IEEE Kerala Section Events

ICDSE-2018: International Conference on Data Science and Engineering

The three-day international conference on Data Science and Engineering (ICDSE) 2018 ICDSE was organized by the Department of Computer Science, Cochin University of Science & Technology (CUSAT) technically co-sponsored by IEEE Kerala Section during Aug 7-9, 2018. The Department hosts the biennial ICDSE Conference Series bringing together Students, Research Scholars, Faculties and people from different areas to build a platform for Research on areas related to Data Science.

ICDSE '18 kick-started with a pre-conference workshop on "Data Analytics Using MATLAB" by Ms. Alka Nair, Mathworks, Bangalore in the forenoon session. She gave an insight into the immense possibilities of the MATLAB application with hands-on exercises for participants on building and deploying data analytics products. The afternoon session was a hands-on session on "Build Voice Enabled Experiences with Alexa" by Mr. Sohan Maheshwar the Alexa evangelist at Amazon Bangalore. Both Workshops ignited the research interests for students, research scholars, and faculties attending the event. The workshop focused on building applications using Amazon Alexa, the virtual assistant from Amazon which can assist us in many tedious tasks at homes and office by leveraging the power of AI and Machine learning. The session helped the participants to build a basic voice controlled app, which offered an opening to the world of possibilities in the platform.

The inauguration of ICDSE 2018 was on 8th August. Prof. Santhosh Kumar G, HoD of Computer Science, CUSAT welcomed all the guests and delegates. He gave a briefing on the legacy of the conference which started in 2012 and the acceptance gained by the conference through the past years. The presidential address was delivered by Prof. Poulose Jacob, Former Pro-Vice Chancellor, CUSAT. He spoke about the relevance of data science and how the conference chose its theme, topic and the difference between Data Science and Data Engineering with an analogy of aircraft adopting concepts from science and technology that acts in a complementary manner. Further, he shared the scope of big data, along with the ethical issues in utilizing these data and compliances to be followed. ICDSE 2018 was inaugurated by Dr. J. Latha, honourable Vice Chancellor, CUSAT. In the inaugural address, she congratulated the team behind ICDSE for achieving its success and recognition. Dr. Jayant Haritsa felicitated the gathering. He appreciated the foresight of the faculties of DCS in starting this conference in 2012 and taking it forwardin a systematic format. He stressed that Data is the new oil, which is the fuel for the information economy. All decisions are to be taken based on this data". Dr. Suresh Nair, Past Chair of IEEE Kerala section felicitated the team of DCS in achieving and maintaining the acceptance rate of the conference according to IEEE standards. He also mentioned the protocols to be followed to get a collaboration with IEEE, to conduct the conference. Dr. Sunil Narayankutty, Dean of Faculty of Engineering complimented the team DCS for maintaining the series of conference highlighting the difficulty in conducting a conference and maintaining it. Dr. Philip Samuel gave the vote of thanks to all the dignitaries on the dais.

The keynote address was by Prof. Jayant Haritsa, IISc, Bangalore on the topic " Plan Bouquets: A fragrant approach to robust query processing". In this talk, he introduced a conceptually new approach to address the selectivity estimation problem, wherein this process is completely eschewed for error-prone selectivities. A small "bouquet"' of plans is identified from the set of optimal plans in the query's selectivity error space, such that at least one among this subset is near-optimal at each location in the space. Then, at run time, the actual selectivities of the query are incrementally "discovered" through a sequence of partial executions of bouquet plans, eventually identifying the appropriate bouquet plan to execute. Prof. Asharaf from IITMK, Trivandrum delivered the invited talk on "Block chain for Big Data". He highlighted the relevance and potential of leveraging the block chain technology in big data problems. The talk threw light into the applicability of blockchain based big data management/analytics infrastructure in both business and governance related domains. Mr. Rajeev Azhuvath, TCS, Kochi given a talk on "Automation vs Augmentation: The AI Dilemma" highlighting the fact that Artificial General Intelligence is expected to conquer in the next couple of decades. Ms. Zahida Vaseem from Mathworks also talked on Artificial intelligence with the highlights on AI capabilities of Matlab product. Dr. Bindu Narayan explained how recommendation systems are built and how digital marketing is done with the help of Data Science. Dr. Deepak Padmanabhan, Queens University, Belfast, UK enlighted the audience with a session on "Can data science combat fake news?" He described the latest research that is going on in the field of identifying fake news spread on the social media.

The three days were packed with full of informative talks, workshops and paper presentations and around 250 participants from within India and different parts of the globe attended the conference. It was a big opportunity for researchers and academicians to share their contributions to the field of data science and engineering.

The Department of Computer Science has been in the forefront to bring the benefits of Data Science to the society since the inception of this Conference series. The Department evolved PG Courses exclusively focussed on Data Science topics. There are numerous research scholars working on diverse areas related to Data Analytics, Deep learning, Computer Vision, Internet of Things and Cyber-Physical Systems. This biennial International Conference (fourth in the series) discussed the recent trends and development in the globally competitive environment, and share the best practices and technologies as well as to provide indicators for future directions. ICDSE 2018 edition was sponsored by DRDO, Mathworks and Fujitsu.

IEEE WIE International Leadership Summit-2018

IEEE WIE ILS 2018, the 2-day leadership summit of IEEE WIE was held at the picturesque location of the Le Meridian Hotel, Cochin, Kerala, India, in the presence of an eminent group of dignitaries, delegates and leading lights of the society, along with various national & international establishments, on September 7th and 8th 2018. For the summit, IEEE Kerala Section selected the theme 'em**POWER**ing **TO**get**HER**' in the light of its relevance in the global push to improve women's rights, at the anniversary of the #TimesUp movement that swept across the world.

IEEE is the world's largest fraternity within the engineering community, with over 400,000 members in 150 countries around the world. IEEE is mandated with several important scientific and technical responsibilities including creating and maintaining technical standards; providing publishing services for scholarly papers; organizing technical conferences; providing technology for humanitarian and social purposes; and providing professional services for members. IEEE WIE remains the largest network of female engineers in the world with over 90,000 active members world wide. It was with this foreground that IEEE WIE ILS 2018 started off in Kerala.

IEEE WIE International Leadership Summit Kochi 2018, hosted by WIE Affinity Group, IEEE Kerala Section was inaugurated on 7th September 2018 by Ms. Soumini Jain, the Hon. Mayor of Cochin Corporation, marking a milestone for IEEE Kerala Section WIE. Prof. Lillykutty Jacob, the General Chair, welcomed the chief guest, the 30-odd eminent speakers, 150+ delegates and other invited participants. She acknowledged the tremendous support from various sponsors for the successful execution of the event: UST Global, GE, Cochin Shipyard, CISCO, Allianz, Kerala Start-up Mission, NeSTIT, and the IEEE Societies – IAS, PES, APS, and CS. She also specially mentioned the appreciation for IAS sponsoring 38 student delegates including their stay. The two-day Summit was the meeting point of researchers, engineers, students, academicians, practitioners, industrialists and the government officials who set out to explore the possibility of inviting more women into leadership positions, by learning from accomplished professionals.

The Summit saw the top international leaders from IEEE and Region 10 (Asia Pacific), as well as representatives of IEEE Sections in different parts of South Asia. IEEE WIE ILS 2018 featured high quality knowledge sharing sessions, workshops and industry sessions, as well as keynotes from prominent research and industry leaders. The keynote speakers included Dr. Mini Thomas, Director NIT Trichy, Dr. Takako Hashimoto, past WIE Global Chair, and Dr. Lizy Kurian John, IEEE Fellow and Professor at University of Texas. .The Summit had a wide ranging list of prolific women speakers to inspire live action, and fuel up creative fires and experiences, that spanned over six disciplines: Leadership & Empowerment, Innovation & Entrepreneurship, Science & Technology, Sustainable Developments, Change Makers & Off-Beaten; and Health & Wellness. The deliberations were also substantiated by a Panel Discussion with the theme Women Leadership among Technologists, a WiC (Women in Computing) Track, a WiP (Women in Power) Track, and a 5G workshop by Cisco. The event concluded on the evening of 8th September with an open forum and a short valedictory session.

The main attractions for the attendees, delegates and speakers alike were the cultural events on Friday evening and the women-only hands-on self-defence session on Saturday afternoon. The Bharatanatyam dance performance by Retd. Prof. Gayatri V, a WIE member, enchanted the audience. The precise swordplay of Kalaripayattu, an ancient martial arts form native to Kerala, by Padmashree Meenakshi Amma along with her granddaughter, kept the audience at the edge of their seats. The hands-on self-defence session hosted by the Kerala Police received tremendous response from the audience, all thanks to the wonderful presentation by the host team.

The speakers collectively emphasised on the lack of women in higher positions of all the leading companies and how women shy away from exceptional opportunities because they are too afraid to step out of their comfort zones. To break the barriers, the first step has to be taken; without which the shackles would never be released.

The Summit became a fruitful platform for the dignitaries, panellists, industrialists and researchers to share their thoughts on how to learn from industry pioneers and women in positions of power. The Summit also provided an opportunity to showcase Kerala's strong line of women leaders and their achievements.

The event received uniformly positive feedback from its participants, including IEEE dignitaries from India and abroad, representatives of IEEE Sections in India, speakers and delegates. Special commendation was given to the team for organizing a successful event of such stature in spite of the devastation the state has followed just days earlier. It just proved to be yet another epitome of the legacy of the volunteers of IEEE Kerala Section.

TKMCE SUPPORTS "MISSION RECONNECT" OF KSEB

One night. That one night of 2018 monsoon changed Kerala's face. Atrocious downpour spanning the entire state brought Kerala to an absolute standstill with people crushed by debris and pulled underwater. Kerala has just overcome the disaster. Yet, there is a long way to go on rebuilding.

Taking into account the woes of our brethren, IEEE SB TKMCE in partnership with Department of Electrical and Electronics Engineering, TKM College of Engineering, Kollam took part in the "MISSION RECONNECT" programme of KSEB. The students, alumni, faculty and staff of the Department joined hands with KSEB in restoring electricity to the flood hit and submerged houses of Kuttanad, Chengannur and Pathanamthitta areas. The experts from Electrical Inspectorate, KSEB and IEEE lent quality support for this venture.

The students prepared 610 temporary electrical connection boards consisting of isolator, ELCB, a lamp holder, a 3-pin power socket and an LED indicator. These boards were used to connect electrical supply from KSEB's service main board avoiding the damaged wiring of the houses.

This noble mission started with the concern experienced by the KSEB officials who were finding it difficult to charge the houses which were submerged in water for several days. The discussion of the Electricity Board Engineers with the Head of the Department, Dr. Bijuna Kunju K, gave the idea of producing such boards in a short period of time. The complete stake holders of the college expressed their gratitude to the complete team behind this endeavor.

Ms. Sunitha Beevi. K, Assistant Professor, expressed her deep content on the fact that due to this small venture we are able to bring light for the people who were suffering from the devastating flood. Mr. Hany S. F, the instructor of the Department, pointed out that this temporary board will be most beneficial to the most underprivileged section of the society.

Students were excited at the opportunity to volunteer themselves for the flood affected people. Mr. Sourabh, Second year student was overwhelmed at the completion of 100 boards in one day. Mr. Rahul, Final year student, was eager to deliver his efforts and time using his technical skills for the rehabilitation of the flood submerged households.

The alumni of the college generously contributed approximately ₹ 9 lakhs to provide the individual units costing around Rs. 2000. KSEB appreciated the students and faculty for the service offered in connection with 'Mission Reconnect' programme by manufacturing and supplying temporary connection boards free of cost on war foot basis.

A team of faculty, electrical contractors and 53 final year students visited Pandanad region in Chengannur to give an awareness on ensuring electrical safety. They were able to counsel more than 100 families on safety tips before switching on electrical main switches or house hold appliances.

Electrical Department also carried out electrification in Aythala region in Pazhavangadi Panchayat, Ranni. A group of 25 faculty members and staff along with student volunteers helped to restore power in 20 flood ravaged homes using the temporary power boards.

The students wholeheartedly participated in this noble venture to pull out the ferrying people from their loss and distress.

Report by : Harry Paul, Chairman, IEEE SB TKMCE, harry97@ieee.org

JalaJyothi IEEE

Recently Kerala suffered one of the most catastrophic floods in history. About 400 people died, several livestocks lost and 145,000 families are reported to be moved to Relief Camps. Severe flooding occurred due to two reasons. Firstly, we had one of the highest quantity of rainfall in living memory (264% of normal rainfall during the 10 days from August 8, which was in continuation to the heavier than normal rainfall starting from 28 May 2018) and Secondly, most of the nearly 80

dams in the State had to open their shutters as they had reached their designed carrying capacity and the inflows were abnormally swift and high.

IEEE Kerala Section Volunteers known for their Disaster Response in many areas of the world including Nagapattinam, Nepal and Puerto Rico had for the first time a disaster in their own hands. True to their spirit, they fanned out into the affected areas and have done wonderful work from actually ferrying people out of the disaster zone to distributing food, dress and medicines to the relief camps.

The Rescue Phase

KeralaRescue.in: The Kerala Government Website for handling the disaster relief operations with the database of the needs of the people was developed and maintained by IEEE Volunteers, mainly students. Thus IEEE is in the midst of the rescue and relief operations. (http://keralarecue.in). This site carried IEEE name prominently and thus gaining recognition for IEEE among the entire population of the State.

WhatsApp Groups: District Wise groups were formed on WhatsApp to coordinate the activities of the Government. The District Officials, District Collectors (Administrative head of a district) and District Project Managers were a part of the groups and these groups became the effective communication Channels during the flood.

Relief Camps: As soon as the relief camps were setup, IEEE members, especially the IEEE Students from SBs, joined the camps as volunteers offering their services. More than 1000+ camps had IEEE members as volunteers.

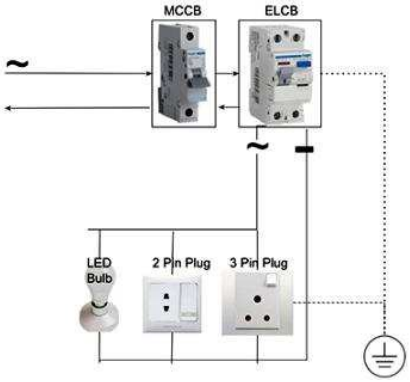
The Rehabilitation Phase

With the ending of the rescue phase, our members started helping the affected people back into their houses. As our members were in the field, we noticed an area that required our engineering skills.

The Reconnection Boards

Most of the submerged buildings have their electrical wiring soaked and unusable. In order to reconnect the wires to the grid most of the wiring will have to be redone. This is a difficult work and would take a long time. At a discussion with the Electricity Authority, **IEEE members** put forward a plan to develop a temporary connection board to which the grid could be reconnected. This will take much less time and the people could be re-habilitated much sooner.

IEEE Designed Reconnection Boards



Components and Circuit Design

The design of the Boards were very simple and consisted of an MCCB, ELCB, two electrical sockets and a bulb. With this any household could start a simple electrical connection and extend it using the sockets. The ELCB ensured a safe tripping of the circuit. The IEEE Design for boards was quickly approved by the Kerala State Electricity Board and publicised state-wide for mass development.

Assembling of the Boards

We as a Section also wanted to contribute to this effort and intend to offer the Reconnection Boards cost free to 2000 underprivileged families in the worst affected districts and help them restore power connections. Many Engineering Colleges took the IEEE design and started assembling the boards and delivering them to the local KSEB offices. The most notable work was done at the TKM College of Engineering under the leadership of Prof. Bijuna Kunju and at the National Institute of Technology under Prof. Mini Thomas and Prof. Bhaktavalsalam. Many other colleges also independently worked on creation of the Boards and these were handed over to the KSEB for proper installation. The KSEB is installing these boards at the houses of the most poor and needy people.

Handing over to KSEB

The Boards were formally handed over to the Kerala State Electricity Board at the functions held at the venue of the All Kerala Student's Congress.

Thanks

We would like to thank the entire contingent of Students who helped in the rescue and relief efforts. Not naming anyone for the fear of missing out many. We would like to thank the Students of NIT Trichy who not only assembled Boards but also contributed to the donations of more than Rs. 5,00,000. Their contribution now stands as the single largest donation so far. We would like to thank the IEEE Nepal for calling us on the first day and promising Rs. 1,00,000 for the Kerala Relief efforts. We would also like to thank Harish Mysore and the IEEE India Office for advancing money immediately and coordinating with the vendors for all the supplies.

Core Work Related Skills for Future Jobs

Abilities

Cognitive Abilities
- Cognitive Flexibility
- Creativity
- Logical Reasoning
- Problem Sensitivity
- Mathematical Reasoning
- Visualization

Physical Abilities
- Physical Strength
- Manual Dexterity and Precision

Basic Skills

Content Skills
- Active Learning
- Oral Expression
- Reading Comprehension
- Written Expression
- ICT Literacy

Process Skills
- Active Listening
- Critical Thinking
- Monitoring Self and Others

Cross-functional Skills

Social Skills
- Coordinating with Others
- Emotional Intelligence
- Negotiation
- Persuasion
- Service Orientation
- Training and Teaching Others

Systems Skills
- Judgement and Decision-making
- Systems Analysis

Complex Problem Solving Skills
- Complex Problem Solving

Resource Management Skills
- Management of Financial Resources
- Management of Material Resources
- People Management
- Time Management

Technical Skills
- Equipment Maintenance and Repair
- Equipment Operation and Control
- Programming
- Quality Control
- Technology and User Experience Design
- Troubleshooting

Source: World Economic Forum, based on O*NET Content Model.
Note: See Appendix A for further details.

Source: http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf