



Foundations and Frontiers in Computer, Communication and Electrical Engineering

Editor: Aritra Acharyya

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Editor

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FOUNDATIONS AND FRONTIERS IN COMPUTER, COMMUNICATION
AND ELECTRICAL ENGINEERING

Preface

The 3rd International Conference on “Foundations and Frontiers in Computer, Communication and Electrical Engineering–2016” (C2E2–2016), hosted by Supreme Knowledge Foundation Group of Institutions (SKFGI), India, in association with CSIR-CEERI, Pilani, Rajasthan, India, followed the success of previous two International Conferences hosted by SKFGI in 2012 and 2015.

C2E2–2016 was a notable event which brings academia, researchers, engineers and students of Electronics and Communication, Computer and Electrical Engineering together. The conference was a perfect platform to share experience, foster collaborations across industry and academia, and evaluate emerging technologies across the globe. The conference was technically sponsored by IEEE Kolkata Section, IET Kolkata Network along with several IEEE chapters under Kolkata Section such as Electron Devices Society, Power and Energy Society, Dielectrics and Electrical Insulation Society and Computer Society. The conference was sponsored by CSIR-CEERI, Pilani, Rajasthan, Defence Research and Development Organization (DRDO) and Indian National Science Academy (INSA).

C2E2–2016 celebrated the historical moment of the four-way call between Alexander Graham Bell in New York, his assistant Thomas Watson in San Francisco, President Woodrow Wilson in Washington and Theodore Vail, President of American Telephone and Telegraph company (AT&T) in Jekyll Island, i.e. the first transcontinental phone call made on January 25, 1915. The theme of C2E2–2016 rejoiced a walk down telephone memory lane; a remarkable footstep of human being in the field of electrical communication. Many scopes from the earlier International Conferences hosted by SKFGI are still relevant today and therefore remain unchanged for the 3rd C2E2–2016; these include electron devices, ion integrated circuits, interconnects, semiconductors, quantum-effect structures, microwave and millimeter-wave vacuum devices, emerging materials with applications in bioelectronics, biomedical electronics, computation, communications, displays, microelectromechanics, imaging, micro-actuators, nano-electronics, optoelectronics, photovoltaics, power ICs, micro-sensors, digital and analog VLSI, photonics, plasma devices, microwave/millimeter-wave components, devices, circuits and systems, antennas, millimeter-wave and sub-millimeter-wave techniques, antenna signal processing and control, tubes, missile tracking and guided systems, radio astronomy, propagation and radiation aspects of terrestrial and space based communication, satellite and mobile communication systems, radar, high power microwave systems (HPMS), optical communications, information processing science and technology, machine learning and artificial intelligence, networking, image processing, soft computing, cloud computing, data mining & data warehousing, generation, transmission, distribution, storage and usage of electric energy, dielectric phenomena and measurements, high voltage engineering, electrical machines, power systems, control systems, non-conventional energies, power electronics and drives, etc.

The 3rd C2E2–2016 retained the same format as the previous International Conferences at SKFGI, specifically a two-day programme with plenary session format for the forenoon sessions followed by parallel technical session format for the afternoon sessions of each day. Only the oral format had been kept for the authors to present their research works during the parallel technical sessions. Professor (Dr.) Akhtar Kalam of Victoria University, Melbourne, Australia being the Chief Guest, inaugurated the Conference. Professor Kalam also delivered the opening keynote address of the conference at the forenoon session on the first day. He explored the state-of-the-art of the smart power grids in the 21st century during his talk. Dr. Guillermo Carpintero of Universidad Carlos III de Madrid, Spain, delivered the next keynote address on photonic integrated circuit technology for ultra-high speed wireless communications. Dr. Sekhar Bhattacharya of SSN Research Centre, Chennai, India, Er. Tulika Mehta, Director, Fortune consultancy services, India, and Mr. Rajdeep Chowdhury, Department of Computer Applications, JIS College of Engineering, India, delivered notable lectures during the forenoon plenary session of the second day of the conference. Dr. Bhattacharyya discussed regarding the atomic layer deposition technique in nanoelectronics and plasma enhanced chemical vapour deposition for photovoltaics during his lecture. Er. Mehta talked about the advanced applied cognition neuroscience education technology to eradicate

drug addiction. The last invited speaker Mr. Chowdhury delivered his lecture on data warehouse performance enhancement employing minimized query processing proposal and implementation of security modus operandi. All broad scopes of the conference were covered by the keynote addresses as well as invited lectures. We are sincerely grateful to the keynote and invited speakers who generously have contributed their time, expertise and experience to these comprehensive lectures.

More than 140 research articles were submitted by the authors from all over the world. Each paper has been peer-reviewed by at least two reviewers, drawn from academic institutions and industry from around the world. And finally, 106 papers were accepted for oral presentation during the conference. All those accepted papers were presented by the respective authors during the parallel technical sessions during the afternoon sessions of each day of the conference. At each technical session, five parallel sessions were simultaneously held; out of which two sessions were designated for electronics and communication engineering related papers, two for electrical engineering related papers and one session was designated for the papers fall under the scope of computer science and engineering. The presented papers collected in these proceedings which provide a comprehensive reference of the current state-of-the-art in computer, communication and electrical engineering. We are indebted to the efforts of all the reviewers, who undoubtedly have raised the quality of the proceedings. We are also earnestly thankful to all the authors who have contributed their valuable research works to the conference.

We convey our heartiest thank to the managerial bodies of SKFGI for their immense help and supports for organizing the event. We also thank Professor (Dr.) Abhijit Lahiri, Campus Director, SKFGI for his enormous contribution in overall coordination with the contributing authors, invited speakers, publisher and intense supervision during the programme. We are thankful to Mr. Biswadeepam Pal for his assistance with graphic design and webpage development. We are also grateful for the cooperative advice from Professor (Dr.) B. N. Basu with respect to planning of the conference. Finally, SKFGI is grateful to the industrial and academic sponsors for providing financial support, the members of our Local Organizing Committee, National and International Advisory Committees, and all the technical sponsors under whose crucial auspices the C2E2-2016 experienced the utmost success.

Aritra Acharyya
March 2016

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