in tech and business: Fortune's "40 Under 40" for 2014 is filled with a lot of the usual suspects in tech and business -- Mark Zuckerberg, Jack Dorsey, Brian Chesky, Kevin Systrom, et al. Sure, they make plenty of money and their products have changed our behavior, but that doesn't necessarily mean they are making a positive impact on the real problems in the world. Though Fortune has specific criteria, most of the list looks as though it is only determined by net worth and fame, not exactly real impact on the world -- sorry, Ivanka Trump. We created a list of tech and business leaders who are doing some powerful good for the world. They are social entrepreneurs, clean energy leaders, tech startup founders, CEOs, and other influential characters in business. There are some who have made waves this year, and others who have flown under the radar. Either way, we think you should know about them. http://goo.gl/PBPKIR

10 Tricks That Will Boost Your Google Search Skills: Did you know Google searches can do a lot more than just provide you with a bunch of useful links? These ten tricks will help turn you into a Google ninja. http://goo.gl/zIGqwA

Free eBook: "Shaping an Engineering Career -- Book 1: Responding to Career Challenges -- A Personal Journey" can be downloaded from for free by IEEE members. The Shaping an Engineering Career Series of e-books describes the challenges that practitioners, academics and their managers, in the engineering and related disciplines, face in building their careers. This series will document the personal history of selected engineers and describe their journeys in transitioning from entry-level employees to either technology professionals or managers. Note: Throughout this document, the use of the term technology professional includes all people working in the technology related fields; scientists and engineers in all disciplines; hardware and software developers; and all others involved in the implementation of technology to a deliverable product or service. http://goo.gl/fLZxqf

Breeding flies and edible plastic: the kitchen of the future: You might have heard of edible insects, but have you considered eating plastic? From 3D printed nutrients to smartphone-controlled mini gardens, this is the future of the humble kitchen. he kitchen of the future will be full of cutlery that cleans itself, Willy Wonka-style food pills and edible packaging, according to forecasting agency Trendstop. It also predicts that by 2063, fresh, organic produce will be in high demand and we'll be turning our backs on supermarkets to go hyperlocal and grow our own food. So what are the future-thinking innovations that might influence how we produce food and what we do with our waste? http://goo.gl/qyA70m

CES 2015: A photo tour of the best and most interesting stuff: CES 2015 was full of smart gadgets, wearables, 3D printing, and IoT technology. These photos highlight the best stuff that the TechRepublic staff saw at the world's biggest tech conference. http://goo.gl/ASy1Ed

Tech doing good: The other side of CES 2015: Take it at face value, and CES seems like the most superficial, materialistic show there is. And in many ways, that's true. But after a look around the conference, it was evident that there are so many products, services, and gadgets out there that are doing great things for science, math, education, art, health, and more. Here are 10 inspiring, important things I saw at CES this year. http://goo.gl/Ky2Qz1

The best crowdfunded tech at CES 2015: One of the most exciting things about CES 2015 was the sheer number of companies that were there because of crowdfunding. In 2014, crowdfunding really took off, and startups in every industry -- from software to 3D printers to wearables -- benefitted from crowdfunding platforms. They democratize finance, allowing people of any demographic or socioeconomic background to start a business and get their product out to the world much faster than the traditional routes. Some of the biggest booths at CES -- especially those in the 3D printing, gaming, and wearables sections -- were started by a couple of people or a boostrapped startup that used Kickstarter or Indiegogo to ask the masses for money. Indiegogo actually had a section of the show floor with booths for some of their highest-funded gadgets in recent years. Here are eight of the most impressive crowdfunded products at the show. Most of them were funded using Indiegogo or Kickstarter, but others were done via smaller platforms or on their own websites. http://goo.gl/5phAfk

We-commerce: The sharing economy's uncertain path to changing the world: Peer-to-peer collaboration is gaining ground and changing the economics of the future, but there are questions to answer and obstacles to overcome. The sharing economy is here to stay. It is a small but rapidly expanding market that is transforming social, economic, and environmental practices. http://goo.gl/JEUX1S

Cloud sounds: What the latest tech revolution means for the future of making music: As cloud collaboration changes expectations, the music industry is primed for disruption. A new breed of cloud tools is enhancing how artists in separate locations create beautiful music together. http://goo.gl/S9txIR

Why AI could destroy more jobs than it creates, and how to save them: Automation may be destroying jobs faster than it's creating new ones, but all hope isn't lost. http://goo.gl/dw4WDt

Words of Wisdom

Above all else, go with a sense of humor. It is needed armor.
Joy in one's heart and some laughter on one's lip is a sign
that the person down deep has a pretty good grasp of life.

- Hugh Sidey

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You need to know what life you want (as well as what
life you don't want), then you have to muster up the
will and the drive to go after it.

- Bob Greene

IEEE NEWS
From Around India

IEEE INDICON 2014

IEEE Pune Section had the privilege of organising IEEE INDICON 2014 at MDC, YASHADA, Pune. It was scheduled from 11th Dec - 13th Dec 2014. INDICON is annual conference conceptualized by IEEE India Council in the field of Computer Science and Engineering, Electrical Engineering, and Electronics and Communication Engineering in general. Over the past few years, INDICON has emerged as a well recognized and an eagerly anticipated event in the country because of its high quality technical sessions and the networking opportunities it provides.

We are happy to report to you that this year we received over 1600 high quality submissions for possible presentation at INDICON from more than 22 different countries. The papers were reviewed and the technical program committee finally selected 164 papers for oral presentation and 178 papers for poster presentation. Technical program of INDICON 2014 consists of 4 plenary sessions, 8 keynote address, 7 technical tracks, 35 special sessions and 6 tutorials. We have also introduced researcher's symposium this year with an objective to provide an opportunity for researchers and aspirants to showcase/ discuss their in-progress research / research problems identified/ state of the art and idea incubation.

The conference was inaugurated on 11th December 2014, Dr. Rajkumar Buyaa, Director of Clouds and Distributed Systems Laboratory, University of Melbourne, Australia, Dr. Thomas Conte, 2015 IEEE Computer Society President, Dr. Vijay Bhatkar Chairman of ETH Research Lab, Dr. Rajat Moona Director General C-DAC, Dr. Rajesh Ingle Chairman, IEEE Pune Section, Dr. D.J Doke and Prof G.S. Mani were present for the function.

Tutorials were conducted on Reliable Real Time Embedded Systems , Emerging Trends in Robotic Development in India al , Smart Grid: Secure and Sustainable Energy for all forever , An Overview of High Performance Computing, and Grid & Cloud Computing 5: Introduction of Mathematical Modelling .

This year's INDICON also witness keynote presentations by Dr, V. K. Saraswat, former Secretary, Department of Defence R&D, Scientific Adviser to Raksha Mantri & Director General of DRDO & ADA,

J. Roberto de Marca, IEEE President and CEO, Dr. Rajkumar Buyya, Director of the Cloud Computing and Distributed Systems (CLOUDS) Laboratory at The University of Melbourne, Australia, Dr. Vijay Bhatkar, Bhatkar Chairman of ETH Research Lab, Dr. Vidyasagar Potdar, Curtin University, Australia and Dr. Thomas Conte, 2015 IEEE Computer Society President. Cultural program organised by PICT IEEE Student Branch and Art circle PICT was well appreciated.

The conference valedictory function was held on 13th December 2014, Dr. Andre Obler was present for the function and delivered the talk on social network security.

We would like to express our sincere appreciation to members of IEEE India Council and volunteers of various committees and reviewers of INDICON 2014. The conference with such scale will not be possible without everyone's strong commitment, efforts and support from partners. Last but not the least, our sincere gratitude goes to all the authors and invited speakers, for their participation and providing the intellectual sharing on experiences.

Dr. Rajesh Ingle
General Chair

REPORT OF WESI 2014

An IEEE Workshop on Electrical Safety in India (WESI 2014) was held during 19-21 November 2014 at Pune, India by IEEE IAS/PES Chapter, Pune Section. Industry Applications Society IEEE, USA was a technical cosponsor. In the past four similar workshops were organized since 1998 in various IAS Chapters in India all of them with IAS as a technical cosponsor.

Blake Lloyd, IAS President participated and spoke in the inaugural session of the WESI 2014 in Pune. There were 16 presentations with 164 attendees, 15 % being women. Topics of presentations included protection against shock, arc flash, safety audits, grounding, regulations and recommended practices, safe work practices and case studies. A souvenir with abstracts and exhibits of products and services were arranged with 16 advertisers and exhibitors. There was good interaction among the attendees, presenters and exhibitors. The workshop's discussions and presentations were summarized during the panel discussion at the concluding session. Main problems and measures for reducing accidents in India were listed and prioritized. The list included lack of qualifications, training, poor maintenance, non-implementation of simple safe work practices, public awareness campaigns and inadequate enforcement of existing standards and regulations.

All India Computer Society Student Congress 2014

The All India Computer Society Student Congress 2014, the third IEEE CS Student Congress in India was organised by IEEE Pune Section in association with PICT IEEE Student Branch at Pune on 13 th and 14 th December 2014. The event was held collaterally with INDICON 2014, the flagship conference event of IEEE, in India. The venue of the event was the picturesque Yashada, Raj Bhavan Complex, Baner Road, Pune.

AICSSC 2014 witnessed participation from sections all over India, the highest participation being from Kerala. We had students from IEEE Bombay Section, IEEE Pune Section, IEEE Gujarat Section and from IEEE Madras Section. We also had students of CDAC (Centre for Development of Advanced Computing) institute attending the event. Despite each section having their exams during this period, we managed to pull a crowd of 80-odd students nationwide.

The theme of the Congress this year was 'Internet of Things'. IoT is a trending technical topic in industries today and grabs everyone's attention of students and academicians alike. The theme was well-received on social media.

Day 1 of the Congress was kick-started by talks delivered by our dignitaries. Mr. Thomas Conte (IEEE CS President 2015) spoke about the unexplored territories of Rebooting Computing and shared information on how best to create a career path in the same domain. Ms. Angela Burgess (Executive Director, IEEE CS) enlightened us all about IEEE CS and the multi fold benefits a student can draw from being a member. Mr. Girish Khilari (Chair, IEEE CS Pune Section) addressed the students as well and thanked the dignitaries for gracing the Congress.

A pre-Congress workshop was arranged based on our theme 'Internet of Things' after the talks on Day 1. It was conducted by eminent professionals from DataTorrent Inc. Mr. Sandeep Deshmukh spoke about Hadoop Ecosystems, Mr. Ashish Tendulkar about Data Mining while Mr. Parikshit Mahale briefed everyone about IoT. Students got an opportunity to explore the concepts of Big Data, Hadoop and IoT in great depths. Before breaking up for lunch, we had an interaction session for the members of different sections. Everyone showed great enthusiasm and shared their experiences and activities from their respective Student Branches and Sections. Post-lunch Dr. Suresh Kothari delivered a gripping talk that was apt for wrapping Day 1.

The Congress was inaugurated on Day 2 in the presence of the following dignitaries - Dr. Rajesh Ingle (IEEE Chair, Pune Section), Dr. Satish Babu (Director, International Centre for Free and Open Source Software), Dr. Andre Oboler (CEO of the Online Hate Prevention Institute, Asia and Pacific Coordinator for the IEEE Computer Society and Chair of the Society's Students Award Committee globally), Dr. M. Ponnavaiko (Chair, IEEE India Council and Vice Chancellor, Bharath University, Chennai), Mr. Girish Khilari (Chair, IEEE CS Pune Section) and Mr. Rajat Moona (Director General, Centre for Development of Advanced Computing (C-DAC)).

The traditional lamp-lighting ceremony was followed by talks delivered by Dr. Andre Oboler on online hate prevention, Dr. Satish Babu and Mr. Aditya Rao on the emerging trends in technology. Prof. G.S. Mani (retired after 40 years with DRDO) spoke about how research could be inspired by nature. The talks were followed by another interaction session and students also interacted with speakers personally.

It was followed by students sharing the stories of their IEEE journey. Feedback was taken from every participating student. After a sumptuous spread at high tea, we thanked all the participants, gave away certificates, T-shirts and official IEEE Computer Society goodies. A photo session was conducted with all the participants which ended the event on a merry note.

Technology, Future Work and Careers
Technology and Education - 1

Technology

Technology is the step-child born out of the scientific nature of the human mind, creativity, and work. It feeds on change, and thereby grows. Today, societies, civilizations and countries want to parent and adopt.Technology operates on the fundamental principle of change – and for humanity it simply means -change before it gets you to get-changed. The potential associated is immense and enduring. The roots of technology start with the age of reasoning attributed to the start of the scientific revolution. And ever since the era of logic and reasoning kicked in, technology has been the key driver of businesses, markets, enterprises and economy that create a thriving civilization.

As technology advances automation occurs, blowing out peoples…..this is the general social perception, while this is really not true. In simple terms, advancement can be attributed to a betterway of doing things and activities – with increased speed, focus, and efficacy thereby creating best values. For example as cited by economist Gregory Clark that with the coming of the steam engine, horses were replaced and by 1924 workers could not support the feed to the horses they owned and so remained unemployed and perished; NO. In fact the truth is; as steam power advanced and spread throughout industry, more people (human workers) were needed, not for their raw physical strength but instead for other human skills : physical ones like locomotion, dexterity(cleverness), coordination, and perception, including mental ones like communication, pattern matching and creativity.And each cycle of technological-change brings with it such intense attributes.

Change in technology brings changes in three spaces – personal, professional, and social space. Although all the three spaces are connected and affect each other, but we will share a few key challenging aspects and attributes that drive. In the personal space, technological changes snatches time, family attention and space for self-development; in the professional space it demands attention, revisions in learning (new skills and knowledge), employment work profiles, productivity, wages-packet, work-timings, insurances and other covers leading to higher stress levels. And finally in the social space, this simply means less time form community services, friends, entertainment, holidays, civic responsibilities - giving back to people and societies. In short, major technological advancements structurally change the operational aspects of the three spaces – traditions, culture and values. That day may not be far when humanity can develop an anti-technology culture!

A cure for racing with machines

Digital progressis starting to head peak, it has become so rapid and relentless that people and organizations are having a hard time keeping up……Thus, it is important to focus on recommendations in three areas:

- To examine the nature, rate, and quality of organizational innovations and creations in terms of products and services.

- And increasing human capital – in terms of work and employment by ensuring that people not only have the skills but also creativity they need to endure.Because, at the end of the day, people will still find **creative ways** to using their skills and talents to make a living….
- Creativity is a truly human attribute that machines lag – creativity is the key.

Such an approach will benefit allowing human workers and institutions to race with machines and not against them!

Future of work

Today, clearly, there is blurring of boundaries across professional, social, and personal spaces - work, leisure, and self development are intertwined. As far as the professional space is concerned, Work will be about discovering people's wants and need; and thereby creating doable solutions to fulfill them. We can summarize as below:

1. **Understand the future** – opportunities, issues, and concerns via the path of agility and foresight.
2. **Focus on them** - "what may be the problems in future"?
3. **Explore and Design multiple solutions:** And then invent a job-profile that will solve it.
4. **Select the best solution:** In terms of socio-economic-environ-impact

The way we measure productivity will be less focused on time (hours) spent (in office or otherwise) and more about the value of the ideas we bring on table, and the quality of output we deliver – under all kinds of pressures – arising from the three spaces.

In the earlier times people had a sense of job security– mathematically speaking. They could calculate precisely their monthly earning, or yearly accumulated balances, and thereby maintain large amounts of debt.

The new trend envisage us to rethink, redefine, and broaden our sources of economic security (mathematically unpredictable), to the extent that people are **developing a border range of skills (***multitude of skills***)**, as we become more resilient **(***capable of rebounding after bend***)** and capable of adapting to changes. In the light of this fact, the old and young will go back to school to acquire new knowledge and skills, including those with jobs in hand.Finally, people will redefine what they truly need in physical sense and discover better ways of fulfilling their needs.

This will involve sharing and making smarter use of existing assets / resources we already have (*attributes like ownership for life will disappear, retirement from a company - permanent jobs will vanish, primarily because of the license/permit agreements and marketing policy*), thereby setting a new trend where most businesses and organizations begin to share expertise and resources – competing globally. The outcome would be an economy that balances the need between economic efficiency and human values.

Multitasking Careers – a way of life

The best plan would be to have additional parallels of side plans (opportunistic add-on's), apart from the main stream job work.The side work-activity could include: money-making activity that is doable, enjoyable, and achievable in a nonlinearly distributed short time-frames – as lunch and recess

times will vanish, and free time will be non-linear and mostly unpredictable. Such additional work-alignments can generate quick cash flow, with minimal investments.Examples of such work-activity could be: web-design, photography, cooking, art, personal training, coaching, or consultancy.

The new norms are to **maintain and develop skill sets in multiple areas for opportunistic simultaneous careers**. In this environment, the *ability to learn is something of a survival skill – the key is to self: learn-aware-motivated*. Education never stops, and the line between working and learning becomes increasingly blurred.

So; the present scenario humbly envisages the emergence of new work culture…

The word "fixed" has changed to become "dynamic". Fixed hours, fixed location and fixed jobs are quickly becoming a thing of the past, for most industries as opportunities become more fluid and transient (cultural and attitudinal change) including markets.The 40 hour per week is becoming less relevant as we see more subcontractors', temps, freelancers, and self employed. We forecast that these "*contingent workers*" now make up a third of the workforce.

Further uncertain economics make long-term employment contract less realistic or unreal, while improvement / advances in communications make it easier to subcontract complex jobs to knowledge workers who log from airports, homes and coffee shops (new ways of working – a new concept model).

YogeshwarKosta
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(Dr Kosta is presently working with Marwadi Education Foundation Group of Institution at Rajkot, Gujarat as Director and he is Senior Member of IEEE.)

Words of Wisdom

We must always change, renew,
rejuvenate ourselves; otherwise, we harden.

- Goethe

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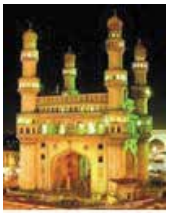
I really believe that everyone has a talent, ability, or skill
that he can mine to support himself and to succeed in life.

- Dean Koontz

* * * * * * * * * * * *

Determine never to be idle. No person will have occasion
to complain of the want of time who never loses any. It is
wonderful how much may be done if we are always doing.

- Thomas Jefferson



2015 IEEE IAS Joint Industrial and Commercial Power Systems/ Petroleum and Chemical Industry Conference 19-21 November 2015 Hyderabad, India

By IEEE Hyderabad Section IAS / PES / PELS Chapter

TECHNICAL CO-SPONSORS:

1. IEEE Industry Applications Society (supported by I&CPS Committee, PCIC)

2. Asia Power Quality Initiative www.apqi.org

CALL FOR PAPERS

In Asia we have well established periodical conferences in utility size power systems and power electronics subjects. There is however no conference in the area of industrial applications of electrical systems. The 2015 IEEE IAS Joint Industrial and Commercial Power Systems / Petroleum and Chemical Industry Conference is planned to meet this need. The objective of the conference is to help you to provide a productive, reliable, safe, and economical industrial electrical systems.

Technical papers without commercialism are invited on topics listed below:

* Industrial and commercial power system design, operation & maintenance
* Protection of LV / MV systems * Drives, transformers, cables, lighting
* Electrical safety * Power quality * Codes and Standards
* Renewable Energy systems, Energy storage and energy efficiency.

* Topics related to the application of electrical technology, equipment and systems of interest to petroleum and chemical industries.

Papers are subjected to peer review and if accepted are published in the Conference Record. All the accepted papers which are subsequently presented in the conference will be included in IEEE Explore. They will be subsequently evaluated for possible inclusion in IEEE Transactions on Industry Applications and Industry Applications magazine. The authors are required to register and present the papers in conference.

Submission Deadlines:

• Paper proposal	15 March 2015
• Notification of acceptance	1 May 2015
• Draft of the paper for technical review	1 July 2015
• Comments / suggestions of review	15 Aug 2015
• Finished Manuscript	1 Oct 2015

To submit a paper proposal, go to

http://www.ieeehyd.org/ias-abstract-submission-form/

The following information must be included with the paper proposal:

Title of the paper, Name, education, work experience, affiliation, email and postal address of author(s), an abstract in maximum 500 words of the paper.

For conference information / updates visit web site: www.ieeehyd.org

Conference General Chair: C. Satish, Life SMIEEE, Hyderabad
c.satish@ieee.org

Technical Program Committee Chair: Professor R Balasubramanian,balu@ieee.org

IEEE Kerala Section

Inaugural Ceremony of Signal Processing Society Chapter of IEEE Kerala Section

The scheduled inaugural ceremony was successfully held at the Mascot Hotel, Trivandrum, Symphony Hall on 17th December, 2014, between 11:00AM-12:00Noon. The event was presided by Mr. Srinivasan Raveendran, Chair IEEE Kerala Section. Dr K.Suresh, Vice Chair, Signal Processing Society, welcomed the august audience. Prof.(Dr) K.C.Raveendranathan, Chair Signal Processing Society, indicated the future plans and domains of activity of the IEEE SPS. In the inaugural address Prof.(Dr)K.S.DasGupta, Director IIST Trivandrum, highlighted the need of penetration into the fundamentals of mathematics. He also extended the willingness to avail technical support from IIST to strengthen the activities of the society.

Mr. Rajeev Kumaraswamy, Principal Research Engineer, QuEST Global, delivered the keynote address. He delivered a talk on Big Data Analytics in Signal Processing. The talk highlighted on the various dimensions in which the signal processing tools will be useful to the industry in the near future. The talk also brought out areas in which the academic community could contribute in terms of research and community contribution. Over 30+ IEEE and SPS members attended the event.

International Symposium on Antennas and Propagation (APSYM)

International Symposium on Antennas and Propagation was held during 17.12.2014 -19.12.2014 at the Cochin University of Science and Technology with sponsorship from IEEE APS Kerala chapter. Formal inauguration of the Symposium was presided by Dr J Letha, Hon. Vice Chancellor, CUSAT and was inaugurated by Prof Tapan K Sarkar. The Symposia Proceedings was released by Prof. Poulose K Jacob, Hon. Pro-Vice Chancellor, CUSAT.

The Symposia was attended by nearly 240 delegates from India and abroad. The organisers had arranged 15 invited talks by eminent personalities like Dr. Goutam Chattopadhayay, NASA JPL, Prof.

Satish Sharma, San Diego University, Prof. Vikass Monebhurrun, SUPELEC, France, Prof. Magdalena Salazar Palma, Spain, Dr K P Ray, SAMEER, Mumbai, Dr. S N Joshi CEERI Pilani, Prof. Debatosh Guha, Kolkata University, Prof. Girish Kumar, IIT Mumbai, Dr. Hema Singh, NAL, Bangalore, Dr. U Raveendranath, NAL, Bangalore, Prof. C. S. Sridhar, BIT, Bangalore.

Total 106 research papers were presented in 3 parallel research sessions during the 3 day symposia. All sessions received good attendance and participation from the scholars. A poster session was also arranged as part of APSYM 2014. The cultural vibrancy of Kerala was presented to the delegates on 18.12.2014 along with the conference dinner.

Inauguration of the International Symposium on Antennas and Propagation (APSYM 2014) by Prof. Tapan K. Sarkar

Presidential Address at APSYM 2014 by Dr. J. Letha, Hon. Vice Chancellor, CUSAT

A glimpse of the audience, APSYM 2014

Release of the Proceedings, APSYM 2014

The team of organizers of APSYM 2014

IEEE Kerala APS workshop on Electromagnetics Education

IEEE APS workshop on Electromagnetics Education was held on 18.12.2014 - 19.12.2014. The program was inaugurated by Prof. Tapan K Sarkar, President IEEE APS, on 18th December 2014. After the inauguration he has delivered a talk on the topic "What was Maxwell's Contribution to Electromagnetics?" This was followed by a talk on "Relevance of dispersion and related concepts in Electrical engineering education" by Prof. Magdalena Salazar Palma, Past President IEEE APS. Post lunch session was a panel discussion on Electromagnetics Education which focused on promoting Quality Electromagnetic Education in the country. Prof. Parveen Wahid, IEEE APS Women in Engineering Chair, USA in her introductory remarks, stressed upon the need of EM faculty keeping abreast with fast changing technology, thus motivating the students for better learning. Prof. Selvan K T, Chairman, IEEE APS Madras Chapter, highlighted the challenges to EM education and the need for continuous deliberations. Chairing the Session, Dr. S Pal, Distinguished Scientist, ISRO spoke on "RF/Microwave education and training – Challenges and Issues". Prof . K.G.Nair, Director C-SIS CUSAT expressed his concern on the "Future of EM education" laying stress on the fact that creating interest in students depends a lot on teachers, and also cautioned that, else the students would be repelled from the subject. Prof. R.K. Mishra, Behrampur University, during his talk on "Curriculum and lifelong learning", urged the young faculty to probe into the topic and do full justice to what is to be done. Dr. Binu Paul, School of Engineering, CUSAT while presenting her topic, "Retaining Students' Interest" focused on the antipathy of the students towards EMT (Electromagnetic Theory), evident from the fact that they refer to the paper as a "DSP" (Degree Stopping Paper).In her concluding remarks, Dr. S. Mridula, the rapporteur commented that the general feedback from the participants of the workshop indicated that they longed for more teaching – learning sessions on Electromagnetics. She promised more such sessions in the Workshops to follow after collecting the topics of interest from the participants. Prof. P. Mohanan, Chairman, IEEE-APS Kerala Chapter, promised to make available video recordings of the experiments being done at the Centre for Research in Electromagnetics and Antennas, CUSAT. A visit to the Centre for Research in Electromagnetics and Antennas and the Centre for Science in Society, CUSAT was arranged after the Workshop.

Based on the deliberations at the Workshop, the following steps may be taken for promoting quality Electromagnetic education in the country.

1. Organize frequent teaching - learning programs in selected topics of Electromagnetics for the Faculty and provide hands – on experience in designing a typical microwave circuit, including theoretical approach, software simulation, fabrication and testing.
2. The faculty ought to develop a passion for the subject through intense reading. In depth knowledge in the topic will serve them better in conveying the essence of the matter.
3. Passion and enthusiasm of the faculty will be automatically transferred to the students.
4. Give class assignments or take home tests to students which will enable them to think and probe more into the subject
5. Encourage the students to write MATLAB codes and create replica of the figures in standard text books.
6. Make the class interesting, tracing the history and providing illustrations.
7. Give them topics beyond syllabus and encourage them to make small presentations in the class.

8. Plan the class well so as to cover the syllabus as per schedule, at the same time find time for fruitful discussions.
9. Cite examples of people who made it BIG in Electromagnetics and motivate them to reach greater heights.

Inaugural Function of the workshop on Electromagnetic Education

The Delegates along with the resource persons and organizers

International conference on Computational Systems and Communications

International conference on Computational Systems and Communications in association with LBS institute of Science and Technology for women, Trivandrum, December 2014.

- Received 187 paper
- 3 reviews / paper
- 62.57% acceptance ratio

Annual General Body Meeting on 10th January, 2015

The 32nd Kerala Section Annual General Body Meeting was held on the 10th of January, 2015 at Hotel Mascot, Trivandrum.

Newly Elected office bearers are

- Chair: Mr. Unni Sankar, Associate General Manager, Quest Global.
- Vice-Chair: Dr. Sameer S M, Associate Professor, NIT Calicut.
- Secretary: Ms. Sarada Jayakrishnan, Dy. General Manager (O), Terumo Penpol Ltd
- Treasurer: Mr. Jithin Krishnan, Scientist D, SCTIMST.

Congratulations**:**

Global Awards and recognitions : 2014

- Congratulations to Kerala SIGHT on being recognized as Notable SIGHT Group of 2014
- **Ms. Sarada Jayakrishnan**: Winner of the R10 WIE Professional Volunteer Award
  - Ms. Sarada Jayakrishnan demonstrated strong leadership for promoting outstanding and innovative WIE activities for the Kerala Section. Her dedicated performances are really respectable.

- **Prof. V. K. Damodaran & Mr. Ranjit Nair**: Meritorious Achievement Award in Continuing Education for contributions to the design and delivery of faculty training modules that improve the quality of educational instruction and student learning
- **Mr. Satish Babu**, former Chair, on being conferred CSI **Fellowship**, the highest professional distinction conferred to a person of outstanding qualifications and experience in the fields of interest to CSI, who has made important individual contributions to one or more of its fields.
- **Dr. Suresh Nair**, Founder, Innobreeze Technologies and Chair, IEEE Kochi Sub-Section was listed topper in the **DST Lockheed Martin Innovation award** for its innovation on "Noninvasive Oral cancer detection device".
- **Mr. Bibin Parukoor Thomas & Mr. Jaison Abey Sabu**
  - on being members of the IEEE Day team selected as a Recipient of the 2014 MGA Achievement Award
- **Richard E Merwin Scholarship**

Three students as follows were recipients of the REM Scholarship.

- Athul Balan E. A - Amrita Viswa Vidya Peedham SB
- Kevin Martin – College of Engineering Trivandrum
- Pranav Raj - College of Engineering Trivandrum

- **Darrel Chong Award**
  - IEEE Amrita SB won the Silver award for IEEE International Symposium on Education, Technology and Entrepreneurship (ISEE) 2014

- **Outstanding Branch Councillor Award**

o Ms. Sunitha Beevi, TKMCE, was awarded with the Outstanding Branch Councillor Award

MGA / EAB Positions : 2015

- **Mr. N.T. Nair,** Life Senior Member of IEEE was nominated to the IEEE Life Members Committee

- **Prof. V K Damodaran**, Life Senior Member and advisor to IEEE Kerala Section has been invited to be a member of IEEE EAB Committee on Global Accreditation Activities.

- **Mr. Amarnath Raja** continues as the member of IEEE Humanitarian Ad Hoc Committee for the fifth consecutive year

- **Dr. Sameer S M**, Treasurer, Kerala Section has been appointed by the MGA as **a voting member to the TAB/PSPB Products and Services Committee**

- **Mr. Arjun R Pillai** nominated as

o Member R7-10, MGA awards and recognition committee

o Member, MGA member benefits portfolio advisory committee

- **Mr. Vijay S Paul** Member at Large, MGA ieee.tv advisory committee

- **Mr. Ranjith R Nair,** MDC, nominated Young Professionals Coordinator of Region 10 and Member of MGA Young Professionals Committee

Kerala Section Awards : 2014

- Kerala Section Outstanding Volunteer Award was awarded jointly to

o **Dr. Bijuna Kunju K**

Bijuna K has been a committed volunteer of Kerala Section for the past several years. She has expended significant efforts in carrying out activities of the Kerala Section and its Technical Societies in different constituencies, particularly the student community, despite her official and personal commitments. Bijuna has also been a source of strength to the Women in Engineering Affinity Group of Kerala Section. In recognition of her dedicated contributions to the Section activities in general and to the WIE AG in particular, Kerala Section takes pride in naming her as the Outstanding Volunteer for 2014.

o **Mr. Shahim Baker**

Shahim Baker has been an invaluable asset for Kerala Section for the last several years. A young and enthusiastic volunteer, Shahim has been involved in several major initiatives including Membership Development and programmes for Young Professionals. He has been involved in actively building up the Kochi Subsection through several technical, social and humanitarian activities in the last few years. In recognition of his significant contributions the Section as well as to Kochi Subsection as a dedicated and enthusiastic volunteer, Kerala Section is proud to name him as the Outstanding Volunteer for 2014.

- Outstanding Volunteer Young Professional was awarded jointly to

- **Mr. Vijay Sabeen Paul**

Vijay S Paul has been a committed volunteer for the IEEE Young Professionals and has been very active in organizing the Early Career Faculty Development Programme. He has significantly contributed for the growth of Kochi Sub-Section and also managed the electronic communication of the section effectively. In recognition for his efforts in development of Young Professionals, the Section is proud to present him with the Outstanding Young Professional Volunteer Award for 2014.

- **Mr. Bibin Parukoor Thomas**

Bibin Parukoor Thomas has contributed significantly for the growth of Young Professionals in Kerala. He has actively managed the Social Media for the engagement of members in the Section, IEEE Day Celebrations and IEEE Sections Congress bringing recognition to himself and the Kerala Section. In recognition for his efforts in actively engaging the Young Professionals, the Section is proud to present him with the Outstanding Young Professional Volunteer Award for 2014.

- Kerala Outstanding WIE Volunteer

- **Ms. Mini Ulanat**

Mini Ulanat has been a volunteer of Kerala Section who has been contributing her time and efforts in enhancing the quality and outreach of different programmes of Kerala Section and its Technical Societies and Affinity Groups, and delivering consistently on the responsibilities undertaken. She has made special contributions to the WIE programmes such as the WIE Summit and has also contributed significantly to the domain of Women in Computing. In recognition of her numerous contributions to the activities of Kerala Section, the Section is proud to name her an Outstanding WIE Volunteer for 2014.

- Certificates of Appreciation

- **Sunita Bevi K**

- **Rajashree M.S**

- Outstanding Student BranchAward: **NIT Calicut**
- Outstanding Student Volunteer: **Mr. Kiran Rajmohan,** College of Engineering, Trivandrum
- Outstanding Branch Councillor : **Mr. Shanu N,** College of Engineering, Chengannur
- Outstanding WIE Student Volunteer : **Ms. Aparna U Nair,** College of Engineering, Trissur

Inaugurations : Life Member Affinity Group

The Life member affinity group of the section standing strong with 10 Life Senior Members was officially inaugurated at the AGM. Interim Chair of the AG Mr. N T Nair detailed the audience on the procedure of being elevated to Life Member grade. Mr. E E Rajakumar was elected as the new Chair and Mr. Muraleemohanlal was elected as the new Vice Chair of the LMAG.

Inaugurations : Consultant Networks Affinity Group

The Consultant Networks Affinity Group of the section was officially inaugurated at the AGM by its Interim Chair Mr. Amarnath Raja. Mr. Raja described the AGs roles, responsibilities and its proposed activities.

Technology News

Predicting Material Fatigue Evolution of Self-reporting Composites

A challenging task often faced by engineers and scientists is the early detection of material failure as the cracks inside a material block can hardly be identified from the outside. Predicting material fatigue can prevent fatal disasters. A case in point is the world's deadliest high-speed train accident in 1998 in Germany, caused by failure of a metal wheel. Detecting material failure in composite materials, now increasingly being used in many areas, is much more difficult.

A German research team from Kiel University, University of Erlangen-Nuremberg and Technical University Munich (TUM), has now developed a new concept to design so-called self-reporting composite materials. The concept utilizes zinc oxide tetrapod crystals as a filler material for composites which at the same time reveals material failure by a visual signal under UV light.

The new concept may solve many engineering problems as numerous fields from vehicle construction to biomedical engineering are actively seeking new composite materials for various applications.

"The luminescent features of ZnO tetrapod crystals are well established. According to our work hypothesis, these characteristics showed pronounced variations under a mechanical load, and we realised that it could help to detect internal damages of composite materials," says Dr. Yogendra Mishra of Kiel University's Technical Faculty.

In one experiment, the scientists added zinc oxide tetrapod shaped crystals to a silicone polymer and tested its general properties. They found that the resulting composite material is on the one hand stronger than silicon and on the other hand emits light in different colours when exposed to UV light. When the material is subjected to mechanical stress and ultraviolet light, the intensities of the emitted lights and thus the colour changes.

"The micro-nano sized crystals give even a visual warning when the composite material is about to fail under stress, says researchers.

[For details: http://www.uni-kiel.de, http://www.dwih.com.br, http://onlinelibrary.wiley.com]

Words of Wisdom

I don't believe you have to be better than everybody else.
I believe you have to be better than you ever thought you could be.

- Ken Venturi

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Creativity, as has been said, consists largely of rearranging what we know in order to find out what we do not know. Hence, to think creatively,
we must be able to look afresh at what we normally take for granted.

- George Kneller

Technology News

Cyclist Alert-and-Brake Car System
World's First

Volvo, the Swedish carmaker, synonymous with safety, incorporates sophisticated cutting-edge safety technologies in its vehicles, offering some of the best crash-test ratings in the business. Volvo began manufacturing passenger cars in 1927 in Goteborg, Sweden.

According to accident data, about 50% of all cyclists killed in European traffic have collided with a car. Taking that seriously, the safety-conscious automaker, Volvo, is adding sensing technology that specifically identifies cyclists and automatically applies the brakes to help prevent hitting them. Certain Volvo vehicles already identify cars stopped or slowing ahead and pedestrians crossing the road.

Volvo's new safety feature detects and automatically brakes for cyclists swerving out in front of the car, a world's first. The package is called Pedestrian and Cyclist Detection (PCD) with full auto brake. The PCD system consists of: a radar unit integrated into the car's grille; a camera fitted in front of the interior rear-view mirror; and a central control unit. The radar's task is to detect objects in front of the car and to determine the distance to them. The camera determines the type of the objects and due to the dual-mode radar's wide field of vision, pedestrians and cyclists will be detected early on. The high-resolution camera makes it possible to identify the moving pattern of pedestrians and cyclists and the central control unit continuously monitors and evaluates the current traffic situation. If a cyclist, heading in the same direction as the car, suddenly swerves out in front of the car as it approaches from behind and a collision is imminent, there is an instant warning and full braking power is applied. The auto brake system requires both the radar and the camera to confirm the object as a possible hazard. The control unit then decides whether it is necessary to apply full braking power. The advance in software - specifically, more rapid vision processing - is the one that allows the system to sense the haphazard movements of a cyclist. Volvo is further working on adding detection for horses, deer and other animals for its next update.

[For details: http://www.volvo.com]

IEEE India Info

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