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SMART HEALTHCARE



ARTICLE

Leveraging the Cloud for Healthcare **17**

RESEARCH FRONT

Geographic Cognitive Model of Cyberspace - A Conceptual Study **33**

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an individual.



2 are friends.



3 is company.



more than 3 makes a society. The arrangement of these elements makes the letter 'C' connoting 'Computer Society of India'.



the space inside the letter 'C' connotes an arrow - the feeding-in of information or receiving information from a computer.

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Editor: Prashant R. Nair

Editorial



Prof. (Dr.) S. S. Agrawal
Chief Editor

Dear Fellow CSI Members,

"The futures of smart healthcare and Internet of Things are intertwined. The Internet of Things will have a lot of applications in smart healthcare – and it may very well be the driving force behind it"

– *Codrin Arsene*

The theme for the Computer Society of India (CSI) Communications (The Knowledge Digest for IT Community) March 2018 issue is Smart Healthcare. The theme, 'Sensors for Internet of Everything' will appear in the next issue.

Smart healthcare using Internet of Things (IoT) technology has attracted much attention in recent years for its potential to alleviate the strain on healthcare systems caused by an aging population and a rise in chronic illness. We see products that are going to help / remind sick people to take their medicine, in what dosage and at what time intervals. We see smart devices that will provide on-the-go diagnostics capabilities for people who cannot afford to go to a hospital. We see a proliferation of sensors being released to the market for virtually every part of your body, actively monitoring customers' health and sending in critical vital signals to centralized systems that can help prevent catastrophic events.

We have 4 articles providing us information on its applications in smart healthcare such as cloud, IoT, pattern recognition and monitoring systems. The articles are:

- "Real Time Health Monitoring of Elderly people using Open Source IoT platforms by Jothi Prakash V and Karthikeyan NK
- "Application of Pattern Recognition in Medical Imaging and Computational Analytics for Cancer Detection" by Ritesh Anilkumar Gangwal, Ratnadeep R. Deshmukh and Emmanuel M.
- "Realtime transformer: Health Measuring System" by Dhanuja J. and Kapilavani R.K
- "Leveraging the Cloud for Healthcare" by Sumeet Bahl and Abhay Ramesh

We have a research front article, "Geographic Cognitive model of Cyber Space: A conceptual study" by G. Sindhu Manjari and Indra Gandhi MP.

This issue also contains reports of various premier CSI conferences such as CSI 2017 Annual Convention, IT for Defence, Chapter activities & CSI activity reports from student branches and Minutes of 2nd CSI Publications Editorial Board Conference.

We have introduced a Tech Leader interview series in this issue with an illuminating interview of Prof. Mike Hinchey, President, IFIP. We seek the support of all CSI members for suggestions and support in this regard. The citations of the CSI Lifetime Achievement Awardees at CSI National Convention are also reproduced for inspiring all members of CSI

We are thankful to entire ExecCom for their continuous support in bringing this issue successfully.

We wish to express our sincere gratitude to the CSI publications committee, editorial board, authors and reviewers for their contributions and support to this issue.

We look forward to receive constructive feedback and suggestions from our esteemed members and readers at csic@csi-india.org.

With kind regards,

Prof. (Dr.) S. S. Agrawal
Chief Editor

Prof. Prashant R. Nair
Editor



President's Message

From : President, Computer Society of India
Date : 01 March, 2018
Email : president@csi-india.org / Cell : (91) 9861010656



CSI Tie-up with Springer

CSI is proud to have a gainful tie-up with Springer for publishing of conference proceedings, which get indexed in Springer Link and Scopus. I am happy to note that several CSI chapters and student branches are availing this opportunity provided by CSI. These include conference proceedings of 52nd Annual Convention of Computer Society of India (CSI) at Science City, Kolkata and 2nd International Conference on Data Management Analytics and Innovation (ICDMAI 2018) organized by Institute of Industrial and Computer Management and Research (IICMR), Pune and Computer Society of India, Division II & Pune chapter in January 2018

High Impact CSI International Conferences

It is heartening to note that several CSI chapters are taking initiative to organize high-impact international conferences for the benefit of the CSI rank and file.

IT for Defence

CSI Bangalore chapter organized the 11th edition of its flagship conference IT in Defence in January, 2018. The theme of the conference was "Digital Battlefield". Through this conclave, CSI is promoting partnerships between industry, government, academia and research towards the 'Make in India' and 'Digital India' national missions. The conference was attended by technology leaders from research agencies like DRDO, CAIR, ADE, DIAT, CDAC and industries like Microsoft, Mindtree, Vmware, Intel, L&T etc with presentations on robotic systems, drones, High Performance Computing solutions for defence etc for the benefit of the all CSI members.

TechNext India

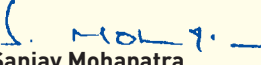
CSI Mumbai Chapter organized its Annual Academic Conference and TechNext 2018 Awards to Academia in association with (Spoken Tutorials and FOSSEE) IIT Bombay, with theme "Technology for Educational Transformation" at Victor Menezes Convention Centre, IIT Bombay, Powai in February, 2018. Keynote speakers for this conference were Dr. D. B. Phatak, Padmashri Awardee and CSI Lifetime achievement awardee from IIT Bombay and Dr. S.S. Mantha, Former Chairman of AICTE. Several presentations on educational innovations and technologies such as MOOCs, gamification, AI & learning technologies were showcased. Dr. Devang Khakkar, Director of IIT Bombay inaugurated this conference.

CSI Publications

CSI members will be happy to note that all CSI publications are doing extremely well. CSI Adhyayan for student members edited by Dr. S. Prakash is being very much appreciated by the student community and CSI student members are being a beeline to publish in it. CSI Journal of Computing edited by Dr. J. K. Mandal, a scholarly journal for the research community is now included in the UGC list of Journals. I take this opportunity to express my special gratitude to Dr. Prakash & Dr. J. K. Mandal for bringing out these publications for benefits of CSI members.

Please write your valuable ideas for growth of CSI at president@csi-india.org

With kind regards


Sanjay Mohapatra

President, CSI

CSI Lifetime Achievement Awardees, Honorary Fellow and fellow awardees



CSI Life Time Achievement Award for CSI Communications Chief Editor



Dr. Shyam Sunder Agrawal, Chief Editor, CSI Communications was presented the CSI Lifetime Achievement award at the CSI Annual Convention at Science City, Kolkata on 19th January, 2018 in grateful recognition of his enormous contribution to the growth of Computer Science Education in the country and for his service to CSI



CSI 2017 Convention

Phalguni Mukherjee, OC Chair and J K Mandal, PC Chair

At the outset, on behalf of different Committees and dedicated members of CSI 2017 we would heartily thank you all for making 52nd Annual Convention of Computer Society of India as Indian National IT Congress, held at Science City Kolkata, during January 19- 21, 2018, a grand success. Yes, there were some teething problems and there was also a move from some quarters to shift the Convention from Kolkata to a nearby state. This move produced counterproductive forces and encouraged us to accept a challenge to hold the programme at Kolkata in good spirit. Finally, with the blessing and active support of HQ and our well-wishers, we came out with flying colours to organise the gala event, ninth time in Kolkata.

The focal theme of this year's convention was "Social Transformation - Digital Way" – a very much relevant concept to the state-of-the-art technologies and applications. Along with the main convention, an international conference on the same theme was organised.

The Convention consists of, inter alia, invited addresses on state-of-the-art and emerging trends in IT by eminent speakers in different business sessions/tracks and plenary sessions, panel discussions, session papers and exhibitions. The proceedings of the conference will be published by Springer Verlag.

The tutorial was inaugurated by the Pro-Vice Chancellor, Academic, University of Calcutta. The CSI National Secretary, immediate past president, CSI, Dean faculty of Engineering & Technology, University of Calcutta, RVP Region II, OC Chair and PC Chair. The Tutorial was organized for the young learners of the upcoming subjects, woven around science and technology. Interaction of Academic and IT industry experts with participants in terms of state of the art Tutorial sessions were organized on the topics

- Cloud Computing & Security in It industry and e-governance
- IoT & Data Science
- Machine Learning
- Technology for Social Development
- Green Computing and its application in IT industry
- VLSI Design and its relivence in It industry
- Fault Resilient Embedded Systems with applications
- Cognitive Radio NW in 5G-Technology and application
- Compressed Sensing in It and social applications
- Social Computing
- Face Recognition and social applications

In the Annual Convention, we thought that there would be around 450 to 500 delegates from all corners, but the final figure turned out to be 700 (approximately). One thing is very much noticeable that a good number of teachers and students from general degree colleges has joined this convention.

The CSI 2017 organized by Computer Society of India Kolkata



Chapter was involving various International Researchers and Academicians, and Industry Dignitaries. Eminent dignitaries and eminent technical speakers from premier academic and research institutes in India namely, Indian Institute of Science Bangalore, Indian Institute of Technology Kharagpur, Indian Statistical Institute Kolkata, Indian Institute of Management Bangalore, etc. In addition, some leading academic and research luminaries representing Universities/ Institutes of International repute from abroad delivered state of the art lecture during the event.

Interactions of intellectuals in the arena of digital transform for the integration of digital system into our society has been successfully achieved. Some of the topic covers during four days are as follows with relevance to IT and electronics scenarios

1. Prediction of students placement probabilities
2. Diabetes Mellitus Risk Factor Prediction
3. Eye tracking with evolutionary head movement for vision

▶ A R E P O R T ▶▶▶

- based rehabilitation
4. Detection of Biological Nano Objects
 5. Evaluation of Bacterial Blight in a rice plant
 6. Segregation of speech and songs
 7. Digital photo Trichogram for hair fall diagnoses
 8. Identification of Benign and Malignant cells from Cytological Images
 9. Human brain segmentation using optical geometry
 10. PV cell operated motor to drive fans and pumps in rural areas
 11. Mobile governance using Sanskrit grammar

The topic also covered in various sessions in terms of invited talks panel discussions, Industrial interactions in the form of Start up , IT in judiciary, Internet Governance, Digital mapping of Earth, E-Governance security and Biotechnological applications.

The convention was inaugurated on January 19, 2018 by Dr. M Hinchey, the President of IFIP and Swami Shastrajnan and, the Principal Maharaj of Ramkrishna Mission Vidyapit, Belur. Over six hundred delegates, from all walks of life, from academic institutions, government departments, industry houses and other stake holders are expected to attend the Convention. The Key Note address was given by Dr. Mike Hinchey, President, International Federation for Information Processing (IFIP), Professor Pavitra Prabhakar, Kansas State University, Manhattan, USA, Mr. Hasit Kaji, Head - Digital Impact Square, Vice - President, Tata Consultancy Service. Prof.(Dr) Anurag Kumar, Director, Indian Institute of Science, Bangalore The motivational talk was given by Swami Shastrajnanand, the Principal Maharaj of Ramkrishna Mission Vidyapith, Belur. Dr. Suvira Srivastava give a technical talk on Springer publication and its technicality. Four parallel sessions were organized for paper presentations. 60 papers were presented during two days of the conference. Proceedings of selected papers will be published by Springer in CCIS series. Deliberations were done on the social transformation through different digital way. Connectivity, with governments, both at the central and state levels are using technology to make this transformation to achieve doorstep connectivity with its citizens. Exhibition stalls as well where state-of- the- art and emerging products and services were showcased and demonstrated to the interested delegates. It was ensured that extensive interactions were available for interacting and as a result build everlasting relationship among all the participants were built in the Convention at all levels and also with the number of sponsors/ partners at different levels. This Convention achieved a grand success and contribute actively towards the holistic development of the Society and make the digital mission and social transformation in the years to come.

The list of speakers are

Tutorial Speakers

Mr. Lawrence Mohanraj, IBM India Pvt. Ltd., Dr. Anirban Chakraborty, IISc Bangalore, Dr. Atal Choudhuri: Jadavpur University, Dr. D. P. Mukherjee, ISI Kolkata, Dr. Nabarun Chatterjee, CDAC Kolkata Dr. Debesh Das, Jadavpur University, Dr. Suman Sahu, NTU Singapore, Dr. Santi Maity, IEST , Shibpur, Kolkata, Dr. Prodosh K. Roy, APIIT, Haryana, Dr. Nilay Ganguly, IIT Kharagpur, Dr. Debotosh Bhattacharjee;



Jadavpur University

Keynote Speakers:

- Prof. (Dr.) Anurag Kumar, Director, Indian Institute of Science, Bangalore India
- Dr. Pavithra Prabhakar, Kansas State University,

Manhattan, USA

- Dr. Suvira Srivastav, Associate Editorial Director, Computer Science & Publishing Development Springer India
- Mr Hasit Kaji, Head Digital impact square, Vice President, Tata Consultancy Services.
- Dr. Venkata Padmanabhan - Microsoft Research India
- Invited Speakers
- Mr. Amitava Ray, Managing Director, Ericsson India Global Services Pvt. Ltd.
- Mr. Arindam Mukherjee, Managing Director, Alumnus Software Ltd.
- Mr. Samir K Chatterjee, Managing Director, Rebeca Technologies
- Prof. Dr. Md. Kamarul Alam Khan, Professor and Director, IQAC, Ex. Dean Faculty of Science, Jagannath University, Dhaka, Bangladesh
- H R Viswakarma, Senior Professor, VIT, Vellore
- Prof. (Dr.) M S P Babu, College of Engg., Andhra University
- Mr Arabinda Mahapatra, Director, NETWIN Infosolutions Pvt. Ltd., Nashik
- Prof. (Dr.) Alam Appa Rao, Former Vice Chancellor, JNTUK
- Prof. (Dr.) Sukumar Nandi, Professor, CSE and Ex. Dy director, IIT Guwahati
- Dr. M. S. P. Babu, Andhra University, India
- Dr. Dhananjay Bhattacharyya, Saha Institute of Nuclear Physics, India;
- Dr Arpan Pal, Head Innovation Labs, Kolkata
- Dr. Kayapanda Mandana, Head of Cardiology, Fortis Hospital
- Mr Srinivasa Raghavan
- Prof. Dharampal Singh, Namibia University, Namibia:
- Dr. Vijaysankar, IAS Officer, Secretary and Chief Secretary, Govt. of Karnataka
- Prof. (Dr.) L M Pattanayak, Emeritus Professor, IISC Bangalore
- Dr. Debesh Das, JU: Topic: Succeeding in the Emerging Landscape : Step One : A Mindset Change
- Mr. Amitava Ray, Managing Director, Ericsson India Global Services Pvt. Ltd
- Mr. Arindam Mukherjee, Managing Director, Alumnus Software Ltd.
- Mr. Samir K Chatterjee, MD, Rebeca Technologies
- Dr Tinku Acharya, Managing Director, Videonetics
- Mr. P BalaMurali, TCS
- Dr. Durgesh Mishra, Sri Aurobindo Inst. of Tech., India
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- Mr. Anuj Agarwal, Advocate on Cyber Crime Prosecution
- Ms. Indrani Ghosh, TCS Kolkata
- Mr. Tuhin Bose, VP & CTO Videonetics Tech. Pvt. Ltd.
- Mr. Jitendra Sharma, Director, Wacom India Pvt. Ltd.

There were more than twenty Stalls in the Convention. Delegates visited and enjoyed the stalls to gather information about new products, books etc.

After the tea break, CSI National Awards for Lifetime Achievement, Honorary Fellowship and Fellowship awards were conferred on the respective awardees in a befitting manner.

Technical and plenary sessions with invited lectures were held thereafter.

The first day's programme ended with Networking dinner at



the garden area.

The second day's programme (on 20 January) was full of different types of events. Besides HQ's statutory programmes relating to administration and functioning of offices and Chapters, there were three types of programmes of academic interests: (i) 15th CSI-Nihilent e-Governance Awards 2017; (ii) Key Note Addresses and (iii) technical sessions with paper presentation in four parallel tracks.

The CSI-Nihilent e-Governance Awards ceremony started at 9.00 A.M. with registration of award winning teams. There were 47 teams and the total number of participants was more than 150, including 117 registered delegates. The day long programme is held in the Mini Auditorium.

E-Ratna for the first time was given by CSI for the first time in recognition of the services to the citizens at large and the States through e-Governance and ICT initiatives, to Smt. Mamata Banerjee, the Chief Minister of West Bengal and to Smt. Vasundhara Raje Scindia, the Chief Minister of Rajasthan. These were respectfully received by Sri Amit Mitra, Finance Minister, Government of West Bengal and Sri Rao Rajendra Singh, Deputy Speaker, Government of Rajasthan. On this occasion, the book for e-governance was also released.

After the marathon programmes on the second day, a cultural programme was organized to entertain the audience. A very popular kind of dance, called "Chhounatch", was performed by the rural people of Perulia. The theme of the programme was "Mahishasro mordini".

The second day's programme came to an end with 'Convention Dinner'.

The third day's programme (on 21 January) was on (i) Technical, Sponsored Programmes and technical sessions with paper presentation in five parallel tracks. In addition to these, Mini Hall was used for Chapter level awards, AGM and valedictory programmes.

Interview



Tech Leader Interview Series



On the sidelines of the CSI Annual Convention 2017 at Kolkata, CSI Communications, Editor, Prof. Prashant R.Nair caught up with a distinguished tech leader, Prof. Mike Hinchey. Prof. Mike Hinchey is the President of IFIP (International Federation for Information Processing), founded by UNESCO in 1960, and Professor of Software Engineering at University of Limerick, Ireland. He served as the Director of the Software Verification Research Centre at University of Queensland, and the Director of the NASA Software Research Laboratory at Goddard Space Flight Center. He is the author and editor of more than 20 books, 200 papers and holds 26 patents.

Tell us a bit about IFIP and how it is different from other societies.

Unlike various professional bodies, IFIP is truly global. But IFIP is different in the sense that it's effectively a society of societies. So, it represents each of the society, and it benefits the members of those individual societies, processes forward the interests of the societies themselves. We do things that societies do like

run conferences, workshops, have education programs, publish books, newsletters, magazines, journals, the usual things that societies do. But we do it at a slightly higher level, incorporate information from different societies, so, we give a global perspective. But also, we represent societies as a whole on the global scale like UN, ITU, and UNESCO and so on.

What about the standardisation activities?

Well, we do have a number of standardisation activities but we are mainly concerned with policies. So we make our statements of policies and make them public and we hope that they would be brought into the standards that are sworn by the individual members. IEEE, CSI and so on would support various international standards and we would give our perspective on them.

Do you spearhead any standards?

Not directly, no.

So you are indirectly involved. For example, like how IEEE or ACM is doing, you pitch in as well.

Correct. Not to say that there have never been opportunities where we are involved in standards. But we don't do that on a regular basis.

I am a part of CSI and proud to say that CSI represents India in IFIP. How do think CSI can be a part of the global knowledge scenario through IFIP?

CSI was one of the founding members of IFIP and has been very active since it became involved. I have to say in last 10 years, CSI has been particularly active through a number of representatives. We have been very lucky that the CSI has been very much engaged, very enthusiastic and I have to say that the

current President, Sanjay Mohapatra is particularly very keen and enthusiastic and making a mark for India and making the Indian voice be heard in the global stage.

Our CSI President, Mr. Sanjay Mohapatra was mentioning the prospect of IFIP general assembly and the World Computing Congress (WCC) coming to India. What's your take on that?

I would be very glad to see both of these happen. We have had a board meeting in India back in 2009. It has been a while and I think it would be excellent to have the General Assembly here especially if we could combine it with the Annual Convention here. We have to have it approved by General Assembly, so I can't exactly say when it will happen.

Going through your profile, I understand you spent a lot of time in NASA at the Goddard Space Flight Center. Can you tell us about the kind of work you did in NASA?

I joined NASA for a very specific reason to work there for four years, to bring in my expertise in formal methods, basically mathematical approaches to classification and verification. NASA has these large projects and they already have people working in that area of course, but I was brought in for my area of expertise. And over the time I was there, I did work on a number of missions such as the Space Shuttle and the Hubble Servicing Project and so on which were fascinating. I got very interested in Self Managing Software, Autonomous Systems and really went more in that direction. We have been working on a number of missions that would be Unmanned Exploration Missions, back to the Moon, Mars, Saturn and asteroid belt.

In fact I want to share a funny story. Some of the work I had been doing got various patents. I overheard my mother telling one of her friends on the phone what I do and it was completely wrong. And as I listened to her I thought, "Hang on if we adapt this, it's not so bad". So as a result, my mother got a patent that NASA will use, and she got it at the age of 81!

Speaking of autonomous systems, as I listened to your keynote address for the CSI Convention, I heard about a very new concept. There is lot of buzz about CPS, Cyber Physical systems. But you were talking about Cyber Physical Social systems. Can you elaborate on that?

It's also a kind of buzz word but it is also actually accurate because we are dealing with situations where it's virtually impossible to not have software in your life. I am sure some people manage without it, but it's very rare. Some of us have to interact with the physical world. We are also using software to collect data about us. There is a lot of controversy in the recent times about how much data the car manufacturers are taking about you without your permission. Someone who works in the software division of a car manufacturer once told me that they can tell which seat somebody's wife is sitting in. That to me sounds bizarre. What we have to realize is that there are lots of situation where information is being collected, sometimes anonymously, sometimes not and that's very much being used in other situations.

Particularly young people are giving information voluntarily on Facebook and social media in general. It's the interactions between that information and the software and the devices that we are using which makes it very significant. So Cyber Physical

Systems make an awful lot of sense because that's the way life is but the social aspect is becoming bigger. It opens up new concerns about privacy and security as well.

You play a role in policy planning of IFIP. As you know, India has made a lot of strides in software and is considered one of the top knowledge superpowers. I mean we like to call ourselves a knowledge superpower and there are some indications. For example, if you take CMM level companies, a capability maturity model of the software Carnegie Mellon, probably 80% of companies in level five is from India. So do you think India has arrived as a knowledge destination? If not, what would you say is the way forward as a policy maker?

I think there is no question about that. It's important that India lives up to the expectations. There is no doubt you have a large number of universities and institutions and are producing a large number of really well qualified graduates. Probably to a lesser extent, India is exploiting the call centre aspect of things which doesn't come across well as a graduate set you produce. There is an extreme shortage of graduates all around the world in technological subjects and India is producing so many. So, I think India's reputation has soared over the last 10-20 years and it really is on the world stage.

But you know I am also looking as a Computer Science educator. I have been a Computer Science educator for the past seventeen years. You are a Professor of Computer Science in Limerick University. I belong to the Amrita Vishwa Vidyapeetham, Coimbatore .We have a tie up with Limerick. We have students and faculty come over there. We have got very good relationships with European and American universities. I have worked in America as well. But I see a huge gap in terms of employability, and staying current and relevant at least in terms of education in India.

I don't know much about the day to day education in India to say if you have this gap or not. But I know how severe that gap this and I also know that this gap is present everywhere' and wherever I go, employers tell me, "Well I can hire all these people but they don't have the skills I want". So what the employers want and what the University produces are completely different in every country I know of. There's a big, big gap. Now if you have good relationships between the University and local employers, you can reduce that gap significantly. In Our University we have guest lectures from local employers, we have them as adjunct professors where they teach and try to reduce that gap. Actually our University has the largest placement program in Europe and all of our students are required to spend at least 9 months working in a company. So they know more about the work life and the company gets to know them as well and the university gets a feedback on how to teach the students too. Typically the number of jobs offered exceeds the number of students. Our programme is very well organised, they have great context and it's really good for the students and employers. The students are informed about what the company wants and the faculties visit the students while they work for the company and get their feedback.

Thank you so much for giving us this enlightening interview.



Life Time Achievement Award

Dr. Shyam Sunder Agrawal obtained Ph.D Degree in Physics-Electronics in 1970 from AMU, Aligarh, India. He worked as a Scientist at Central Electronics Engineering Research Institute, Pilani/Delhi and rose to the level of Scientist-G. Subsequently, he was selected as Emeritus Scientist of CSIR and Advisor to CDAC-Noida, possessing research and teaching experience of about 50 Years. He is presently Director General, KIIT Group of College, Gurgaon.

He is a renowned scientist and a teacher in the area of Acoustics, Computer Processing of Speech and Communications Technology. He has also worked as Guest Researcher at MIT, Cambridge, Ohio State University and UCLA in U.S.A. and visited many Universities and research Institutions in USA, UK, France, Germany, Sweden, Italy, Japan, China and other countries. His major areas of interest are Speech Perception, Speech Synthesis, Speech and Speaker recognition and Development of Speech Data Bases in Indian Languages. He has steered and completed a large no. of projects sponsored by Indian as well as foreign agencies and Govt. Dept. He has published/presented about 200 papers in National/International Journals and Conferences. He has guided about 15 Ph D students and large number of P.G. & U.G. students.

He is a recipient of Full Bright Fellowship, Senior Fellow of East West Center, Honolulu, UNDP Fellow, and Distinguished Fellow of IETE, Fellow of CSI. He also received large number of Awards including Sir C.V. Raman Award by Acoustical Society of India, Internationally Eminent Acoustician Award and Gold Medal from Acoustic Foundation and Acoustic Society of America. He has been President of the Acoustical Society of India and the Board Member of International Commission on Acoustics, etc.

He has made many significant contributions to the growth of Computer Society of India. He served as Chairman of CSI-Delhi Chapter (1992-94), Regional Vice-President/Divisional Chairman (1996-2002), served as Chairman of Nominations Committee, Chairman Publication Committee etc.

In grateful recognition of his enormous contribution to the growth of Computer Science Education in the country and for his service to CSI, the Awards Committee is pleased to bestow the Life Time Achievement Award to Dr Shyam Sunder Agrawal on this Nineteenth day of January, 2018 at its Annual Convention at Kolkata.

Life Time Achievement Award

Prof. Mohit Kumar Roy, studied at Presidency College, Kolkata and the Department of Applied Mathematics, University of Calcutta, and started his career at the Indian Statistical Institute (ISI). He was one of the key persons in the development of ISIJU-1, the first indigenous computer made jointly by ISI and Jadavpur University(JU) which was commissioned in Kolkata in April, 1966. After obtaining his Ph D from Jadavpur University, he soon joined as the First Professor of Computer Science of Jadavpur University.

Professor Roy also held a number of senior and managerial positions at professional organizations like the erstwhile ICL Ltd. in the early sixties, RCC Kolkata in the late seventies and later CRDC, Kolkata for a brief period.

Professor Roy is a brilliant and exceptional teacher at undergraduate and postgraduate levels. He has published several research papers on Design & Analyses of Algorithms and other areas. His work has been widely cited and many of his papers have been published in reputed international journals. He has supervised a number of PhD scholars in areas like algorithms, software engineering, applications, interoperability in a distributed environment for their Professor Roy has authored four books – one on Sorting and the next three on COBOL Programming.

He presented papers in the First Convention of Computer Society of India held at Indian Statistical Institute in 1966 and has been actively associated with CSI Kolkata Chapter since inception. He became the Chairman of CSI, Kolkata Chapter and also a Patron of the Kolkata Chapter. He was associated with many CSI Conventions in the early years.

In grateful recognition of his enormous contribution to the growth of Computer Science Education in the country and for his service to CSI, the Awards Committee is pleased to bestow the Life Time Achievement Award to Prof Mohit Kumar Roy on this Nineteenth day of January, 2018 at its Annual Convention at Kolkata.



Life Time Achievement Award

Prof. Muthukrishnan has been Consulting Advisor to ceo, TCS, Deputy Director & Director-in-charge, IIT Madras and Professor of Computer Science & Engineering at IIT Madras in his career spanning 40 years He has guided 30 Research scholars for PhD and MS degrees, over 300 students for MTech and BTech projects. Many of his students are holding top positions in academia and in reputed companies globally and many as entrepreneurs have created startups and developed them successfully.

He is presently Advisor to Rajalakshmi Educational Institutions, Chennai. He is actively engaged in Accreditation work for NBA and NAAC for about five years now.

A chair in Computational Brain Research has been established in 2016 at IIT Madras by K.S Gopalakrishnan, his former student and co-founder of Infosys Limited.

He has more than 40 publications in reputed International and National Journals and conferences. He has organized International conferences and has served in many committees of MCIT, AICTE, MHRD and DST. He was the principal coordinator of the multi-institution project on Information Technology during 1986-1993. He chaired the committee on e-Governance Meta Data and Data Standards of MCIT.

Prof. CRM has consulted widely for Industry in India and Abroad including TCS, CMC, Collabnet, Google and Essentia. He was a member of the Tamil Nadu state IT Task Force 1998-2001, Indo-French Scientific Council member 2000-2005, He has been director on the Board of Tidel Park, Elcot, carritor and Indian Bank Limited. He is senior member of ACM, IEEE and ISTE.

Prof. CRM has been associated with CSI since its inception in 1965-66. He attended the first meeting in 1966 at IIT Kanpur and presented his research paper at the CSI conference in Trivandrum in 1969. He is fortunate to have been mentored by CSI founders, Prof R. Narsimhan, Brigadier A. Balasubramanian, Mr. F.C Kohli and senior colleagues, Prof V Rajaraman, Prof. H N Mahabala and Prof. J R Isaac. He was CSI Software Division Representative, 1977-79, Chairman of Chennai Chapter 1997-1999, Chief Editor of Computer Science & Informatics – the Journal of CSI and President of CSI 2000-2002. He is a Fellow of CSI. His PhD work is published in the Journal of CSI, Vol.1 - No. 1 (June 1970). He was PC chair for CSI National Conventions at Chennai in 1974 and 2008. He has contributed to CSI Education activities.

He is a B Tech (Hons) President Gold Medalist from IIT Madras, M Tech and PhD (1969) from IIT Kanpur.

In grateful recognition of his enormous contribution to the growth of Computer Science Education in the country and for his service to CSI, the Awards Committee is pleased to bestow the Life Time Achievement Award to Prof C R Muthukrishnan on this Nineteenth day of January, 2018 at its Annual Convention at Kolkata.

Life Time Achievement Award

Prof. Lalit Mohan Patnaik obtained his Ph.D in 1978 in the area of Real-Time Systems, D.Sc. in 1989 in the areas of Computer Systems and Architectures, both from the Indian Institute of Science, Bangalore.

He has been Professor of Computer Science and Engineering at the Indian Institute of Science, Bangalore, Vice Chancellor, Defence Institute of Advanced Technology, Pune from 2008-2011. Currently he is an Honorary Professor, the Department of Electronic Systems Engineering, IISc, and INSA Senior Scientist and Adjunct Professor, National Institute of Advanced Studies, Bangalore; engaged in research in Machine Cognition and Consciousness.

During the last 48 years, his academic interests have been in the areas of Parallel and Distributed Computing, Computer Architecture, CAD of VLSI Systems, High Performance Computing, Mobile Computing, Theoretical Computer Science, Data Science and IoT, Soft Computing, and Computational Neuroscience including Machine Cognition. He has over 1150 publications in these areas. He has supervised over 30 Doctoral theses and over 160 Masters' theses.

He has served as the President of the Advanced Computing and Communications Society and a Distinguished Lecturer of the IEEE Region 10. He was awarded the Dr Vikram Sarabhai Research Award, 1989; the Honorable Mention Award, Fourth CSI/IEEE International Symposium on VLSI Design, 1992, Fellow of Computer Society of India etc. to name a few. He is a Fellow of the IEEE, The World Academy of Sciences (TWAS), Italy, Indian National Science Academy, Indian Academy of Sciences, National Academy of Sciences, and Indian National Academy of Engineering. He has served on several significant committees of the IEEE, CSI, IETE and IE(I); review and policy committees of the DST, DBT, MHRD, CSIR, DoS, UGC, AICTE, DRDO, MeitY and UPSC; including on the Yash Pal committee on Renovation and Rejuvenation of Higher Education. He has been serving in more than a dozen Editorial Boards of Journals.

He has served as the Program Chair of the CSI 96 Convention and had organized an excellent technical program with a theme 'India The Emerging Information Technology Giant'. As the Editor of the CSI Journal 'Computer Science and Informatics', he had changed the focus of the Journal to high quality research. He has been a regular key note/invited speaker at Conferences organized by the CSI and at the CSI student branches.

It needs to be emphasized that his training, as well as the research work done by him are entirely indigenously based. His contributions to Indian higher technical education system are outstanding.

In grateful recognition of his enormous contribution to the growth of Computer Science Education in the country and for his service to CSI, the Awards Committee is pleased to bestow the Life Time Achievement Award to Prof Lalit Mohan Patnaik on this Nineteenth day of January, 2018 at its Annual Convention at Kolkata.



Life Time Achievement Award

Dr. Subas Pani, born to Jyotirmayee and Raghunath Pani earned his Graduation, Masters level Degrees in Arts and Ph.D from Utkal University.

A topper of the Indian Administrative Service in 1972, Dr Subas Pani was allotted the Odisha cadre. He has served the state and central governments as Chief Secretary, Odisha and Secretary, Government of India. He is highly respected as a dynamic, upright and efficient officer by the people and his colleagues. Serving the country with a deep commitment to development and an innovative approach, he has left his imprint in every job he has held in his long distinguished career as a civil servant. He has a deep and abiding interest in the Cultural Heritage of India. A well-known author, translator and creative director his publications include ten books in Odia and English. His music composition for Sampurna Geetagovinda, a set of five audio CDs was released by SAREGAMA. His latest illustrated book titled Ratha Yatra, published by Niyogi Books was released in 2017.

A self-taught ICT expert he is recognized as the creator of the IT industry of Odisha. He set up the Bhubaneswar Software Technology Park and brought to Bhubaneswar the software development centres of top IT companies of India. The IIIT Bhubaneswar is his brain-child. His innovative and pioneering work in Computerizing Land Records using Indian languages in large databases laid the foundation for its nationwide expansion. He is the architect of the Computerization of Electoral Rolls, Electoral Photo Identity Cards. These are among the largest nation-wide ICT solutions anywhere in the world. He also conceived and implemented the Election Commission website with complete information on laws, rules and historical data. In 1998 he connected all the counting centres in the country and pioneered the online updating of election results, publishing the information instantaneously along-with GIS linked maps. He is also remembered for successfully introducing the use of EVMs in Indian elections.

Dr. Subas Pani's contribution in ICT enabled election management is universally recognized. What is not well known is that he is the architect of the Unique Identity Authority of India. As Secretary Planning Commission of India, he authored the entire concept and blue print for this programme as well as its ICT architecture which was approved by the central cabinet and became the basis for what is popularly known as ADHAR CARD today.

He is a life member of the Computer Society of India and the founder chairman of Bhubaneswar Chapter. He has also served as member of the Executive Committee of CSI – Micro-Computer Division. He was awarded fellowship of CSI. His most noteworthy contribution in CSI has been evoking interest in Computer Applications in Indian Languages. Based on his deep interest and pioneering work in this domain, he first organized a conference titled Akshara at Bhubaneswar on behalf of the local chapter and later a national conference on the subject at New Delhi. CSI has compiled and published a historic volume on the papers presented in this conference. He has made significant contributions in shaping the future of this professional organization as a member of the ExecCom and Council of Fellows.

In grateful recognition of his enormous contribution to the growth of Computer Science Education in the country and for his service to CSI, the Awards Committee is pleased to bestow the Life Time Achievement Award to Dr. Subas Pani on this Nineteenth day of January, 2018 at its Annual Convention at Kolkata.

Life Time Achievement Award

Dr. Deepak B Phatak born on 2nd April 1948, he obtained his Bachelor's degree in Electrical Engineering from SGSITS Indore in 1969, and his M. Tech. and Ph. D. from IIT Bombay. He has been serving IIT Bombay since 1971. He has headed several academic units at IIT. He was the first Dean of Resources of the Institute. He held 'Subrao M. Nilekani' Chair from 2000-2013.

His research interests are Databases, Information Systems, IT enabled Education, and IT strategy. He has guided several hundred students and has authored over 50 publications. He is regarded as the pioneer of smart card usage for financial transactions in India. In 1999, he started an IT incubator to foster innovation through start-up companies. He set up the Affordable Solutions Lab (ASL) at IIT Bombay in 2000. In March 2012, he was given the responsibility of executing the prestigious Aakash project. He has been an Open Source evangelist, and has popularized use of open source knowledge content.

He started the country's first interactive distance learning program using VSATs in 2000. He executed the T10KT (Train 10,000 Teachers at a time) project, where 1,60,000 teachers have been trained. Since 2012, he has been working on MOOCs (Massive Open Online Courses). A blended model suggested by him, is being rolled out using IIT Bombay and A-View developed by Amrita University. He has been an adviser to many organizations and Government departments on issues related to IT. He has served on several boards of companies and institutes.

He has been associated with CSI for over four decades, and is a life member. He has participated in many CSI activities and conferences, and was the PC chair for the annual convention held in Mumbai. He was recognized as Patron of Mumbai chapter. He was instrumental in bringing the prestigious VLDB conference to India in 1996. He was elected Fellow of CSI in 1999, and Fellow of the IETE in 2000. He was listed amongst fifty most influential Indians by Business Week in 2009. He was conferred Padma Shri by Govt. of India in April 2013.

Dr. Phatak believes that teaching cannot just be one's profession, but must be one's Dharma. His dream is to see a resurgent India, catching up with the world, using ICT as the spring board.

In grateful recognition of his enormous contribution to the growth of Computer Science Education in the country and for his service to CSI, the Awards Committee is pleased to bestow the Life Time Achievement Award to Dr Deepak B Phatak on this Nineteenth day of January, 2018 at its Annual Convention at Kolkata.



Minutes of the 2nd CSI Publications Editorial Board Conference held on 3rd Feb. 2018 at Hall 3 Ground Floor, IITM Research Park, Taramani, Chennai - 600113

The following members were present:

1. **Mr. S Mahalingam**, Chairman, CSI Publications Ltd.
2. **Prof. S V Raghavan**, Chief Editor, CSI Publications Ltd.
3. **Mr. P Unnikrishnan**, GM, CSI Publications Ltd.
4. **Ms. Nancy Anabel**, MSSRF
5. **Dr. Sanjay Bahl**, Director General (CERT-In)
6. **Prof. Balu**, IMSC
7. **Prof. Gautam Barua**, Director, IIIT G
8. **Prof. Uday Desai**, Director, IIT H
9. **Mr. A G Giridhar**, DGM, RBI
10. **Dr. B M Mehtre**, IDRBT
11. **Dr. B K Murthy**, MEITY
12. **Prof. Prashant Nair**, National Editor, CSI
13. **Prof. A K Nayak**, Hon Secy CSI
14. **Prof. Chester Rebeiro**, IIT M
15. **Mr. Manoj Raghavan**, Tata ELXSI
16. **Ms. Priyanka Mohan**, MSSRF
17. **Prof. Huzur Saran**, IIT D
18. **Mr. Biju Shoolapani**, Cognizant
19. **Prof. Krishna Sivalingam**, IIT M
20. **Dr. Kumar Sivarajan**, Tejas Networks
21. **Dr. Anand Sivasubramaniam**, TCS
22. **Ms. Suvira Srivastava**, Springer

Regret from Prof. Abhay Karandikar

1. The meeting started with the welcome address by Mr. P Unnikrishnan, General Manager CSI Publications Ltd. at 10.15am.
2. Mr. S Mahalingam, Chairman, CSI Publications Ltd., made a detailed presentation about the company, the Advisory Board, the Editorial Board, the activities thus far, and the business and subscription models that are under active consideration. He acknowledged the support received from the parent body CSI and the publications partner Springer. His presentation is in Annexure - I.
3. Prof. Uday Desai, one of the Editors-in-Chief and an active member of the CSI Transactions Editorial Board, suggested that CSI Transactions should target Global audience and establish global presence. He further suggested that in this context one may look at IEEE or ACM.
4. Dr. Anand Sivasubramaniam, TCS suggested that we might offer some additional recognition to the authors so that they are attracted to publish in CSI Publications. One of them could be Best cited Paper Award.
5. Prof. A K Nayak, Hon. Secretary, CSI mentioned that CSI is very proud of the good work being done by this Editorial Board in bringing out the "CSI Transactions on ICT" in a consistent and timely manner. He further mentioned that CSI Transactions and the Board meeting was discussed in the recent Execom held in Kolkatta and the members of the Execom have extended full support to the CSI Transactions and assured continuous cooperation.
6. Prof. S V Raghavan, Chief Editor, CSI Publications Ltd., made the following observations:

Congratulated the Editorial Board for the help in bringing out the issues of the journal on time, as Contents and Timeliness define the quality of a journal.

Revamping of the Editorial Board is under way, with emphasis on global representation.

The acceptance rate of articles is 12.5 % at present.

On the Reviewers Data Base, it would be nice to have a list of "captive" reviewers for our transactions. Springer may fine tune the Editorial Manager to enable this. To this point, Prof. Gautam Barua, member of the Editorial Board observed that there is an option called "people I Know". Perhaps, it can be used to collectively get the list and share across all editors in chief and associated editors.

Following the advice of the previous Editorial Board Conference, four special issues were brought out on an experimental basis to understand the potential from across the country. Four conferences, spread across North, East, West and South were chosen and selected papers from those conferences were brought out as special issues. For example, ICAARS, ICAC, etc.. along with CSI Transactions on ICT (Volume No. 4, Issue No. 1, 2-4 and Volume No. 5 Issue No. 1)

Similarly, on an experimental basis papers from major government programs such as the Vishweswarayya Ph. D. Programmes were also published as a special issue of CSI Transactions on ICT (Volume No. 5, Issue No. 2). These approaches increased the reach, quality, participation to pan india.

As at present, we have comfortable position with regard to bringing out the issues for the rest of this year.

7. Mr. Ashok from TCS made a presentation on the development that can be integrated in to the existing (or technologically revamped) web site of CSI Publications Ltd., to provide dynamic and interactive interface. A copy of his presentation is given in Annexure II.
8. Ms. Suvira Srivastava from Springer explained in details the process followed by Springer. She highlighted that CSI Transactions is part of the worldwide Springer Computer Science package and reaches all libraries of the world. To a specific question from the audience whether it is visible in MIT, Stanford, Harvard, etc., she replied in the affirmative. She also mentioned that detailed performance measures of the journal and the board are available and showed some samples. She explained that the journal has crossed the initial phase, and is well on the road to establishing itself as the world leader. She assured all support from Springer. Her presentation is given in Annexure III
9. In the post lunch session detailed discussions were held on way forward.

Dr. B K Murthy Group coordinator of R&D in the Ministry of Electronics and Information Technology, Government

of India suggested that special issues may be considered to showcase the good work being done by government departments and laboratories. He mentioned that entities such as CDAC and NIC are doing world-class work. Prof. S V Raghavan, Chief Editor, CSI Publications Ltd., mentioned that the journal welcomes such focused input about India and assured all support so long as academic rigor is not compromised. Everyone agreed. Prof. Raghavan added that wherever required some of the senior board members will help the engineers and scientists in giving shape to their work. He suggested that Professors Gautam Barua, Uday Desai, Huzur Saran, Krishna Sivalingam and Prof. Raghavan himself could pitch in to make it a reality.

Industry participants (Mr. Manoj Raghavan) from Tata Elxsi and Cognizant (Mr. Biju Shoolapani) mentioned that excellent work is being done inside their companies and promised to explore the way to share it in CSI Transactions through carefully reproduced abstract versions of their achievements as a company.

Dr. Kumar Sivarajan suggested that 5G and in general Wireless will be the next wave in telecommunications. Perhaps an issue covering the changes to come will enlighten the audience of the journal and catalyze innovation.

Many participants at this point suggested that lead articles by well known people in such issues will increase the traction and possibly capture more eye balls from the journal perspective. The members present agreed to explore in their "circles of influence" for possible leaders to write historical / survey / futuristic articles in various areas and share it with Chief Editor for follow up.

Arising out of the discussions, the possibility of the following special issues emerged from the floor:

1. **Cyber Security:** The various aspects of IT act and few references to legal decisions and court judgments, etc., may be covered in one article. More articles on practices followed by Indian Companies, Foreign Companies, Solutions Providers, etc, may be useful. Prof. Chester Rebeiro agreed to anchor the issue. Prof. Krishna Sivalingam and Dr Sanjay Bahl agreed to support.
2. **Finance Industry:** Dr. Sanjay Bahl, Dr. B M Mehtre (IDRBT- Institute for Development and Research in Banking Technology) and Mr. A G Giridhar (RBI - Reserve Bank of India) agreed to come up with an issue on Banking

Technology Evolution, SWOT Analysis, Nature of problems and solutions.

3. **ICT and Agriculture:** The representatives from MSSRF said the following:
 - a. The ICT developers have been contributing to different stages of the agricultural process in pace with the rapid evolution of technology development, despite agriculture process being slow in nature. The question raised was to share findings on how technology contributes to the natural stages of the agriculture. In this backdrop, it is proposed to establish a game changer through the CSI Transaction of ICT by bringing a blended approach to technology development with societal implications on Agriculture. In this regard, MSSRF shall focus on Contributed papers orchestrating its Vision, Practice, and Impact of ICT and Agriculture.
 - b. Themes of interests besides agriculture on how ICT is applied and is becoming relevant / can become better relevant based on issues around Sea level rise, Nutrition, Value Chain and Market (Food Processing, Food Safety, and Food Distribution System).
 - c. Integrated papers with INCOIS, IMD, ISRO on how the technology-mediated information is generated through research and linked with the society for bringing a change in their lives and livelihoods.
 - d. Facilitate with reputed organizations in other regions such as Sub Saharan Africa, South Asia, and Israel to get papers covering the status of ICT and agriculture in their regions.
 - e. Other suggestive government players with whom MSSRF shall explore and coordinate are E-NAM and -NAAM, ICAR, NIRD, MANAGE.
 - f. It was clarified by the Chief Editor that each issue would carry 10 papers of approximately 10-12 pages in length. In general, it would take 6 months for peer review to bring the paper to an acceptable standard for publication.
 - g. Every one present welcomed the idea.
 4. Prof. Gautam Barua said that Aadhar, 5G / IOT, Speech Recognition, Language translation, National Knowledge Network, Passport, etc are candidates to show case Digital India. Every one agreed. Dr B K Murthy agreed to share the contact in CDAC and NIC for Unnikrishnan to follow up.
- Meeting ended with thanking the chair and participants.



CSI Communications Announcement

We have got unprecedented response to the announced theme, 'Sensors for Internet of Everything'. Selected Articles in this theme will be presented as a special research issue in CSI Communications April 2018 issue. Some of these articles in healthcare domain are published in this CSI Communications March 2018 issue with theme, 'Smart Healthcare'. In this issue, reports of CSI annual convention, major conferences such as IT for Defence, Student Branches and Chapter activities are highlighted as also the distinguished CSI awardees of life time achievement award. Due to shortage of space, some Chapter activities reports, student conventions and CSI awardees of fellowship and honorary fellowship will be included in the subsequent issues. Inconvenience is regretted.

Sd/-
Chief Editor

Leveraging the Cloud for Healthcare

▶ **Sumeet Bahl**
Vice President (Global Marketing & Strategy), Amrita Technologies

▶ **Abhay Ramesh**
Principal Sales Manager, Amrita Technologies

“It is a Cloud Service!” This has been the buzz word around the world for more than a decade. But only in the recent past, organizations are embracing “CLOUD” in its fullest essence. There have been various reasons for the slow adoption of Cloud Technologies in various industries. The first and prime most talked about reason for “not” adopting is a fear around Data Security- a perception that putting critical data on the cloud is opening up an immense amount of liability exposure. However with more transparency, assurance, security and robustness, Cloud hosting (public, private or hybrid) is now commonly used across all kinds of applications in various industries.

The Healthcare industry has also started to adopt Cloud Technologies in all possible aspects as the advantages of having 24/7 outsourced support, disaster recovery, replication, etc. have outweighed any perceived security concerns. As a frontrunner in the Healthcare IT, Amrita Technologies has made significant impact in leveraging the power of the ubiquitous cloud and has ensured benefits to both the Hospital community as well as the Patient Community.



Amrita EMR - connect when you want, however you want –allows multi device, concurrent access

Recently Amrita Technologies introduced two novel concepts in the Healthcare IT. One product is focused

on adoptability and ease of use for Hospitals and healthcare institutions – Amrita HIS Cloud. The second innovation is completely patient centric - Amrita PHR Cloud; empowering each and every individual with his/her electronic medical record when they need it, wherever they need it. It has flipped the concept of the patient record on its head – the patient now becomes the master of his/her own data all throughout his life.

Amrita Technologies’ CEO, Sri. Pradeep Achan commented recently, “With the advent of Cloud adoption in the Healthcare industry, we see a world of opportunities just blossoming. It is creating an environment where solutions built for the cloud can be deployed rapidly- disrupting the traditional way of doing things and providing immense financial and operational benefits to Hospitals Clinicians, and the patient in a great way.”

Amrita HIS Cloud:

Amrita Technologies’ Hospital Information System (HIS) – Amrita HIS, has been one among the most successful Enterprise Grade Fully Integrated Hospital information systems in the Indian Market for more than 15 years. With its domestic and international presence, the top-notch product has achieved all major world class certifications. Amrita has been helping various large tertiary care Hospitals and hospital networks seamlessly run their operations.



Being a pacesetter in Healthcare IT, Amrita Technologies was one of the first HIS product organization who were quick to introduce and offer a state-

of-the-art Amrita HIS Cloud version to their clients. The product architecture is multi-tenant, and multi host capable, and the solution can scale horizontally as user demand increases, i.e, the software is able to handle any expansion as additional hosted hardware is added without any issues. Amrita HIS Cloud is a tailor-made solution which can cater to any Hospital of any size at anywhere in the world .

Case Study | Amrita HIS Cloud at a Tertiary Care Hospital

Overview:

The tertiary care hospital is a highly reputed healthcare facility and has been doing well since its inception in 1999. With its advanced diagnostics facilities, highly acclaimed doctors and most modern modalities in place, the institution has been one of the most preferred hospitals in the state for most patients.

In 2015, the hospital had an OP footfall of nearly 1000 - 1300 per day and occupancy of 1200 beds at any point of the year was at 75-85% occupied. Most of the nearby smaller hospitals and clinics had found the hospital to be a best place for all their referral cases.

The Challenge:

The hospital was serving the entire patient community well. But the management and clinicians and other team members all felt that something wrong about the way their hospital was moving forward and always had a notion that it wasn’t the best way to run it. Even though advancements in terms of medical and diagnostic equipment at the hospital were the state-of-the-art; the entire hospital worked as individual units versus an integrated organization, i.e., all the different departments such as Doctors, Admissions, Pharmacy, Laboratory, etc., were not centered around the patient. As a result, a lot of time was wasted on manual work between departments. Sometimes the situation was getting so worse that; one

patient's lab results were getting issued to another patient, scheduled surgeries for different patients conflicted in the Operation Theatre, wrong lab orders processed for patients, Doctors had to write prescriptions or order tests on a slip of paper and send it along with patient/nurse to concerned locations in the hospital, etc. Identifying and clearing these issues at the hospital had become usual day-to-day tasks for the core staff which consumed their valuable time and energy unnecessarily.

Also, Doctors and Nurses had their own set of problems as well. Both the care providers during OP consultations / IP treatments of patients had incomplete knowledge of the patient's previous health history / details. Dependency on information in paper, or a monolithic EMR was the only way for them to see the patient's medical condition or current medications, etc – which was always time consuming, and often prone to mistakes.

Solution:

A steering committee was formed in the hospital to identify a solution which is most suitable for this huge tertiary care facility - how to streamline the inter-departmental workflows, how to improved operational transparency, how to improve billings and finally how to track and improve the investment ROI. The committee had several guidelines to follow while selecting the preferred HIS Solution.

The major evaluation criteria laid out were:

- The HIS Solution has to be from an established organization
- Solution has to be a totally an end-to-end solution replacing any existing smaller solutions currently being deployed
- Solution has to be Patient / EMR Centric one
- Solution with least or no customization requirements
- Product which requires lowest spending on infrastructure

The team aggressively evaluated several HIS solutions from different established vendors and shortlisted to major three which they found meeting their criteria. From the identified three, they weighed the solutions based on

the excellent functionalities available as well as lowest initial investment, and zeroed in on Amrita HIS Cloud (AHIS Cloud).

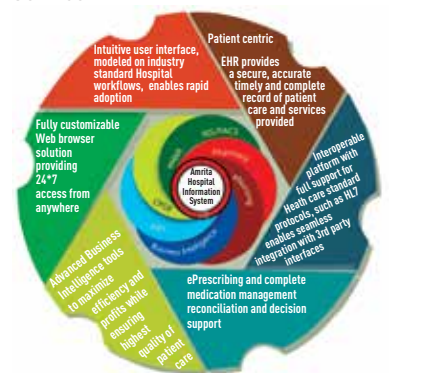
Amrita Technologies were able to complete the implementation of AHIS Cloud as a SaaS model at the Tertiary care facility within a very short timeframe. As the HIS solution was a SaaS based model, the hospital didn't had to spent on expensive hardware infrastructure too – and what was really key, not having to invest in trained IT network type of resources.

The hospital is now able to work with an integrated approach to cater to the needs of their patients, they are able to track their inventory, asset utilization, patient flows extremely effectively. And really focus on healthcare instead of being worried about technology!

Impact:

The Built-in multi-tenancy of AHIS Cloud allowed maximizing efficiency by utilizing shared resources optimally based on scalability requirements, thereby driving down costs accrued.

Now the hospital is able to focus on delivering quality patient care instead of worrying about the hassles they previously had. Now with AHIS Cloud's periodic automatic feature updates, the hospital is receiving the latest features updated without disruption to their service.



Amrita HIS is completely a patient centric system which is a one stop solution for automating all aspects of any hospital of any size

With AHIS Cloud, Doctors are able to have fully personalized dashboards defined by them in order that they may have relevant data available at their fingertips. Doctors and nurses

can not only see the patient's past and present medical information through their hospital computers but also use AHIS Cloud's tablet-based interface for recording patient data and obtaining access to essential information in real-time from anywhere.

Result:

Through the implementation of AHIS Cloud, the Hospital benefitted in several ways.

- Paper usage went down by 60% which resulted in a savings of INR 3.5 lacs a year
- Patient waiting times reduced by 39%
- Power saving of 30%
- Laboratory processing time reduced from 14.5 to under 3 minutes per sample
- Wastage due to Expired drugs eliminated
- OT utilization up by 18%
- Effective inventory management & Vendor rating, quotation tracking
- Bed Occupancy ratio increased 10%
- Several cases of financial fraud eliminated
- Comprehensive Research and Clinical data mine created

Amrita PHR (Personal Health Record)

The Amrita PHR was developed in compliance with Blue Button and HL7 (Health Level 7) international standards. The objective was to do away with bundles of paper EMR documents and actually become a life saving tool in Emergency Situations. It is a secure vault of a person's health data - Blood group, Allergies, Medications, Surgeries, investigations, etc. - a critical tool for everyone ranging from disabled people to children with severe medical issues to all of us.



Access of APHR on Mobile phones makes it a ubiquitous partner for patients

The most important architectural element of APHR is that is HIS agnostic – can get data from any HIS in a standardized format. The hospital or Clinic does not need to transition their Health IT Infrastructure to utilize this great product.

Case Study | Amrita Personal Health Record

Overview:

The 250 bed Hospital is a well revered healthcare facility near the state’s IT Park. The hospital is mostly dedicated in Infertility and Gynecology & Obstetrics along with other departments such as Orthopedics, Cardiology, etc. The healthcare facility started its operations way back in 2003 as a 75 bedded facility. Since inception, the hospital grew its reputation as well as grew in bed size.

Hospital management has a very clear vision of being a No.1 preferred Hospital in the state for all their patients. Hence, they are very active in various outreach programs and conduct a lot of camps.

Challenge:

The Hospital wanted to be unique as well as position themselves as a highly transparent and patient friendly organization. Also, as the hospital is extremely active in conducting medical camps, they wanted to give a unique experience to those patients as well. As the management is highly appreciative of embracing technology, they started looking out for newer trends in Healthcare IT to incorporate in their hospital activities for the benefits of their patients.

Solution:

In the exploration phase of novel and unique Healthcare IT solutions, the General Manager-IT and team of

the Hospital came across the Amrita Personal Health Record (APHR) Cloud application from Amrita Technologies.

The Hospital found that with APHR Cloud, they can empower all their patients to be the owners of their Health Records which in turn will increase their transparency to their patients. Furthermore, Amrita PHR Cloud allows their patient community to access the medical records and vital documents anytime from anywhere. Also, found that during emergency / golden hour, doctors are able to access most critical information such as medical history, recent lab reports, allergies and prescriptions over the cloud when the patients are not in a position to communicate the same.

In addition, post to the consultation at the Hospital, as well as, for camp patients, when lab tests are certified; the needful Clinical details of the patients will get updated in the APHR Cloud automatically.

For the Hospital, one of the most unique aspects of the APHR Cloud is that it can communicate and fetch EMR data of patients immaterial of the HIS solutions being used at the Hospital.

Result:

After the implementation of the APHR Cloud, there have been several positive impacts for both Hospital as well as their Patients.

Benefits for the hospital:

- Better recognition and brand value among the patient community for the hospital
- Is able to leverage the existing EMR for the patients’ benefit
- Helped to be more Eco-Friendly by lowering paper usage for reports
- Improved reach and response for all the camps and out-reach

programs

- Helped in playing a vital role in hospital’s marketing activities
- Resulted in happier patients



Doctors are able to access medical records of the patients through APHR

Benefits for the Patients:

- Ubiquitous cloud partner with various vital details capable of helping / life saving during any emergency
- Time saved - Real-time update of patient records when results/reports are approved by Hospital
- Doesn’t have to carry bundles of medical records any more for consultations



Senior patients are able to get all their medical details at their fingertips

- Able to securely share medical data to other clinicians/family doctors for second opinions
- No dependency on any particular hospital for medical information

About the Authors



Sumeet Bahl has extensive experience with Healthcare IT industry nationally and internationally. He manages all the strategy and marketing related activities in India as well as the USA for Amrita Technologies. Also, he has profound experience in online and mobile eCommerce platforms, CRM platforms, customer acquisition and retention strategy (including optimization and personalization), customer data management, etc. He has led eCommerce and Marketing groups in various Fortune 500 organizations including American Airlines and Symantec Corporation. Sumeet has an MBA from the University of Maryland at College Park, a B.E. from Delhi Inst. of Tech. and hold the PMP and CFA certifications.



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Real Time Health Monitoring of Elderly People using open source IOT Platforms

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The ratio of the elderly people in any population is continuously growing. The elderly are more susceptible to infections. The recent advances in technology namely Internet of Things (IoT) demand for an easy way of monitoring the older adults from their home. Also it facilitate any abnormality in their behaviour in real-time and suitable corrective measures can be taken. Among the various factors the human body temperature and heart rate play a vital role in maintaining a good healthy body. Body temperature, controlled by the hypothalamus in the brain, can indicate abnormalities in the human body if elevated. Regular monitoring is the number one preventive measure to assist in ruling out infections and ailments, such as treating Strep throat, flu, chicken pox, and pneumonia. In order to determine the functionality of elderly people’s heart and to take a precaution of heart disease, importance of counting pulse or heart rate is very significant for early detection of the disease. Considering the above factors, we propose a human health monitoring system that could monitor the heart rate and temperature of the older adults in real-time and communicate with the respective doctor and care taker in case of any emergency. The system is experimented with various open source IoT platforms and the results show the feasibility to build a system to identify and possibly distinguish between normal and abnormal situation of an elderly person living alone in a home.

Introduction

IoT has become a world-wide phenomenon ranging from gathering data from various mobile devices to exchanging the data across various platforms. Its impact on healthcare will be perhaps the most important and personal effect [1]. By 2020, 40% of IoT-related technology will be health-related, more than any other category, making up a 117 billion US dollar market. The convergence of medicine and information technologies such as medical informatics will transform healthcare as we know it, curbing costs there by reducing inefficiencies and saving human lives.

The increase in the ageing

population of the world is associated with the increase of many ailments. Often, when people age, there is immunosenescence, which means that the immune system doesn’t function properly [8]. Most of the older adults are home alone. They prefer to stay at home rather than visiting the care taker or physician at regular intervals. Moreover as a society it their right to live independently [11-14]. Many are forced to live with their adult children, who are at work during the day time or in an old age home, where they have a sheltered living environment, but there is also high risk of fatality due to fall [1] or even a stroke. Any abnormal events

can occur to an old person at any time and hence real-time monitoring of the health of the elderly is necessary. With the technology of today we can offer a better way to effectively monitor the health of an elderly that will make a significant impact on their lives [2].

A smarter way to improve their living standards can be obtained by providing a way to monitor their health from their home [10]. There are a number of devices available for healthcare monitoring in the market but they are very hard to maintain and are very costly to afford [3-4]. We are providing a health care monitoring system that is lightweight, cost-effective and portable.

Overview of the proposed design



Fig. 1 : Elderly health monitoring system architecture

The architecture of the proposed approach is shown in Fig. 1. The body temperature sensor and the heart rate sensor are placed on the patient. The data acquisition module reads the data from both the sensors and redirects the data to the IoT platform. The body temperature sensor senses the body temperature and the heart rate sensor senses the pulse rate of the patient. Both the readings are sent to the data acquisition module.

Development boards, such as Arduino and Raspberry Pi, are common choices when prototyping new IoT devices. Those development boards are essentially mini-computers that can connect to and be programmed by a standard PC or Mac. After it has been programmed, the development boards can then connect to and control sensors in the field. Because the "I" in IoT stands for internet, the development boards need a way to connect to the internet. In the field, the best way to connect to the internet is by using wireless networks. However, Arduino and Raspberry Pi do not have built-in support for wireless networks. Developers will have to add a Wifi or cellular module to the board and write code to access the wireless module.

The Node MCU (Node Micro Controller Unit) is an open source software and hardware development environment that is built around a very inexpensive System-on-a-Chip (SoC) called the ESP8266. The ESP8266, designed and manufactured by Espressif Systems, contains all crucial elements of the modern computer: CPU, RAM, networking (Wifi). Hence for data acquisition we use the NodeMCU. As discussed earlier, the NodeMCU has a built-in Wifi module that connects to the IoT platform through the internet. Once the data is available in the IoT platform, the patients' health record can be monitored by the physician through smart phones, tablets and personal computers [5-6]. If any of the parameters are go abnormal it will automatically send alert message to the doctors and care takers so that the doctor can instantly take the action on these abnormalities.

Implementation

Hardware Required

▪ Temperature Sensor

LM35 is a very low cost and easily available Sensor. Main advantage of LM35 is that it is linear i.e. 10mv/°C which means for every degree rise in temperature the output of LM35 will rise by 10mv. So if the output of LM35 is 220mv/0.22V the temperature will be 22°C. So if room temperature is 32°C then the output of LM35 will be 320mv i.e. 0.32V. Some of the features of LM35 are:

Calibrated Directly in Celsius (Centigrade)

- Linear + 10-mV/°C Scale Factor
- 0.5°C Ensured Accuracy (at 25°C)
- Rated for Full -55°C to 150°C Range
- Suitable for Remote Applications

▪ Heart Rate Sensor

The Heart Rate Sensor or Pulse Sensor is a plug-and-play heart-rate sensor for Arduino. It can be used by students, artists, athletes, makers, and game & mobile developers who want to easily incorporate live heart-rate data into their projects. It essentially combines a simple optical heart rate sensor with amplification and noise cancellation circuitry making it fast and easy to get reliable pulse readings.

▪ Node MCU

NodeMCU is an IoT Module based on ESP8266 Wifi Module. NodeMCU uses Lua Scripting language and is an open source Internet of Things (IoT) platform. NodeMCU offers-

- Arduino-like hardware IO
- Event-driven API for network applications
- 10 GPIOs D0-D10, PWM functionality, IIC and SPI communication, 1-Wire and ADC A0 etc. all in one board
- Wifi networking to connect to internet to fetch or upload data.

▪ ADS1115 ADC

For microcontrollers without an analog-to-digital converter or when you want a higher-precision ADC, the ADS1115 provides 16-bit precision at 860

samples/second over I2C. The chip can be configured as 4 single-ended input channels, or two differential channels. It even includes a programmable gain amplifier, up to x16, to help boost up smaller single/differential signals to the full range. It can run from 2V to 5V power/logic, can measure a large range of signals and its super easy to use. It is a great general purpose 16 bit converter.

IoT Platforms

• Ubidots

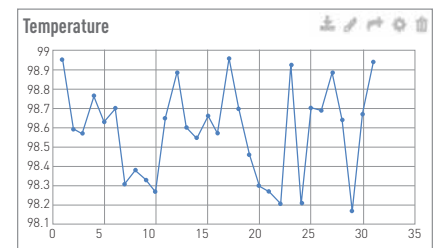
Ubidots is an IoT application builder with data analytics and visualization. We turn sensor data into information that matters for business-decisions, machine-to-machine interactions, educational research, and increased economization of global resources.

• ThingSpeak

ThingSpeak is an IoT platform that lets you collect and store sensor data in the cloud and develop IoT applications. ThingSpeak provides very good tool for IoT based projects. By using ThingSpeak site, we can monitor our data and control our system over the Internet, using the Channels and webpages provided by ThingSpeak. ThingSpeak 'Collects' the data from the sensors, 'Analyse and visualize' the data and 'Acts' by triggering a reaction.

Result Analysis

The proposed system is experimented over Ubidots and ThingSpeak and the results are discussed. The Node sMCU is loaded with the required Ubidots library and the user credentials are given to connect to the internet. The NodeMCU reads the data from the sensors and transfers it to the Ubidots cloud. The temperature values can be seen on the Ubidots user interface as shown in the Fig. 2 below:



(a)

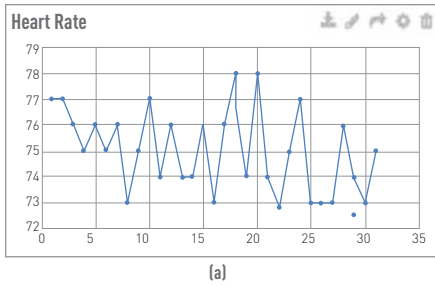


Fig. 2 : Heart rate and Temperature monitoring widget - Ubidots

It also allows us to create an Event that notifies you when temperature is irregular or the pulse rate is abnormal as shown in the figure 3 below: EXPLAIN MORE



The response can be an email notification to the caretaker or to a group of family members or it can be a simple text message to the doctor and family members. The response can

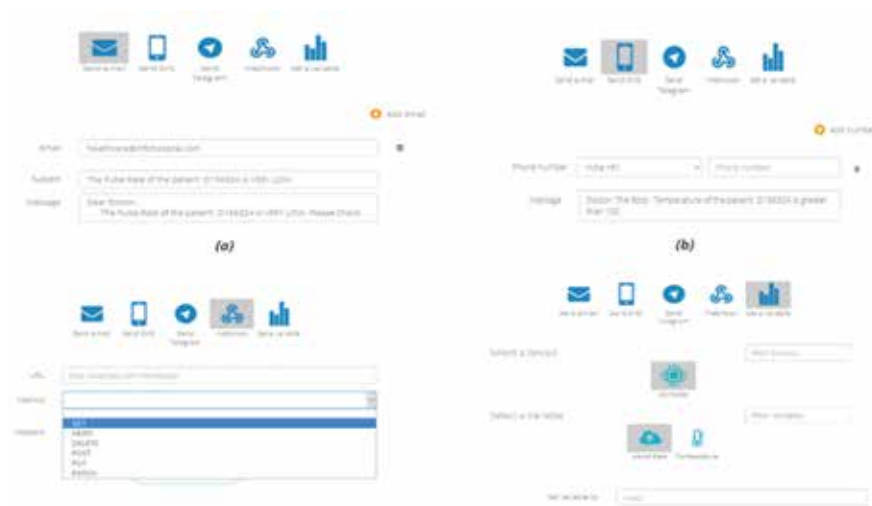


Fig. 4 : Notification via (a) email (b) text message (c) web hook (d) setting variable of another device

also be sent to another web server for further processing or it can be used to manipulate other devices by setting the value to another parameter as shown in the Fig. 4 below:

The NodeMCU will send the data to ThingSpeak. This data on the ThingSpeak will be shown in a Graph form showing the past readings too and can be accessed from anywhere over internet as shown in the Fig. 4 and 5 below:

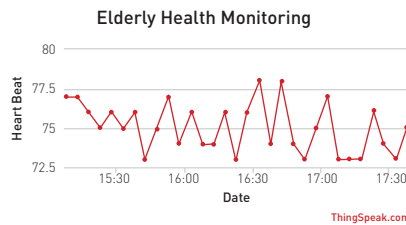


Fig. 4 : Heart rate monitoring widget - ThingSpeak

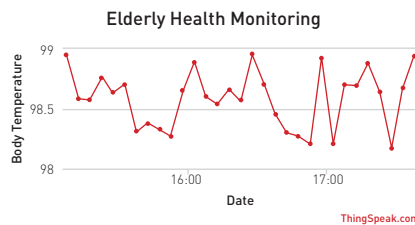


Fig. 5 : Temperature monitoring widget - ThingSpeak

The MATLAB Analysis provides the data to be analysed and to react

to events based on the conditions that prove to be abnormal. The notifications can be sent via a HTTP request using ThingHTTP or through twitter using ThingTweet or it can be sent for further analysis. A sample event request is shown in the Fig. 5 below:



Fig. 5 : Event notifications – ThingSpeak

Both the Ubidots and ThingSpeak provide IoT services that can be used by the researchers or programming enthusiasts. As we can see, the results prove that our approach is feasible and can be used to monitor the health of the elderly from their home.

Conclusion

The world is moving into an era where the most of the activities are automated. The usage of smart phones have also increased exponentially. People have started using IoT devices to set reminders, fix appointments and send notifications. The IoT in healthcare ensures remote monitoring of patients. The patients can seek the advice of the physician from anywhere. The doctors can also track the location of their patients and also provide timely response in case of emergencies. In this paper we have shown that the health

of the elderly can be monitored and suitable notification can be made on real time basis. The open IoT platform used in our research allow an efficient cost-effective way to communicate with the doctor and care takers without the need of manually setting up an environment to transfer and analyse the data.

Our future focus will be on using sensors for monitoring the blood glucose, blood oxygen saturation, blood pressure and respiratory rate for patients diagnosed with cardiovascular disease. Also to ensure the integrity of the health data proper security mechanism will be incorporated.

References

- [1] Al Rasyid, M.U.H., Lee, B.H. and Sudarsono, A., 2015, May. Wireless body area network for monitoring body temperature, heart beat and oxygen in blood. In *Intelligent Technology and Its Applications (ISITIA)*, 2015 International Seminar on (pp. 95-98). IEEE.
- [2] Appelboom, G., Camacho, E., Abraham, M.E., Bruce, S.S., Dumont, E.L., Zacharia, B.E., D'Amico, R., Slomian, J., Reginster, J.Y., Bruyère, O. and Connolly, E.S., 2014. Smart wearable body sensors for patient self-assessment and monitoring. *Archives of Public Health*, 72(1), p.28.
- [3] Baig, M.M., Gholamhosseini, H. and Connolly, M.J., 2013. A comprehensive survey of wearable and wireless ECG monitoring systems for older adults. *Medical & biological engineering & computing*, 51(5), pp.485-495.
- [4] Cavallari, R., Martelli, F., Rosini, R., Buratti, C. and Verdone, R., 2014. A survey on wireless body area networks: Technologies and design challenges. *IEEE Communications Surveys & Tutorials*, 16(3), pp.1635-1657.
- [5] Fortino, G., Parisi, D., Pirrone, V. and Di Fatta, G., 2014. BodyCloud: A SaaS approach for community body sensor networks. *Future Generation Computer Systems*, 35, pp.62-79.
- [6] Huang, J.H., Su, T.Y., Raknim, P. and Lan, K.C., 2015. Implementation of a wireless sensor network for heart rate monitoring in a senior center. *Telemedicine and e-Health*, 21(6), pp.493-498.
- [7] González, F.C.J., Villegas, O.O.V., Ramírez, D.E.T., Sánchez, V.G.C. and Domínguez, H.O., 2014. Smart multi-level tool for remote patient monitoring based on a wireless sensor network and mobile augmented reality. *Sensors*, 14(9), pp.17212-17234.
- [8] Movassaghi, S., Abolhasan, M., Lipman, J., Smith, D. and Jamalipour, A., 2014. Wireless body area networks: A survey. *IEEE Communications Surveys & Tutorials*, 16(3), pp.1658-1686.
- [9] Mukhopadhyay, S.C., 2015. Wearable sensors for human activity monitoring: A review. *IEEE sensors journal*, 15(3), pp.1321-1330.
- [10] Nadeem, A., Hussain, M.A., Owais, O., Salam, A., Iqbal, S. and Ahsan, K., 2015. Application specific study, analysis and classification of body area wireless sensor network applications. *Computer Networks*, 83, pp.363-380.
- [11] Salem, O., Guerassimov, A., Mehaoua, A., Marcus, A. and Furht, B., 2016. Anomaly Detection in medical wireless sensor networks using SVM and linear regression models.
- [12] Soh, P.J., Vandenbosch, G.A., Mercuri, M. and Schreurs, D.M.P., 2015. Wearable wireless health monitoring: Current developments, challenges, and future trends. *IEEE Microwave Magazine*, 16(4), pp.55-70.
- [13] Wang, J., Zhang, Z., Li, B., Lee, S. and Sherratt, R., 2014. An enhanced fall detection system for elderly person monitoring using consumer home networks. *IEEE transactions on consumer electronics*, 60(1), pp.23-29.
- [14] Yan, H., Xu, L.D., Bi, Z., Pang, Z., Zhang, J. and Chen, Y., 2015. An emerging technology-wearable wireless sensor networks with applications in human health condition monitoring. *Journal of Management Analytics*, 2(2), pp.121-137.

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Application of Pattern Recognition in Medical Imaging and Computational Analytics for Cancer Detection.

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Medical imaging refers to the use of noninvasive techniques for observing the human body. This infers that the body need not be surgically opened to analyze the various organs or the tissues in the body. During the last few years, medical image processing has played a vital role in the early detection, diagnosis and treatment of various critical diseases. In most of the cases medical imaging act as the first step in preventing the spread of diseases. Computed Tomography scanning (CT), Magnetic Resonance image (MRI), Ultrasonography imaging (US) and X-ray imaging are all very common and important tools used in medical diagnosis [6]. Today the medical imaging has not just grown but has significantly evolved to a high level of maturity. Modern medical imaging includes not only image production but also the automated computational analysis for the accurate diagnosis [8]. Medical imaging has now become a multifaceted field with the combination of knowledge of various fields such as Computer Science, Physics, Mathematics and medicine. This article highlights various advanced aspects of medical imaging with respect to computational analytics for the automated diagnosis of cancer.

I. Introduction

Since the Discovery of the X-Rays in 1895, medical imaging has greatly contributed towards the progress in medicine. The Various image modalities developed during the years include Ultrasonography, Computed tomography (CT), Magnetic resonance imaging (MRI) and various other variants of MRI such as F-MRI etc. Over the past years, the medical images used to be produced through various modalities, then they were presented to a physician (radiologist) for interpretation and a subsequent diagnosis to infer at the medical condition of a patient. The diagnosis was the result of a decision making process done by the radiologist, who had some specialized medical knowledge. Thus, from a physician's point of view, image interpretation and decision making has been considered as the most critical and vital processes in diagnosis. Recently with the advent of various computational techniques the diagnosis results are considerably improving thus resulting into superior decision making by the physician.

Prostate cancer is one of the most widely occurring cancer among men in the world. It is heterogeneous disease, as the gland grows with the age [1] [2]. The occurrence of Prostate cancer is so high that it is most often considered as the normal age related phenomenon. Now in order to diagnose the patients, we require a non-invasive detection and staging as the invasive techniques are quite painful which involves the needle insertion to get the tissue (needle biopsy). Mortality in patients is often due to the spread of cancer from prostate to other parts which though happens only in a small number of patients. In fact, prostate cancer, if detected earlier can be controlled.

Magnetic Resonance Imaging (MRI) plays a vital role in diagnosis of prostate cancer. MRI scans is used for cell biopsies, radiation therapy treatment, or planning of surgeries. Automated analysis thus enhances the clinical workflow considerably.

This article walks through the various process in an automatic

segmentation algorithm for prostate segmentation in MR images.

II. Magnetic Resonance Imaging

The Superconducting magnets are used in MRI systems to provide uniformly strong and steady magnetic fields. The superconducting magnetic coils are cooled to a temperature equivalent to a liquid helium and thus can produce very high magnetic fields. Different coil systems produce a time varying, controlled magnetic fields in different directions.



Figure 1.0 : Medical MRI Scanner.

The patient is kept in this gradient field space as shown in Fig. 1.0. There are also transmitting and receiving RF coils surrounding the site on which the image is to be formed [7]. By taking a series of projections at different gradient orientations using X, Y and Z gradient coils a 2 or 3-dimensional image can be obtained. The slice or the plane of the image depends upon the gradient or axis of magnetic field. The magnetic field is controlled by computer and the field can be positioned in three planes (X, Y and Z). The transmitter provides the RF signals. The received nuclear MR signal is picked up by the receiver coil and is fed into the receiver for signal processing.

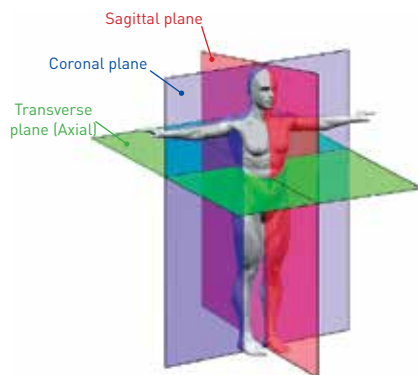


Fig. 2.0 : Axis of MRI images.

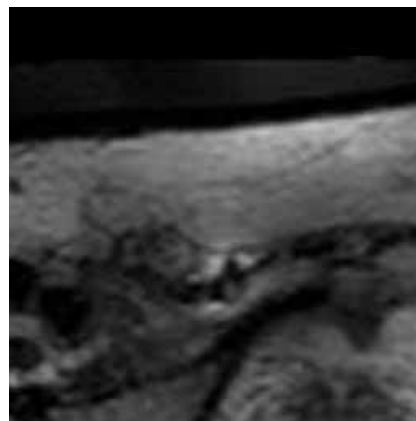
III. Steps in image processing

The Image processing steps for Prostate cancer detection includes the below steps

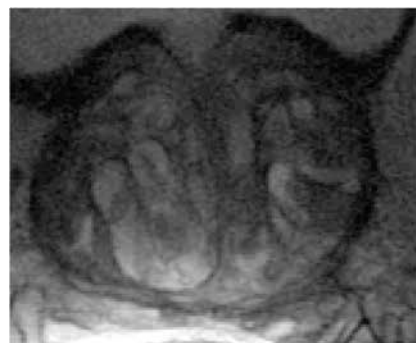
1. Image Formation
2. Image Enhancement
3. Visualization
4. Analysis.

A. Image Formation.

Image formation includes the acquisition of the medical image through use of various modalities. The acquired image is then processed through sampling to convert into a digital image. This process is known as Digitization [3]. The prostate MRI image is produced at this stage and is digitized using the above process.



a) Prostate Image



b) Prostate Image after Enhancement

Figure 3.0: Prostate MRI Image

B. Image Enhancement

Image Enhancement refers to techniques to be applied on the digital images formed earlier so that the impurities or the noise from the images can be removed. This process includes Calibration, Registration, Optimization and transformation, filtering. The digitized prostate image formed in the earlier stage is then enhanced to appropriate dimensions so that it can be further processed on visual aspect.

C. Image Visualization.

This process includes the enhancement with respect to the visual quality of the image. The images formed can have various intensity variation which might cause the computer programs to detect the region erroneously [3]. In order to avoid this normalization is used. It is often done by moving the mean intensity to zero and scaling the intensities so that standard deviation becomes equals to

one. For effective normalization, we use the median intensity and the absolute median deviation as an estimate for mean and standard deviation, respectively.

The MRI image is normalized so that the noise is eliminated from the images and the intensities are normalized.

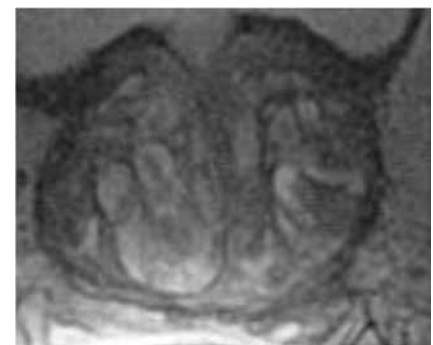
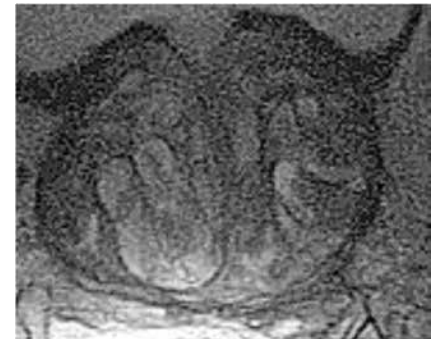


Fig. 4.0 : Images after Normalization.

D. Analysis

This phase includes the region of interest detection along with the feature extraction, segmentation and its classification. To identify the Prostate gland is the next task. In this method we slide the detection window of fixed size over the image and compute for each image defined by present detector position whether it contains the prostate gland. The tissue if found within the prostate's bounding box itself is relatively homogenous, thus we use a larger bounding box for the feature extraction [4]. The features in the form of the prostate volume vector is used to calculate density measure which then can be used as the input for the classifiers.

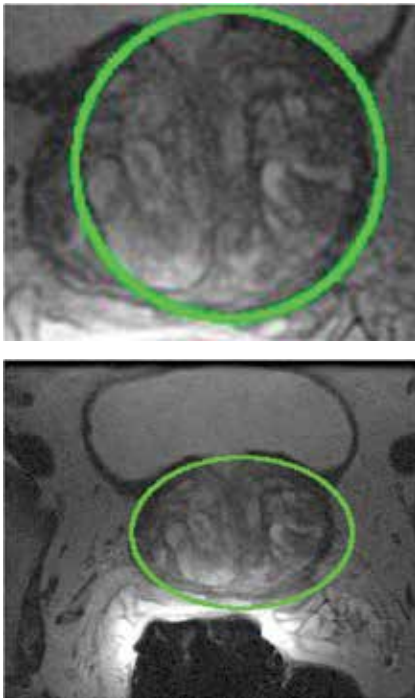


Fig. 5.0 : Prostate Detection

Classification.

Image classification aims to assign each pixel, or to each region of interest (ROI) obtained from image, a label associated with a class of object that is present in the analyzed section. During this phase, depending on the features extracted from the image the class labels are assigned which then helps in

prediction of the appropriate results [5].

The advancement in computational analytics has increased the use of technique of classification such as Decision trees, Naïve Bias, and SVM's which helps in the near to accurate analysis of the image. When a prostate feature vector is classified using these algorithms, it can be assigned a suitable class label which in turn helps in the analysis of the results calculated.

IV. CONCLUSION

The medical imaging has thus resulted into fast and efficient diagnosis of various life threatening diseases. The Medical Imaging has provided a tool for the physician as well as the Computer researcher to construct efficient algorithms which can accurately assist in the prognosis of diseases in turn helping in the betterment of the society.

References

[1] E. Niaf, R. Flamar, O. Rouviere, C. Lartzien and S. Canu, "Kernel-Based Learning From Both Qualitative and Quantitative Labels: Application to Prostate Cancer Diagnosis Based on Multiparametric MR Imaging", IEEE Transactions on Image Processing, vol. 23, no. 3, pp. 979-991, 2014.

[2] M. Kirschner, F. Jung and S. Wesarg, "Automatic Prostate Segmentation in MR Images with a Probabilistic Active Shape Model", Promise2012Challenge.

[3] D. Staff, "Q&A: Taking on the Challenges of Imaging Prostate Cancer | Diagnostic Imaging", Diagnosticimaging.com,

2015. [Online]. Available: <http://www.diagnosticimaging.com/mri/qa-taking-challenges-imaging-prostate-cancer>. [Accessed: 14- Jan- 2015].

[4] "Patient/Exam List", Prostatemrimage.com, 2016. [Online]. Available: <http://www.prostatemrimage.com/Database/index.html>. [Accessed: 14- Dec- 2015].

[5] R. Gangwal and R. Deshmukh, "Prostate Cancer Identification Using Segmentation and Kernel Based Classifier in Magnetic Resonance Image", IJCIER, vol. 23, no. 3, pp. 979-991, 2014.

[6] "The Role of Medical Imaging in the Prevention, Diagnosis and Treatment of Cancer, Cancer Resource Center, Imaginis - The Women's Health & Wellness Resource Network", Imaginis.com, 2016. [Online]. Available: <http://www.imaginis.com/cancer/the-role-of-medical-imaging-in-the-prevention-diagnosis-and-treatment-of-cancer>. [Accessed: 03- Aug- 2016].

[7] K. Rao and V. Rao, "Medical Image Processing". [Online] Available: http://www.drkmm.com/resources/MEDICAL_IMAGE_PROCESSING_25sep06.pdf. [Accessed: 03- Aug- 2016].

[8] K. Doi, "Diagnostic imaging over the last 50 years: research and development in medical imaging science and technology", Physics in Medicine and Biology, vol. 51, no. 13, pp. R5-R27, 2006. ■

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Realtime Transformer - Health Measuring System

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Power assumes an imperative part in our life. Each snapshot of our life relies on power. Power has a few segments and hardware helping human to exchange and control the circulation as indicated by use. The most urgent hardware of transmission and dissemination of electric power is transformer. As substantial number of transformers are circulated over a wide territory, it's hard to gauge the condition physically of each and every transformer. Observing the transformer condition is an imperative issue. This venture presents plan and usage of a versatile inserted framework to quantify stack streams, over voltage, transformer oil level and oil temperature. This is executed by utilizing on-line estimating framework utilizing Internet of Things (IOT), with single chip Arduino micro-controller and sensors. It is introduced at the dissemination transformer site. The yield estimations of sensors are prepared and recorded in the framework memory. Framework modified with some predefined guidelines to check unusual conditions. In the event that there is any anomaly on the framework, points of interest are naturally refreshed in the web through serial correspondence. This Internet of Things(IOT) framework will help the utilities to ideally use transformers and recognize issues before any cataclysmic disappointment happens. Consequently web based estimating framework is utilized to gather and dissect temperature information after some time. This Transformer Health Measuring system will distinguish or perceive startling circumstances previously any genuine disappointment which prompts a more noteworthy unwavering quality and critical cost reserve funds.

Keywords : Embedded System, Server, Arduino micro-controller, ultrasonic sensor, temperature sensor.

I. Introduction

A Transformer in view of the Principle of shared acceptance as per this rule, the measure of attractive transition connected with a loop changing, an e.m.f is prompted in the neighbouring curl. The transformer is a gadget utilized for changing over a low rotating voltage to a high exchanging voltage or a high substituting voltage into a low rotating voltage. A transformer comprises of a rectangular shaft press centre made of covered sheets, very much protected from each other. Two curls p1& p2 and s1& s2 are twisted on a similar centre, yet are all around protected with each other. Note that the both the loops are protected from the centre, the wellspring of rotating e.m.f is associated with p1p2, the essential curl and a heap protection R is associated with s1 s2, the optional loop through

an open switch S. subsequently there can be no present through the sec. loop insofar as the switch is open. For a perfect transformer, we expect that the protection of the essential and optional winding is insignificant. Further, the vitality loses because of attractive the iron centre is likewise immaterial. A transformer is an electrical gadget which is utilized for changing the A.C. voltages. A transformer is most generally utilized gadget in both low and high current circuit. All things considered transformers are worked in a stunning quality of sizes. In electronic, estimation and control circuits, transformer size might be small to the point that it weight just a couple of many grams where as in high voltage control circuits, it might weight several tones. In a transformer, the electrical vitality

exchange starting with one circuit then onto the next circuit happens without the utilization of moving parts. A transformer which builds the voltages is known as a stage up transformer. A transformer which diminishes the A.C. voltages is known as a stage down transformer is, subsequently, a fundamental bit of device both for high and low current circuits.

II. Related Works

1. P. Camagini, Joseph et all in the year 2013 exhibited about the Acceptance and Maintenance of Transformer Askarel In Equipment The term askarel for the most part portrays a generally utilized expansive class of non-flammable engineered halogenated hydrocarbon protecting fluids. In this guide, it applies exclusively to

askarel in transformers, reactors, and extra hardware worked at control frequencies. Transformer askarels contain PCB's which have been utilized as a part of the United States and somewhere else in the course of recent years for some mechanical and buyer applications. As of late, confirm has amassed to demonstrate that PCB's are generally scattered all through the earth and that they can have unfriendly natural and toxicological impacts. Askarels of different compositional writes are utilized. Under arcing conditions the gases delivered, while comprising of dominating non-combustible hydrogen chloride, can yield changing measures of ignitable gases relying on the askarel write. Protection frameworks joining these askarels and cellulosic or other natural materials may, when arced, create vaporous blends which are modestly combustible. Askarel contained in mechanical assembly as got from the maker however preceding administration activity should display certain properties so as to safeguard agreeable execution. Certain basic properties must be held if askarel is to perform dependably its double part of electrical protection and warmth exchange operator. In contrast with mineral protecting oil, askarel is a generally polar material. Careless examining procedure or sulling in the inspecting gear will bring about an example that isn't really illustrative.

2. A. K. Chaou, A. Mekhaldi et all in the year 2015 introduced about the Elaboration of Novel Image Processing Algorithm for Arcing Discharges Recognition on Hv Polluted Insulator Model Insulator flash over under contamination is a stand out amongst the most imperative issues for control transmission. Event of flash over is gone before by releases spread. It is committed to release action through arcing releases design acknowledgement utilizing a mix of effective picture handling and characterization calculations.

Pictures are removed from recorded recordings of flash over process over a plane model separator under different sulling levels. At that point, a calculation is proposed and tried over an extensive picture database. This calculation forms in four phases. In the first place, Otsu picture division calculation is at first connected on pictures. Next, morphological sifting by joining disintegration and expansion tasks is registered to dispense with undesirable clamours. Because of the mix of developing interest for power and the need to redesign or supplant existing hardware of the electrical system, enormous ventures will be required to address future issues. Such ventures are good for nothing if endeavours are not assented to guarantee security of such gear. In fact, the main test comprises in transmitting power. Experiments were built up on a plane protecting surface for better deceivability of showing up releases. The utilization of morphological sifting, through disintegration then widening, brings about wiping out commotions on pictures before any further processing. Pixels are plainly obvious on the portioned picture and don't speak to any electrical releases on the separator surface.

3. M.A. Douar, et all in the year 2010 presented about the Frequency Analysis of the Leakage Current under Non Uniform Pollution Conditions on One Insulator Plane Model the expansion of third symphonious of LC is specifically identified with the releases event. The breakdown flash over is noticeable when the third symphonious of LC increments essentially and comes to for all intents and purposes the basic extent (50Hz). Subsequently, low LC music can be utilized as pointers to distinguish the expansion of polluted layer width on the protector surface. In the power business, open air encasings are broadly utilized to keep up electrical protection running from

dissemination to transmission lines and to help the mechanical load between a conduit and the ground in control contraction frameworks. More often than not, covers are liable to managed dampness and both dis-solvable and non-solvent defilement which prompt the aggregation of leading moves on the protector surfaces. The spillage current examination utilizing the Welch recurrence range demonstrates that LC odd sounds vitality increments relatively with the expansion of contaminated layer width. It is particularly seen for central, third, fifth and seventh LC music at a consistent voltage level. The protector surface is dirtied by showering the salt arrangement on the protecting area close to the high voltage terminal. The low LC music can be utilized as markers to recognize the expansion of contaminated layer width on the separator surface. The frequencies of 150, 250, 350 and 450 Hz are the recurrence parts of connected voltage which have high extents. Hence, a unique intrigue is centred on impacts of these sounds in the spillage current investigation.

4. M. A. Douar, et all in the year 2010. introduced about the Flash over Process And Frequency Analysis Of The Leakage Current On Insulator Model Under Non-Uniform Pollution Conditions Here, we discussed about managing the non-uniform contamination done under 50 Hz connected voltage on a plane model recreating the 1512 L open air cover to a great extent utilized by the Algerian Company of Gas and Electric Power (SONELGAZ). Numerous setups in non-uniform contamination are contemplated in the ENP's (Ecole Nationale Polytechnique d'Alger) High Voltage Laboratory keeping in mind the end goal to investigate the effect of dirtied layer dispersion on the encasing dielectric exhibitions. The contaminated arrangement has a conductivity of 1.2 MS/cm acquired with refined water and NaCl. It relies upon numerous parameters, like the nature of

the store thickness under wetted conditions. The comprehension of flash over marvel is as yet complex in spite of numerous looks into and tests completed [6-9] with a specific end goal to comprehend the electric releases improvement on the dirtied surface prompting the flash over under wetted and sullied conditions. Gain of both cash and time and limiting dangers of mishaps amid human upkeep activities. The spillage current flag disintegration utilizing the DWT hypothesis permits acquiring rapidly more exact and probative data, for restricting the contaminated region and surveying its seriousness on the cover surface. This investigation is being more effective. The capacitive impact is more prevailing than the resistive one on account of a little contaminated layer width for the three non-uniform arrangements yet diminishes with expanding of this width.

5. Torsten Edeler, et all in the year 2012 introduced about the Super-Resolution Model For A Compressed-Sensing Measurement Set-up CS is roused by the way that most normal signs are meager or if nothing else roughly scanty in a specific premise, for example, a wavelet or Fourier premise. The proposed model and its parameter are assessed with the built up measures. The subsequent outcomes for usable scarfing premise are determined on this assessment. With the proposed set-up, it is conceivable to secure high-determination pictures with a low-determination camera. An assortment of recreations were displayed on various model parameters and on a real adjusted model to demonstrate the execution of our new model. What's more, we exhibited the recreation of genuine estimations performed with the proposed set-up. A model set-up that is comparative or equivalent to the single-pixel camera on the grounds that the single-indicator component at that point coordinates over the entire high-

determination picture. The idea of CS has been effectively connected to genuine applications known as single-pixel cameras. Utilizing a little obscuring portion and different indicators, each single-identifier components does not "see" the whole high determination picture. The downside of existing ideas is the restriction to one indicator.

6. M. Hikita, et all in the year 1995, presented about the Image Process Discharge Classification under Non-uniform Fields in Air and He at Low Pressure. This described about the discharge classification under non-uniform electric field in air and Heat low gas pressures for the application of technology to the power apparatus in space. Space technology has been developing application of WV technology in space is now underway. In this case, electrical insulation will play a decisive role in reliable operation of the power apparatus in space. An attempt was made to quantify the pattern of the luminous part of discharge in vacuum using an image processing technique. The effective current density J_e was also introduced, which was defined as a ratio of the discharge current I_d to the cross section area of the luminous part viewed from the vertical direction. The image processing technique will be a powerful and useful means to construct a database of discharge shape for various gases and, as a result, to classify the discharge. The theory of discharges at low gas pressures has been established for uniform and quasi-uniform electric fields. However, it is impossible to apply directly uniform field theory to non-uniform field discharge phenomena.

7. Chih-Chin Lai, et all in the year 2011 displayed about the A User-Oriented Image Retrieval System Based on Interactive Genetic Algorithm Digital picture libraries and other sight and sound databases have been drastically extended as of late. So as to successfully recover the coveted pictures from an extensive picture database, the advancement of a substance based picture recovery [CBIR] framework has turned

into a vital research issue. The vast majority of the proposed approaches accentuate on finding the best portrayal for various picture highlights. Besides, not very many of the agent functions admirably consider the client's subjectivity and inclinations in the recovery procedure. Fast advances in science and innovation have delivered a lot of picture information in various zones, for example, stimulation, workmanship displays, form plan, instruction, drug, industry, and so forth. We regularly need to proficiently store and recover picture information to perform appointed assignments and to settle on a choice. Rather than regular methodologies that depend on visual highlights, our technique, CBIR framework gives an intelligent component to conquer any hindrance between the visual highlights and the human observation. The shading circulations, the mean esteem, the standard deviation, and picture bitmap are utilized as shading data of a picture. Moreover, the entropy in light of the GLCM and edge histogram are considered as surface descriptors to help describe the pictures. To lessen the hole between the recoveries comes about and the clients' desire, the IGA is utilized. Test results and examinations show the practicality of the proposed approach. CBIR has turned into a dynamic and quick propelling examination area in picture recovery in the last decade. The tremendous measure of work required in manual picture comment and the assignment of depicting picture content is exceptionally subjective.

8. Daisuke Miyazaki, et all in the year 2016 .exhibited about the Automatic Crack Detection and Measurement Based on Image Analysis that introduces a technique to evaluate geometrical, photometrical, and natural data of a solitary saw protest in one coordinated system under settled review position and settled brightening heading. Photometrical data speaks to

the surface and the surface unpleasantness of a protest, while geometrical and ecological data speak to the 3D state of a question and the enlightenment dispersion, separately. It is notable that to effectively render a photograph sensible picture of a genuine protest, one ought to have the data of question's physical data and its condition. Basically, three noteworthy sorts of data are imperative, i.e. Geometrical, photometrical, and ecological data. Photometrical data gives the surface reflectance parameter of a question, while geometrical and natural data gives the 3D state of a protest and the light conveyance, separately. Our technique gauges the course of various light sources, without requiring any uncommon light sources, for example, neither one of the lasers pillar nor structured design light. The objective is to make a strategy ready to identify and measure splits utilizing just pictures procured by a camera. Field-programmable entryway cluster (FPGA) is conceivable with numerous favorable circumstances over a product program working on a regular PC Cracks. The molecule channel proposed to perceive splits depends on a shading model setting

9. Daisuke Miyazaki, et al in the year 2003 exhibited about the Polarization-Based Inverse rendering From a Single View. It Presents a Method to Estimate geometrical, photometrical, and natural data of a solitary saw question in one coordinated system under settled review position and settled enlightenment bearing. These three kinds of imperative data is to render a photograph sensible picture of a genuine question. Photometrical data speaks to the surface and the surface harshness of a question, while geometrical and ecological data speak to the 3D state of a protest and the light appropriation, individually. It is notable that to effectively render a photograph sensible picture of

a genuine question, one ought to have the data of protest's physical data and its condition. Our strategy assesses the heading of various light sources, without requiring any unique light sources, for example, neither one of the lasers shaft nor structured design light. One of our primary commitments is the change of the shape-from-polarization method. For investigating the exactness of this question, we didn't matter any smoothing activities to the acquired information. As per this outcome, the info information appear to be less precise.

10. Gerasimos G. Rigatos in the year 2009 presented about the Particle Filtering for State Estimation In Nonlinear Industrial Systems. State estimation is a noteworthy issue in mechanical frameworks, especially in modern apply autonomy. Gaussian and nonparametric channels have been produced which broadened Kalman channel, expects Gaussian estimation commotion, is contrasted and the molecule channel. It does not make any presumption on the estimation clamor dissemination. As a contextual investigation, the

estimation of the state vector of a modern robot is utilized when estimations are accessible from an accelerometer that was mounted on the end effector of the automated controller and from the encoders of the joints' engines. State estimation is scan field of essential significance for mechanical frameworks tasks State estimation for nonlinear frameworks with non-Gaussian clamor is a troublesome issue Problematic arrangements utilize some type of estimation, e.g., demonstrate linearization, and in the broadened Kalman channel (EKF). The PF calculation has accomplished an enhanced estimation of the state vector of a mechanical robot through the combination of estimations that originate from an accelerometer on the controller send effector and encoders on the engines of the joints. Recreation tests have demonstrated the better execution of PF over EKF, which is by and large utilized for sensor combination in industrial systems. However, the robot flow and estimations are profoundly nonlinear, and the estimation commotion isn't generally Gaussian. The commotion

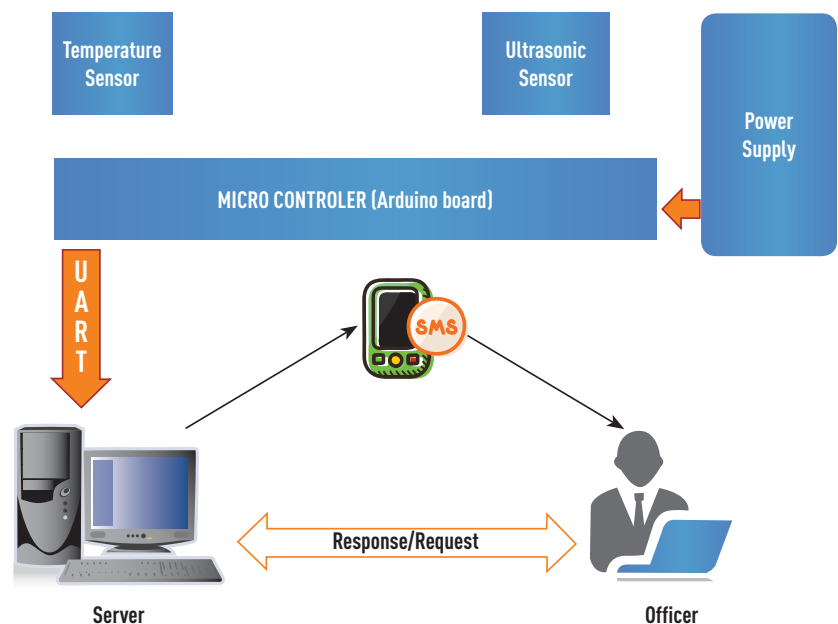


Fig. 1 : System architecture

estimations conveyance that was investigated in the three channels of the accelerometer demonstrated a somewhat non-Gaussian conduct.

III. Proposed System

In proposed method we implement an IOT based Real time transformer-health measuring system. Here, we put a temperature sensor and ultrasonic level sensor along with the transformer. The temperature sensor measure the temperature of the transformer and the ultrasonic level sensor measure the oil level in the transformer. Our proposed framework information's are estimated from sensors and some basic utilized parts at the same time. The arduino controller begins to contrast the approaching esteems and the spared esteems in the EEPROM memory. At the point when there is no less than one parameter's esteem denied the spared esteem, the arduino controller makes a move to refresh the subtle elements in the site page.

So Transformer Health Measuring will distinguish or perceive sudden circumstances previously any genuine disappointment which prompts a more noteworthy unwavering quality and critical cost investment funds.

Officer Interface

In the modern outline field of human – machine cooperation assumes a vital part. It is where connection amongst people and machines happens. Its objective of communication between a human and a machine at the UI is successful task. Info enabling the clients to control a framework. The client will perform either login or enrolment activity. After these activities get over he will go to the following stage. This enables the new client to enroll and open the application to the program. This screens the activities that are occurring in the fringe that could be followed by the officer and client. This guarantees the security accreditations with the goal that issues that happen can be effectively settled. The enrolment should likewise be possible by methods for individual id additionally which is exceptionally helpful for ignorant individuals. This can be specifically utilized by the client or officer by simply composing their id in that content fields.

In this officer interface only two people can take part in the monitorization. One is the officer and the other is the admin. We may able to register a new ID for new officer or admin. It is just to enter into our application.

Transmission of details from the Sensor

The Transmitter will gain estimations of physical parameters and will perform computerized change of them for additionally preparing. This advanced information is then transmitted into air utilizing Arduino by the μC . In this manner it isn't important to keep the board near PC rather the transmitting unit can be set at a far place inside the scope of Arduino. The activity of recipient unit is to get those approaching esteems from air and to move into PC with the assistance of serial correspondence with COM Port.

Receiving details to the Server

The java based programming will show the information (Voltage esteems) of all directs progressively and will store them into database for future reference. The Software is additionally intended to screen the estimations of those physical parameters so as they are dependably in the scope of predefined limits i.e. Lower Limit and Upper Limit. This can be accomplished by observing the approaching information of each channel and by contrasting it and both the points of confinement. In the event that the esteem does not dwell inside the range then the product will offer order to pc and message is sent on versatile associated with the parallel port. The details will be received in the server side.

Comparing details with the expected values

Temperature sensor consists of electrical thermometers which holds the observed reading and converts that reading into an electrical signal.

Ultrasonic level temperatures are used to employ the sound waves to detect the liquid levels.

Sensors are introduced on transformer site which peruses and measures the physical amount from the dispersion transformer and after that it changes over it into the simple flag. Sensors are utilized for

detecting load present, surrounding temperature, winding temperature, and oil temperature and oil level.

A sensor is a gadget which gets and reacts to a flag when touched. A huge number of various quantifiable factors can be gathered for observing. In any case, it is seldom valuable to utilize the whole range. In this way, sensor innovation must be changed in accordance with the particular necessities of a specific transformer relying upon their condition.

Alert for values exceeded from default

The got parameters are prepared and recorded in the framework memory. In the event that any variation from the norm or a crisis circumstance happens the framework sends SMS (short message benefit) messages and ringer alarm (buzzer) containing data about the anomaly as per some predefined directions customized in the Arduino board. This framework will help the transformers to work easily and distinguish issues before any disastrous disappointment.

Report for the officer

A server module can be incorporated to this framework for accepting and putting away transformer parameters data intermittently about all the dispersion transformers of a specific utility in a database application. This database will be a valuable wellspring of data on the utility transformers. The outcome will be appear on web application. Investigation of these put away information helps the utility in observing the operational conduct of their appropriation transformers and recognizes blames before any disastrous disappointments hence bringing about critical cost sparing and in addition enhancing framework dependability.

Conclusion

Subsequently this framework gives counter advance from the unfortunate behaviour showing up in transformer and it overwhelmed the hindrance of forerunner working techniques. So the observing of current and voltage esteems is done and as needs be supply is detached from the heap. Accordingly the transformer is detached. We show

the programmed task of different highlights relying upon the qualities gave by the temperature sensor. Additionally the nearness of oil spillage in the transformer is recognized by the oil level sensor. The Arduino innovation helps in refresh of transmission which builds the advancement in ventures in this procedure. Along these lines, use of this innovation is profoundly gainful in decreasing human exertion. This framework can likewise be utilized to deal with a few quantities of transformers in the business.

References

[1] P. Camagni, G. Colombo, C. Koechler, A. Pedrini, N. omenetto and G. Rossi, "Diagnosis of oil pollution by laser-induced fluorescence", IEEE Trans. Geosci. Remote Sens., Vol.26, No.1, pp.22-26, 1988.
 [2] A. K. Chaou, A. Mekhaldi and M. Tegar "Elaboration of novel image processing

algorithm for arcing discharges recognition on hv polluted insulator model" IEEE Trans. Dielectr. Electr. Insul., Vol.2, No.22, pp. 990-999, 2015.
 [3] M. A. Douar, A. Mekhaldi and M. C. Bouzidi, "Flashover Process and Frequency Analysis of the Leakage Current on Insulator Model under non-Uniform Pollution Conditions", IEEE Trans. Dielectrics and Electrical Insul., Vol. 17, No. 4, pp. 1284 -1297, 2010.
 [4] M. A. Douar, A. Mekhaldi and M. C. Bouzidi, "Frequency analysis of the leakage current under non uniform polluted conditions on one insulator plane model", IEEE Conf. Electr. Insul. Dielectr. Phenomena (CEIDP), pp. 1-4, 2010.
 [5] T. Edeler, K. Ohliger, S. Hussmann, and A. Mertins, "Super-resolution model for a compressed-sensing measurement setup," IEEE Trans. Instrum. Meas., vol. 61, no. 5, pp. 1140-1148, May 2012.
 [6] M. Hikita M. Fujimori N. Hayakawa and H. Okubo "Image process discharge

classification under nonuniform fields in air and he at low pressure" IEEE Trans. Dielectr. Electr. Insul., Vol.2, No.2, pp. 263-268, 1995
 [7] C.-C. Lai and Y.-C. Chen, "A user-oriented image retrieval system based on interactive genetic algorithm," IEEE Trans. Instrum. Meas., vol. 60, no. 10, pp. 3318-3325, Oct. 2011.
 [8] R. G. Lins and S. N. Givigi, "Automatic crack detection and measurement based on image analysis", IEEE Trans. Instrum. Meas, Vol.65, No.3, pp.583-59, 2016.
 [9] D. Miyazaki, R. T. Tan, K. Hara and K. Ikeuchi, "Polarization-based inverse rendering from a single view, Nith IEEE INT'1. Conf. Comput. Vision, pp.982-987, 2003
 [10] G. G. Rigatos, "Particle filtering for state estimation in nonlinear industrial systems," IEEE Trans. Instrum. Meas., vol. 58, no. 11, pp. 3885-3900, Nov. 2009.

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National IT Convention

CSI Student Branch @ Department of IT, Institute of Technology & Science, Mohan Nagar, Ghaziabad, U.P (www.its.edu.in) is organizing one day National IT Convention on "Emerging Cyber Security Threats, Challenges & Opportunities" in association with Computer Society of India (CSI) Ghaziabad Chapter & Dr APJ Abdul Kalam Technical University, Lucknow on Saturday, 21st April, 2018.

This convention is aimed to provide a sharing platform for scholars, practitioners and researchers from Academia, IT industry and Government organizations to share their views on the developments, on-going researches and future of technological advancements in the area of Cyber Security. This convention shall comprise of talks delivered by experts from Academia & Industry, Panel Discussions and various students engaging technical events activities in parallel.

It is requested to kindly include this information in CSI

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Institute of Technology & Science
 Mohan Nagar, Ghaziabad, U.P

Contact Event Chair **Prof. (Dr.) Sunil Kr. Pandey**
 Email: sunilpandey@its.edu.in

Convener **Dr. Umang**
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Co Convener Prof. Smita Kansal
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Details of the convention can be found at <https://events.its.edu.in/itsnsc/itsnsc.html>

Geographic Cognitive Model of Cyberspace - A Conceptual Study

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The demand towards cognitive models for the various cyberspace applications is increasing in general, and the basic requirements for a mapping mechanism between cyberspace and geo-space is increasing hypothetically in particular. This basic need demands for this research study on Geographic Cognitive model for Cyberspace. The theory of Cartography with the help of image processing and artificial intelligence techniques, the geo-space is modeled and visualized. These modelings and visualizations provides a basic theory, and Cartography and Artificial Intelligence techniques provides technical support for this work on Geographic Cognitive model for Cyberspace. This research work is aimed on studies on Geographic Cognitive model for Cyberspace through the analysis of spatial and temporal characteristics of Cyberspace.

Keywords: Artificial Intelligence, Cartography, Cognition, Cyberspace, Geomap, Geospace, Geography, Image Processing, Mapping Model, Spatial Cognition.

I. Introduction

The technology developments in the vast areas of - (i) Internet, (ii) Communication, (iii) Cognitive Computing, etc., have changed the activities of the human beings in their thinking perceptions in overall. The human interactions have broken through the space and time constraints, up to some extent also. The valuable information communications and its transmission liberate from the time and Geographic space constraints, hence the human activity also extends from Geo-space to virtual Cyberspace. So, the whole world is visible as an online form of interdependent giant. The critical fields of - (i) social, (ii) political, (iii) economical, (iv) military, (v) business, of any nation became network related in the national and/or international infrastructure. Hence, the humans creates a new visual space which is not restricted to any nation or region, which are parallel to the Geo-space, and is aimed to develop as an open and secure Cyberspace for the Global prosperity. These studies on Cyberspace is developing as an important space for human activities in their routine daily

life. The Cyberspace is different from Geo-space, but the status is considered as Geo-space only. Therefore, the Cyberspace is closely related to Geo-space, and is interdependently developed for a natural and common cause of human society. Therefore, the development activity of Cyberspace looks more general, but highly complex and needs Geographic Cognitive model for Cyberspace. The Cyberspace is a new era, choice and place to carryout communications with each other human beings in the present dynamic world, and it is totally different from the traditional Geographic space. From the literature, it is understood that the Cyberspace models are not perfect, and needs a suitable and widely acceptable models [1].

2. Literature

Basically three main points of Geo-space are considered for the development of Cyberspace. They are - (i) 3-D space view, (ii) Network space view, (iii) Information space view. The first view, i.e. 3-D space [2] is similar to the existing Geographic space, and considers the Cyberspace as a 3-D

coordinate, and each information point consists of three [X, Y, Z] coordinates. The second view, i.e. Network space [3], the computers and information are linked, hence the node, edge and chain as basic objects those arises to set up network topology. It is a generally accepted model that simulate physical structure in network, and provides the information and its relationship also. Finally, the information space view provides solution to multidimensional objects to the 2-D diagrams, and focus only on local information.

3. Cognition

The cognition is a dynamic action or process of human mind, and is aims to acquire knowledge in order to understand from - (i) thoughts, (ii) experiences, (iii) senses, etc. The human cognition expresses always in two phases or varieties, viz., (i) unconscious and/or conscious, (ii) abstract and/or concrete, (iii) conceptual and/or intuitive, etc. In an abstract or some specific sense, the cognition is an artificial or information processing of human thinking or brain or mind. And the cognitive process utilizes

existing intelligence or knowledge in order to generate new intelligence or knowledge using Artificial Intelligence and Image Processing technologies. At the same time, the cognition cannot be and incorrectly be used to give meaning of cognitive skills and/or abilities, etc. The analysis of cognitive processes are approximately synthesized, and are expressed in the new developmental areas or disciplines of cognitive sciences. The human thinking is the best understood in terms of representational structures in mind, and the computational procedures operate on those structures in mind it self, is the fundamental concept of cognitive sciences [1].

4. Cognitive Map

A Cognitive Map is an individual's - (i) thinking, (ii) understanding, (iii) knowledge, etc., and their overall representations are is expressed in the form of cognitive maps. The spatial and environmental relations of geographic space is represented in the form of these knowledge maps through individual's mental thinking processes.

5. Spatial Cognition

The Spatial Cognition is a process associated with knowledge process through - (i) acquisition, (ii) organization, (iii) utilization, (iv) revision, etc., of the spatial environments under the study considerations. The spatial cognition as a process enables the humans to not only increase their knowledge capabilities, but also to manage basic to high thinking cognitive activities and techniques such as, artificial intelligence, cartography and image processing for Geographical Information Sciences and Psychology, etc. These studies enables to ignite more research ideas in Cyberspace, therefore this research study is carried out on Geographic Cognitive models of Cyberspace.

6. Cognitive Geography

The Cognitive Geography is an interdisciplinary activity and study of both cognitive science and geography, and is aims to understand the human thinking and view of - (i) space, (ii) place, (iii) environment, etc. It also involves the study and formulation of various factors that influence the spatial cognition to

create a more effective and efficient ways of representation of space. These developmental models enables to assists in a wide variety of natural problems and issues. These new models on cognitive geography helps in - (i) the development of visual maps enables for better communication, (ii) the navigational details provide a easy road map to follow, (iii) the visualized space is utilized more practical way, (iv) gives an account on cultural differences on spatial thinking and enables for more effective cross cultural information flow and exchange, (v) the best understanding of our environment, in overall than simple imaginations.

7. Cyberspace

Cyberspace is an inter connected technology, and the term is first introduced by William Gibson in 1984. A Cyberspace refers to any virtual computer world, ex an object in Cyberspace refer to a block of floating data on network. More generally and specifically, it is an on line electronic medium used to form as a Global computer network in order to facilitate online communication to the human world. Also, it is described as a large computer network system which is made up of many worldwide computer networks of Internet those are connected with TCP/IP protocol, and to aid in data/information exchange and communication activities. The core feature of Cyberspace is to provide an interactive and virtual environment for huge range of users world wide. The Cyberspace enables users to - (i) share information, (ii) interact, (iii) swap ideas, (iv) play games, (v) discussions and social forums, (vi) do business, (vii) create media, etc. It is easily understood that the Cyberspace is defined more by the social interactions than its technical implementations [5]. The measurement aspects between any two points for the Cyberspace is highly complex as it is not a substantive space, and physical distance is an effective distance which is attempted to be measured in Cyberspace [6].

8. Cognitive Model of Cyberspace

The Cognitive model of Cyberspace is built based on the Geographic information building. The study uses information space view. The

Geographical information Cognitive model building of Cyberspace is based on the Geographic information and adopts a triple formalization in order to describe the space model as 'G' of Cyberspace. The 'G' is expressed as a formal triple [4], and is given in equations (1) to (4) below:

$$G = (V,E,T) \text{ -- Eq. (1)}$$

$$V = \{v | v \in \text{node}\} \text{ -- Eq. (2)}$$

$$E = \{(v_0, v_1) | v_0 \in V \vee v_1 \in V\} \text{ -- Eq. (3)}$$

$$T = \{(x,y) | (x,y) \in \text{Geographical spatial coordinates}\} \text{ -- Eq. (4)}$$

The node model refers to a abstract node in network. Various nodes of Cyberspace are mentioned as node class. The link model is derived from the correlations between nodes of wired and wireless links. The links are used to describe link information of the network.

9. Cyberspace expression in multi-scale.

The Multi-scale expression of Cybermap mainly consists of node and link. A Group Structure Detection Algorithm can be used to express the multi-scale structure. The structure detection enables to realize the multi-scale expression of Cyberspace that maps the Geospace. The operation process and displacement of nodes is based on the multi-scale expression of principles related to traditional cartography [7, 8]. The generalization of link involves four basic steps. They are - (i) selection, (ii) reduction, (iii) summary, (iv) displacement.

10. Future Work

The human beings have to interact with the geographical environment. In this process of interaction between human and environment becomes a major focus to study by Geographers with a main research objective to minimize the disparity between the environment and its geometric representations. During this process an occurrence of a gap is a natural phenomenon, and removal and/or reduction of spatial cognitive biases are inherent and unavoidable. These spatial cognitive biases includes over and/or under estimation of distances between two locations when there are large

number of intersections and nodes in the selected path. Also, there is a possible tendency to recollect irregular streets or rivers as straight, parallel, perpendicular, etc., than they are actual. These causes various issues in cross cultural geographic information exchanges.

Many research studies are carried out on path or way finding and navigation. The path or way finding is expressed as a mental or human mind thinking process which is involved in determining a route between two defined points, and further following the same route. This consists of planning, optimizing and exploration of routes and different places for movements and trips. These research studies became a gray area topic where the outcome is required to find a perfect and exact information, i.e. not more or less with any deviations, and be applicable for more efficient and effective navigation and path finding. Also, the landmark identifications pays an important role in this process. Therefore, this area of research work has very high potential to automate the selection of landmarks, and these acts as keys to prepare these Cybermaps, and easier to follow also.

The map information display through these cognitive maps are programmed with sense of humans with the space and direction. And the process of communication with highly effectively and efficiently through the cognitive maps is a challenging and marvelous activity for many cartographers, which is programmed with image processing and artificial intelligence techniques. Also, the consideration of color, symbols, relative size of objects plays a key and important role of interaction between mapmaker and the maps.

Displaying information through maps has been shaped by how human beings sense the space and direction. Communicating effectively through maps is a challenge for many cartographers. For example, symbols, their color, and their relative size have an important role to play in the interaction between the map and the mapmaker. Also, the scale and view of different sources dealt by the cognitive geographers with their developmental knowledge also plays a key role during the work. A questionnaire type of data collection by the interested volunteers provides a spectrum of interpretations about the focused topic may provide a useful research outcome to a typical research work in cognitive geography.

10. Conclusion

The study on Cyberspace is a current research topic and is a highly potential area and has much attention world wide for Geographic Cognitive Models. The Cyberspace for Geography is new research field, and the research study on Geographic Cognitive Model of Cyberspace is a novel idea for the logical social and business interactions. These studies emerges as an interactive future business model for world wide networks including information sharing. Presently it is in the exploration research studies stage to develop a challenging cognitive model on one face. And on the another face, the development of tools and technological are required to be initiated with latest techniques of artificial intelligence, image processing and cartography, etc. The exploratory study for a cognitive model is an initiation of conceptual research work for the visualization of Geography with Cyberspace, irrespective of many

difficulties and complexities.

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References

- [1] Paul Thagard, Cognitive Science, The Stanford Encyclopedia of Philosophy, 2008.
- [2] Benedik K, Cyberspace - First Steps, The MIT Press, Cambridge. Massachusetts, London. 1992.
- [3] Girardin, Mapping Virtual Locations to avoid the lost-in-cyberspace Syndrome, 1995.
- [4] Xiao-Hui Chen, Feng Li, Wei Zhang, Bing-Chuan Jiang, and Yu-Ting Liao, The Research on Geographic Cognitive Model and Expression Model of Cyberspace, The International Conference on Promotion of Information Technology, pp. 120-6, Atlantis Press, 2016.
- [5] Morningstar Chip and Randall Farmer F, The Lessons of Lucasfil's Habitat, The New Media Reader, The MIT Press, pp. 664-7, 2003.
- [6] Plewe B, GIS online - Information Retrieval, Mapping and the Internet, On word Press, Santa Fe, 1997.
- [7] Zhou S, Liang Y, Wan J, Li S Z, Facial Expression Recognition Based on Multi-scale CNNs, Biometric Recognition, vol 9967, Springer, 2016.
- [8] Pauly, M, Kobbelt L, Gross M, Point based multi-scale surface representation, ACM Transactions on Graphics, TOG, 25(2), 177-193, 2006.

About the Authors



G Sindhu Madhuri (i(corresponding author) is a full time research scholar in computer science department of Mother Teresa Women's University, Kodaikanal, TN, since Oct'2013, and her thesis work in the Image Processing domain has been submitted in Nov'2017. She is a IEEE student member and Life Member in CSI (I1504041), and interested in development of Image Processing methods for Remote Sensing systems and Cyberspace systems.



Dr. M P Indra Gandhi is Assistant Professor (SG) in Computer Science Department of Mother Teresa Women's University, Kodaikanal, TN, is a research guide. She is having more than 18 years of teaching experience, and guiding eight scholars in gray area problems of computer science, and is life member in CSI (I1504040).

OUTSTANDING INSTITUTIONAL OUTREACH BY CSI FELLOW

Prof. M L Saikumar, CSI Fellow took early retirement to pursue his personal agenda of inspiring students and young faculty, ignite their minds and involve them in career building. From Jan 1, 2015 to till date he delivered more than 300 lectures, conducted more than 75 Faculty Development programmes (FDP) more than 65 Student Development Programmes (SDP) at various universities / colleges without any financial consideration. He has made a mark as a forward thinking educationist with his exemplary work by incorporating contemporary methods of teaching. He is a strong believer in Citizen Social Responsibility. He has served CSI in many capacities including Chairman, Vice chairman and Secretary at Chapter level. In addition to CSI fellowship, other awards received include Chapter patron award, Inspiring Teacher award from Inspiring Teachers Academy and Best Trainer from Dept. of Personnel and Training, Government of India.

He last served as Dean - Academics for 3 years at the Institute of Public Enterprise. He served as the PG Program Director for 7 years. He served as Professor of Computer Science. He authored several books, published number of papers and has put in more than three and half decades of experience. He has been the Visiting Professor for about dozen universities. He has trained several batches of IAS and IPS officers on use of IT and also the corporate executives. He was a member on a number of recruitment

boards, both in public and private sector organization and member on Technical committee for TTD, SBH, AP Technology Services, etc.



He designed Information systems for Secretariat, District Collectorates, Municipal Corporation, Medical & Health Department, Board of Secondary Education, Board of Intermediate Education, and a number of public and private sector organizations. He was a member on the PM's Steel Trophy to assess the performance of integrated Steel plants. He was a member of the national level e-Governance awards assessment team for the last 15 years.

Interested colleges in Hyderabad need to contact 15 days in advance to fix the date for lecture/SDP/FDP. In case of outside Hyderabad, the college needs to contact 20 days in advance.

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CSI - ADHYAYAN

Big data analytics is the process of examining large and varied data sets – i.e., big data – to uncover hidden patterns, unknown correlations, market trends; customer preferences and other useful information that can help organizations make more-informed business decisions. Big Data analytics provides organizations an opportunity for disruptive change and growth. In most cases, however, the data sets are too large, move too fast or are too complex for the traditional computing environment, which creates a significant challenge. The technologies are available; however, an investment of time, money and resources will be necessary to fully implement a Big Data solution.

Aim and Scope:

This issue on "Big Data" intends to bring together researchers from industry and student fraternity to report the latest results and progress in the development in cloud computing and its technology.

Important dates:

Submission of paper/article: February 21, 2018
1st round review notification: February 23, 2018
1st revision due: February 27, 2018
Final acceptance: February 28, 2018

I request all the student contributors, to contribute papers and articles enclosed with membership ID and Stamp Size Photo to csi.adhyayan@csi-india.org.

Dr. Prakash S, Chief Editor

GLIMPSES OF CONFERENCE ON IT IN DEFENCE

held on 11th & 12th January, 2018

SUDHA RAJU, Event Chair, ITD-2017-18

The 11th edition of IT in Defence (ITD) was conducted by CSI Bangalore Chapter on the 11th and 12th of January 2018. The Conference was held at Vivanta By Taj, MG Road, Bangalore.

The event was the culmination of 6 months of meticulous planning by Ms. Sudha Raju right from defining to every detail of executing the conference with the support of the CSI-ITD team. A vision committee was set up to take inputs from stalwarts of Defence, Industry and the armed forces. Under the guidance of the vision committee, the focus of this year's theme of ITD was decided as "Digital Battlefield". Distinguished speakers included:

- Vice Chief of Air Staff Air Marshal **S B Deo**, PVSM, AVSM, VM, VSM, ADC.
- **Dr. P Murali Krishna** from CAIR
- **Capt Kavita Singh (Retd.)**, Director Public Safety and National Security Vertical, Microsoft
- **Rear Admiral Amul Sethi**, VSM, DG (WESEE) and Dr. Asha Garg from ADE
- **Mr. Madhusudhan KM**, CTO Mindtree
- **Maj. Gen. Ravi Chaudhary**, VSM, ASM, Addl Director, General Information Systems (MoD)
- **Mr. Gaurav Gupta**, IAS, Principal Secretary (ITBT) Govt. of Karnataka.

The event came to an end with the organisers thanking the sponsors – especially DRDO, KBITS, Department of IT-BT Government of Karnataka, L&T InfoTech, VMWare, Microsoft, CoreEL, and supported by CAIR, CDAC, Intel, IBM and the Armed Forces. The registration process was well managed by Dr. Shantharam Nayak and Mr. TN Seetharamu. Mr. Raghavendra H Rao managed the finance efficiently and also contributed to the organising committee and this was valued highly. Mr. Iqbal Ahmed helped Ms. Sudha Raju to get the sponsor and was commended for the same. Ms. Swarnalatha Ramesh and Mr. Venkatagiri managed the stage for both the days so smoothly that one hardly noticed their presence and were appreciated for the good work. The delegates who attended the event were gratefully acknowledged. Meghana the MC, filled the event with a lot of energy and CSI staff led by Sridhar were actively involved in the conduct.



Welcome address by Mr. Vishwas Bondade, RVP-Region-V, CSI
L to R: Mr. Sanjay Mohapatra, President, CSI, Vice-Chief of Air Staff, Air Marshal S.B. Deo, PVSM, AVSM, VM, VSM, ADC & Chief Guest, ITD-2018, Ms. Sudha Raju, Event Chair and Dr. Sateesh S Kannegala, Chairman, CSI-BC at the Dias.



Winners of Funnnovation A contest organized by CSI with CAIR support on DRONES.



CSI Lifetime Achievement Award



Professor Mohit Kumar Roy is the First Professor of Computer Science & Engineering at Jadavpur University. He was also the Chairman, CSI Kolkata Chapter. He presented two papers in the First Annual Convention held in Kolkata in 1966. He was given the Lifetime Achievement Award by Computer Society of India in 2018. He could not come to the CSI 2017 Convention held in Kolkata in January 2017 due to illness. He was presented the Award by Professor A K Nayak, Secretary, Computer Society of India at the inaugural session of Regional Student Convention held in Kolkata on 10th February 2018. A number of students and professors from different colleges and universities including senior members of CSI were present on this occasion. Professor Roy spoke on this occasion :

Distinguished Guests and Students

Let me thank the Computer Society of India (CSI) for the Lifetime Achievement Award given to me.

My professional lifetime began in 1961 when I joined the Indian Statistical Institute as a humble Programmer and it ended in 2003 when I retired from the post of Professor at the Jadavpur University. It was a long journey of ups and downs full of successes and failures. At the end of the day, looking back, I find that my students are my best rewards and I wish to live among them.

Now-a-days I often fall sick, cannot keep commitments and wait for the inevitable to come. Today, when I am being honoured after a lifetime of services, let me quote the famous quote of Mark Twain: "The reports of my death are greatly exaggerated".

▶ CSI CALENDAR 2017-18 ▶▶▶



Gautam Mahapatra, Vice President, CSI, Email: vp@csi-india.org

Date	Event Details & Contact Information
MARCH 08-09, 2018	National Conference on Challenges and Opportunity in Computer Engineering, NCCOCE'18 , Christ (Deemed to be University), Bengaluru in association with CSI Division IV, Communication & CSI Bangalore Chapter. Contact: Dr. Samiksha Shukla, 9880462311, Contact - Mr. Naveen J, 9994289908, nccoce@christuniversity.in
27, 2018	National seminar on "INDIAN LANGUAGE COMPUTING" in association with CDAC, Pune, JSS-Science & Technological University, Mysore and CIIL [Central Institute of Indian Languages], Mysore Contact: Smt. K. A. Anitha Venkatesh Mob. No. 9448011009
APRIL 07-08, 2018	International Conference on Computational Intelligence and Data Science (ICCIDS2018) , The NorthCap University, Gurugram, India In association with Computer Society of India Division IV Communications, Website - http://iccids2018.ncuindia.edu/ Contact - Dr. Vijendra Singh, email - vsingh.fet@gmail.com
21, 2018	National IT Convention on "Emerging Cyber Security Threats, Challenges & Opportunities" in association with Computer Society of India (CSI) Ghaziabad Chapter & Dr APJ Abdul Kalam Technical University, Lucknow Website : www.its.edu.in



ICIT 2017 Student Research Symposium

22nd – 23rd December, 2017

Silicon Institute of Technology, Bhubaneswar

A student research symposium was organised by CSI-Silicon Student Branch in conjunction with 16th International Conference on Information Technology (ICIT-2017) for graduate and under graduate students from 22-23 Dec. 2017. Papers from different parts of the country were submitted to the symposium. A total of seventeen research papers were accepted after the review. The papers were presented by the student authors in the form of posters at the symposium. The evaluation for the two best papers was conducted by a team of experts from India and abroad. The jury members were Prof. Saraju P. Mohanty - University of North Texas, USA, Prof. Vincent Oria, New Jersey Institute of Technology (NJIT), USA, Prof. Sudarshan Padhy, General Chair, ICIT 2017, Prof. Jaideep Talukdar, Principal, Silicon Institute of Technology, Bhubaneswar, Prof. Bimal Kumar Meher, Silicon Institute of Technology, Bhubaneswar, Prof. Ramaprasad Panda, Silicon Institute of Technology, Bhubaneswar, Prof. Aditya Mishra, Silicon Institute of Technology, Bhubaneswar, Prof. Prakash Rout, Silicon Institute of Technology, Bhubaneswar.

Best Paper Awards:

Two Best Papers were awarded with cash prizes in two different tracks:

- 1] **Paper Title** - Iris Recognition Using Gabor Filter And SURF Feature Detection Technique Semi-supervised clustering.
Author(s) – Abhisek Ray, Nivedita Mahapatra, Soumya S. Das, and Annapurna Mishra, Department of Electronics and Telecommunication Engineering, Silicon Institute of Technology, Bhubaneswar, Odisha
Track : Information Technology and Applications (ITA)
- 2] **Paper Title** - A Move-To Head or Tail (MTHT) Algorithm with Lookahead for the List Accessing Problem
Author(s) – Sasmita Tripathy, Animesh Behera, Shibashankar Naik, and Rasmi Ranjan Bhoi, Department of Computer Sc. and application, Vikash, Bargarh, Odisha
Track : Communication Networks and Protocols (CNP)

Valediction Function was conducted in the evening to distribute prizes/certificates to the student authors amidst the presence of the invited dignitaries. The guests invited for the function were Prof Jaideep Talukdar, Principal, Silicon Institute of Technology, Bhubaneswar, Prof. Sudarshan Padhy, General Chair, ICIT 2017, Prof. Sanjay Mohapatra, President, CSI, Prof. Manas Ranjan Senapati, Executive Council Member, ISTE, Prof. Manoranjan Satapathy, IIT Bhubaneswar. They praised the participants for their valuable contributions for making the symposium a grand success.

Prof. Pradyumna K. Tripathy Coordinator ICIT 2017 Student Research Symposium, who was overall in-charge of conducting the symposium, proposed the vote of thanks.



Invited guests for the Valedictory Function (Left to Right): Prof. Jaideep Talukdar, Prof. Manas Senapati, Prof. Sudarshan Padhy, Prof. Monoranjan Satapathy.



Best Paper Award presented by Prof. Jaideep Talukdar



Concluding address by Prof. Pradyumna K. Tripathy, Coordinator, ICIT 2017 Student Research Symposium



CSI Mumbai Chapter Cyber FIF-C 2018

Cyber Frauds, Investigations & Forensics Conference

11th - 12th January 2018



Computer Society of India, Mumbai Chapter organised its first ever Cyber Frauds, Investigations & Forensics Conference (Cyber FIF-C) in association with (Spoken Tutorials and FOSSEE) IIT Bombay at Victor Menezes Convention Centre, IIT Bombay, Powai on January 11-12, 2018

This event focussed purely on the practical aspects of Frauds, Investigations and Forensics. CSI Mumbai handpicked the speakers with their vast practical experience. This was one-of-its-kind conference where investigators, forensics



experts and cyber lawyers shared their practical experiences. The conference was spread over two full days of learning, engagement, fun and hands on training with over 40 speakers and around 35 sessions.

The invited talks were delivered on the various topics on Frauds, Investigations and Forensics Overall we saw around 350 delegates attending the sessions and general feedback was largely positive. Members from the various CSI student branches worked actively as volunteers during the conference.



TechNext India 2018 Annual Industry-Academia Conference & Awards

Technology for Educational Transformation

10-11 February 2018



CSI Mumbai Chapter organised its Annual Academic Conference and TechNext 2018 Awards to Academia in association with (Spoken Tutorials and FOSSEE) IIT Bombay, theme "**Technology for Educational Transformation**" at Victor Menezes Convention Centre, IIT Bombay, Powai on February 10-11, 2018.

The key highlight of the conference was TechNext India 2018 Awards to Academia in following categories : Best Principal of the year, Best HOD of the year, Best Faculty of the



year, Best Institute of the year, Best Industry Aligned Research, Best Student Project, Best TPO of the year.

There were various invited talks and parallel events (Workshops, Industry-Academia Sangam, TPO-Industry Meet, Student Project showcase) in the event.

Overall we saw around 400 delegates attending the sessions and general feedback was largely positive. Members from the various CSI student branches worked actively as volunteers during the conference.

AMRAVATI CHAPTER



One day workshop on Advanced Embedded System was organized on 1st January 2018 by the Chapter and PRM Institute of Technology & Research, Amravati, with an view to study and enhance advanced embedded system for the betterment of society. The contents were designed to give the participants the basic understanding of operation and applications with 8051 programmer kits as well as to give the overview of different technologies. The resource persons were Mr. Aniket Tondare, ARTech Electronic Solution Provider Amravati and his team. The convenor of the workshop was Dr. V M Deshmukh, HOD-CSE, PRMIT&R. The inauguration of the workshop took place in the presence of Dr. G R Bamnote, Chairman CSI Amravati Chapter, and Dr. M A Pund, Secretary CSI Amravati Chapter. Prof P B Lohiya, member of CSI welcomed all guests and detailed the CSI activities. Dr. G R Bamnote in his welcome speech told the purpose and significance of this workshop and enlightened the importance of recent technologies and their need for the society. Total of 33 participants took advantage of the workshop and were given hands-on practice. The workshop was coordinated by G J Sawale and Ms D H Deshmukh, Asst Professor, Dept of Computer Science & Engineering.

AHMEDABAD CHAPTER



Two-day workshop on Web technology was organized

by Computer Society of India student branch at Pandit Deendayal Petroleum University in association with CSI Ahmedabad chapter on 20th & 21st January 2018. The expert for this event is Prof M T Savaliya, Associate professor, Vishwakarma Govt college. The student organizing body of CSI at PDPU coordinated the entire event. Knowledge pertaining to design principles and various aspects of web development and its brief history was discussed. Students were familiarized with HTML and CSS. This was followed by hands on exercise. Students were recommended to learn from "w3schools.com ". Students were introduced to JavaScript basics and a brainstorming about its application, utilities and disadvantages were under taken. A session of peer learning was initiated based on previous session exercises. It was concluded that sound foundation on data structures is mandatory for understanding and learning complex languages and Web Development. Participants were awarded their participation certificates at the end of the event. Around 60 students participated in the event. This event was coordinated by Dr. Samir B. Patel, Assistant Professor, CSE Department, PDPU.



With the efforts of Dr Vishal Dahiya, M C Member, CSI Ahmedabad Chapter and Dr Sandeep Vasant, Chairman, CSI Ahmedabad Chapter, student branch at Indus University opened and its inaugural function was organised at Institute of Information & Communication Technology, Indus University on 19th January 2018. This event was also comprise of technical events like Debugging, Blind Coding, Webpage Designing and non-technical events like Advertise making, Photothrone, Spin wheel and LAN Gaming. Total 150 students were participated and 80 students came from 6 colleges and 4 schools to participate in competitive events. Students were awarded with trophy and certificates for all categories of events. The inaugural event was graced by Chief Guest Dr. Sandeep Vasant, Chairman, CSI, Ahmedabad Chapter, Dr. S. O. Khanna (Director, IICT), Dr. KVN Srinivasa Rao (Director, IITE) and Dr. Vishal Dahiya (HoD, IICT). Dr S O Khanna started with welcome speech and introduction of IICT. Dr KVN Srinivasan Rao also emphasised on constant

▶ FROM CHAPTERS & DIVISIONS ▶▶▶

learning and importance of the time to the students. Dr Sandeep Vasant in his speech has guided and motivated students for CSI membership with various innovative activities. He has thrown light on Experiential Learning; it was a great experience for students as new learning dimension for them. He had also discussed the Bright Box project which was undertaken as a problem and then solution was provided with the help of experiential learning. Mrs. Madhvi Dave concluded the event with vote of thanks.

CHANDIGARH CHAPTER

An International Conference on Computational Strategies for Next Generation Technologies, NEXTCOM-2017 was organised by CT Institute of Engineering, Management & Technology (CTIEMT) Jalandhar during November 25-26, 2017. This was technically sponsored by CSI Chandigarh Chapter. Total 310 papers were submitted by the authors from different countries like Australia, Russia, South Africa, Taiwan, USA etc and out of which 55 papers are finally accepted for publication. The conference proceedings will be published by Springer CCIS series and indexed in SCOPUS and Google Scholar etc. Two International Key-note speakers were present. Dr Kamrul Hawari from Malaysia talked about the Thermal Imaging and use of Image Fusion for better background and front end object image. Dr Ion Cosmin from Romania discussed about Opportunities and Challenges in Cyber Space Security. Third Key-note speaker Mr. Subhash Chander Jain, Chairman, CSI Chandigarh Chapter gave a presentation on CSI-Vision and Mission. Conference was well planned and executed.



COIMBATORE CHAPTER

Coimbatore Chapter organized a seminar on "MACHINE LEARNING TECHNIQUES" on 27th December 2017. Prof A Sivabalan, Vice Chairman welcomed the gathering. The

Speaker gave a brief description on learning models, open research issues, Adversarial machine learning, categories and tools available to classify the different malwares. Concepts on machine learning model such as supervised learning used in predictive data mining, unsupervised machine learning for clustering techniques, tools. He gave an overview of constructing machine learning Model using training data of diverse inputs that will enable proper decision. A brief note on how machine learning techniques can be used for the various security threats in the android apps. Dr Vinod also discussed on the open research issues in security. Dr G Radhamani, Secretary thanked all the members. More than 160 students from various colleges and industrial people attended the programme.



VELLORE CHAPTER



CSI Vellore Chapter organized one day workshop on "Smart Grid Optimization, Analytics" on 19th December 2017 at VIT University. Mr S K Halgamuge, Fellow IEEE, Chennai, explained the basics features of smart grid, how the energy production, transmission, distribution and consumption can be monitored through analytics using data mining techniques. His talk mainly focused on Analytics part of smart grid. Around 60 members participated in workshop, organized by Dr R Rajkumar & Prof K Govinda, Past RVP VII.

REGION-I

National Institute of Technical Teachers Training & Research, Chandigarh



8-1-2018 - Shri Subhash Chander Jain, Chapter Chairman inaugurated the workshop on Python for Research

The NorthCap University, Gurgaon



11-12-2017 to 13-12-2017 - 2D Game Development Workshop

REGION-III

Pandit Deendayal Petroleum University, Gandhinagar



19-1-2018 - Expert Lecture on Discovery of the Molecular Essence of the Indian Cuisine through Data Analytics by Dr. Ganesh Bagler

REGION-V

Anurag Group of Institutions, Hyderabad



28-12-2017 to 4-1-2018 - FDP on Programming on C and Data Structure

REGION-V

KKR & KSR Institute of Technology & Sciences, Guntur



18-12-2017 & 19-12-2017 - 36 hours hackathon on Innovate

CMR Technical Campus, Hyderabad



11-1-2018 - Seminar on Digital Certification Courses by Mr. Shanker Rao

Aditya Engineering College, Surampalem



8-12-2017 & 9-12-2017 - Workshop on IoT Challenge by Mr. Anchal Koshta & Mr. Kamalesh



14-12-2017 to 16-12-2017 - Hands on workshop on Google Android Dev. Fundamentals by Mr. Pavan Kumar Reddy

▶ FROM STUDENT BRANCHES ▶▶▶

REGION-V

Chalapathi institute of Engineering and Technology, Guntur



29 & 30-12-17 - Workshop on Geographic Information System



6-1-2018 & 7-1-2018 - Workshop on Cyber Security

Sasi Institute of Technology & Engineering, Tadepalligudem



26-12-2017 - Prof Raghavendra Rao delivering Guest lecture on Data Science and Analytics



27-12-2017 - Prof Raghavendra Rao delivering Guest Lecture on Regression Analysis and its Applications

Gudlavalleru Engineering College, Gudlavalleru



19 to 21-12-2017 - Workshop on Python Programming



27-12-2017 - Workshop on Internet Architecture and its Recent Trends

REGION-VI

Prof. Ram Meghe Institute of Technology & Research, Amravati



12-1-2018 & 13-1-2018 - Workshop on Multimedia Technologies



16-1-2018 - Workshop on Web Technology

▶ FROM STUDENT BRANCHES ▶▶▶

REGION-VI

Marathwada Mitra Mandal's College of Engineering, Pune



28-12-2017 to 30-12-2017 - Workshop on Introduction to GPU Computing using CUDA

Guru Gobind Singh Polytechnic, Nashik



4-1-2018 - Workshop on Internet of Things (IoT)

SNJB's Latesau K B Jain College of Engineering, Chandwad



13-1-2018 - Session on Amazon Web Services by Mr Bhavesh Pali

K J Somaiya Institute of Engg. and IT, Mumbai



15-1-2018 - Seminar on Cross platform app development

AISSMS Institute of Information Technology, Pune



2-1-2018 - Event on Emerging Opportunities in Higher Education, Abroad for Indian students



8-1-2018 - Expert Lecture on Services of cloud computing and its implementation by Mr Rupesh Mukkawar

REGION-VI

Late G N Sapkal College of Engineering, Nashik



28-12-2017 & 29-12-2017 - Two days workshop on PHP & Java by Mr Anand Shirsath & Mr Sudhir Gorade

REGION-VII

Mepco Schlenk Engineering College, Sivakasi



6-12-2017 to 8-12-2017 - Recent Trends and Tools in Social Network Analysis

▶ FROM STUDENT BRANCHES ▶▶▶

REGION-VII

Panimalar Institute of Technology, Chennai



30-11-2018 - Workshop on Green Computing by Mr. Anand



12-12-2017 - Motivational Talk on CSI Membership and its Benefits to the I Year students by Dr A Joshi, HOD

Jeppiaar Institute of Technology, Sriperumpudur



9-1-2018 - Workshop on Python programming by Mr. Dineshkumar

Vivekanandha College of Tech. for Women, Thiruchengode



2-1-2018 – CSI Student Branch Inauguration & Guest Lecture on IOT Challenges and Opportunities by Dr. Mohan

St Joseph's Institute of Technology, Chennai



11-1-2018 – HACKATHON on Mobile Application Development

Nandha College of Technology, Erode



10-1-2018 & 17-1-2018 – Hands-on workshop on MASM Software

Ramco Institute of Technology, Rajapalayam



4-12-2017 to 6-12-2-17 - Workshop on Data Science

Knowledge Institute of Technology, Salem



8-1-2018 to 9-1-2018 and 19-1-2018 to 20-1-2018 - Workshop on Mobile Application Development

▶ FROM STUDENT BRANCHES ▶▶▶

REGION-VII

Panimalar Institute of Technology, Chennai



27-11-2017 - Workshop on Energy Management in Smart City using IoT by Mr. Sridhar



5-1-2018 - Guest Lecture on GIS and the Fourth Industrial Revolution by Mr. Maharajan

Kongunadu College of Engineering and Technology, Trichy



28-12-2017 - Workshop on Artificial Intelligence

VIT University, Vellore



10-1-2018 - Workshop on Machine Learning

Karpagam College of Engineering, Coimbatore



21-12-2017 & 22-12-2017 - Dr. Sundaresan, RVP-VII inaugurated CSI State Level Student Convention

PERI Institute of technology, Chennai



21-12-2017 - Mr. Raja inaugurated CSI Student Branch

Ammini College of Engineering, Palakkad



11-1-2018 - Prof Prashant Nair, Past NSC and Editor, CSI Communications inaugurated CSI Student Branch

Sree Buddha College of Engineering, Pattoor



19-1-2018 & 20-1-2018 - A National Level Workshop on Android Application Development by Prof Shiju Thomas

▶ FROM STUDENT BRANCHES ▶▶▶

MARCH 2018

REGION-I

Manav Rachna International University, Faridabad



15-1-2018 - Expert Talk on Machine Learning

The NorthCap University, Gurugram



12-1-2018 - Gaming event

REGION-I

Raj Kumar Goel Institute of Technology, Ghaziabad



9-2-2018 - Mr. Anil Ji Garg, Chairman & Mr. Saurabh Agrawal, Patron Inaugurated CSI Student Branch

REGION-III

Pandit Deendayal Petroleum University, Gandhinagar



20-1-2018 & 21-1-2018 - Workshop on Web Technology

REGION-III

Sagar Institute of Research and Technology, Bhopal



5-2-2018 to 12-2-2018 - Short term training Program on Linux Essentials

REGION-V

Vasavi College of Engineering, Hyderabad



3-2-2018 - Workshop on Data Structures by Mr Nagveer

REGION-V

Anurag Group of Institutions, Hyderabad



8-2-2018 - CSI Digital Life

Vasireddy Venkatadri Institute of Technology, Guntur



9-2-2018 - Guest Lecture

▶ FROM STUDENT BRANCHES ▶▶▶

REGION-V

Gokaraju Rangaraju Institute of Engg. & Tech., Hyderabad



2-2-2018 & 3-2-2018 - Workshop on Web Development

Santhiram Engineering College, Nandyal



17-2-2018 - Seminar on How to get into BIG4 by Mr Chanikya

G Narayanamma Institute of Tech. and Science, Hyderabad



3-1-2018 - Codechef-2k18 (Coding Contest)



17-1-2018 & 3-2-2018 - Winner of Technical Quiz

Geethanjali Institute of Science & Technology, Nellore



30-12-2017 - Power Seminar on AWS and Industry Expectations

AMC Engineering College, Bangalore



23-1-2018 to 25-1-2018 - FDP on Data Mining-Hands-on On Data Analytics Tools

NMAM Institute of Technology, NITTE



24-1-2018 - Puzzle Quest

REVA University, Bengaluru



27-1-2018 - Community Outreach Program at Government School, Katteganhalli

▶ FROM STUDENT BRANCHES ▶▶▶

REGION-V

GSSS Institute of Engg. and Tech. for Women, Mysuru



29-1-2018 to 31-1-2018 – Workshop on Challenges in Enterprise Network Security



10-2-2018 - Mr. Neeraj Kumar Singh interacting during Technical Talk on Software Testing – Approaches & Methods

REGION-V

REVA University, Bengaluru



27-1-2018 - Workshop on Documentation with LATEX

REGION-VI

D Y Patil College of Engineering, Pune



2-2-2018 - Workshop on Intellectual Property and You by Mr. Kunal Sakpal

REGION-VI

Universal College of Engineering, Vasai



19-1-2018 - Workshop on Wired and Wireless by Prof. Sandeep Dubey



30-1-2018 - Seminar on Deployment of Website on Amazon EC 2 by Prof. Vishaka Shelke

REGION-VI

Shri Ramdeobaba College of Engg. and Mgmt., Nagpur



24-1-2018 to 27-1-2018 - Magazine release during POLARIS2018 - National Level Technical Symposium

REGION-VII

Jeppiaar Institute of Technology, Sriperumpudur



6-2-2018 to 8-2-2018 – Event on JIT HACKATHON #1.0

▶ FROM STUDENT BRANCHES ▶▶▶

REGION-VII

Er Perumal Manimekalai College of Engineering, Hosur



20-12-2017 & 21-12-2017 – Mr Vasu interacting with students during Workshop on Python Programming



6-1-2018 – Seminar on High Performance Computing in Super Computing

Rajalakshmi Engineering College (Autonomous), Chennai



24-1-2018 - Seminar on Green IT



25-1-2018 - Seminar on Health and Safety in IT

Karunya University, Coimbatore



31-1-2018 – Dr. Ramalakshmi, Dr. Kirubakaran & Dr. Maluk Mohamed during the Technical Event on Invenio '18



3-2-2018 – CSI Student Branch Inauguration and Guest Lecture on IOT by Dr. Vivekanandhan

Panimalar Institute of Technology, Chennai



19-1-2018 - Guest Lecture on SDLC- A Real World Views



29-1-2018 to 3-2-2018 - Certification Course on Oracle and Java

FROM STUDENT BRANCHES

REGION-VII

Kongu Engineering College, Perundurai



6-1-2018 – Workshop on Internet of Things by
Mr. Jeevanantham



9-1-2018 - Guest Lecture on Let us begin the world by
Mr. Kathivel

VIT University, Vellore



2-2-2018 to 5-2-2018 - Sixth Edition of Riddler - Online
cryptic quiz event

Jeppiaar Engineering College, Chennai



23 & 24-1-2018 – Mr Vasudeva Rao, Chairman CSI Chennai
Chapter inaugurated CSI Regional Student Convention on
Digitizing the World and Booting the Better Future

Amrita School of Arts and Sciences, Kochi



19-1-2018 & 20-1-2018 - Two-days Hands-on Workshop on
Python



31-1-2018 – One day Hands-on Workshop on Web
Development and Hosting

Student branches are requested to send their report to sb-activities@csi-india.org
with a copy to adm officer@csi-india.org

Chapters are requested to send their activity report to
chapter-activities@csi-india.org
with a copy to
adm officer@csi-india.org

Kindly send **High Resolution Photograph** with the report.

