# A Report
# 3rd IEEE International Conference
# on
# Recent Advances in Information Technology
# (RAIT-2016)

The Department of Computer Science & Engineering of Indian School of Mines, Dhanbad organized the 3rd IEEE International Conference on "Recent Advances in Information Technology (RAIT–2016)" at ISM, Dhanbad during 03-05 March 2016. The General Chair and Program Chair of the conference was Dr. Chiranjeev Kumar. Dr. Haider Banka was the Program Co-Chair and Dr. Sushanta Mukhopadhyay was the Organizing Chair of the Conference. RAIT-2016 was endorsed by the IEEE, IEEE Communication Society Kolkata Chapter & TEQIP-II ISM Dhanbad. These organizations have extended their technical support to make this event truly at the International level.



Inaugural Function on 03rd March 2016

The first national conference on Recent Advances in Information Technology, RAIT 2007 was conceived in greater interest to bring together all IT professionals, researchers, academicians, industry people and valued users to a common platform and discuss recent changes in the world of IT and their role in the global scenario. The inaugural edition of seminar in the year 2007 played its role to perfection. RAIT 2009 retained the national avatar of its predecessor, before RAIT raised the stakes and went international in 2012, with unprecedented success. It was followed by RAIT 2014, and after two years, the department conducted the third edition with a grand success that made not only the department, but also the entire ISM fraternity proud.

Just like its predecessors, the vision of RAIT 2016 was to provide awareness about the recent advances in the Information and Communication technology, through tutorials, keynote addresses and pre-reviewed research paper presentations. The conference served

as an excellent platform for all the participants to share their views and ideas. Another endeavor of this conference was to collate and present the latest development in IT/Computer along with realistic assessment of the current status and trends. The inaugural function was presiding over by Prof. D. C. Panigrahi, Director of ISM. Padma Shri Prof. Sankar K. Pal, Distinguished Scientist and Former Director at ISI Kolkata was the Chief Guest, and Shri Sushil Chandra, Head of Bio-Medical Engineering, INMAS, DRDO was the Guest of Honour of the inaugural function. Prof. U. K. Singh, Director (acting) of ISM graced valedictory function of the conference. The Chief Guest of valedictory function was Prof. Narendra S Chaudhari, Professor of IIT Indore and Director VNIT Nagpur. Prof. Bhabani P. Sinha, ISI Kolkata was the Guests of Honour of the valedictory function.


Release of Souvenir & Proceedings


Dr. Chiranjeev Kumar
General Chair & Program Chair


Prof. D. C. Panigrahi
Director, ISM Dhanbad

Shri Sushil Chandra
Head of Bio-Medical Engineering
INMAS, DRDO



Padma Shri Prof. Sankar K. Pal
Distinguished Scientist and Former Director at ISI
Kolkata



Dr. Haider Banka
Program Co-Chair

In inaugural session, Prof. Panigrahi talked about the startling transformation from the good old days when IT was seen as an anathema in the Indian society to the current scenario, with the field of ICT receiving the highest funding from the government. Shri Chandra, who was visiting ISM for the first time, mentioned the exotic fields of robotics and neuro-informatics, and remained optimistic of India, riding on outstanding research in IT, becoming a superpower by 2023. Prof. Pal, was highly enthused by the conference and said that an every discipline to be discussed in RAIT deserved a conference of its own. He suggested that the conference should at least span four days and warning that the future looked Chinese, encouraged young researchers to work hard, keeping China as the benchmark.

Padma Shri Prof. Sankar K. Pal, Distinguished Scientist and Former Director at ISI Kolkata and Shri Sushil Chandra, Head of Bio-Medical Engineering, INMAS, DRDO also delivered the Keynote Addresses. There was a long list of invited speakers, Prof. Narendra S Chaudhari - IIT Indore, Prof. A. K. Tripathi – IIT (BHU) Varanasi, Prof. Jaya Sil - IIEST Shibpur, Prof. B. P. Sinha – ISI Kolkata, Dr. Pabitra Mitra - IIT Kharagpur, Dr. Donghoon Chang – IIIT New Delhi, Prof. Nabendu Chaki - University of Calcutta, Dr. Nabarun Bhattacharya - C-DAC Kolkata, Mr. Naveen Mehra – Fortinet and Mr. Manish Ranjan - Hewlett Packard Enterprise.

While Padma Shri Prof. Sankar K. Pal, Distinguished Scientist and Former Director at ISI Kolkata discussed about the trending topic of fuzzy sets and how the usage of indiscreet values in a set gave rise to an entire new branch of computer science, Shri Sushil

Chandra, Head of Bio-Medical Engineering, INMAS, DRDO spoke about the cognitive applications of virtual reality and how trending research is conducted in the labs at DRDO.



Shri Sushil Chandra
Delivering Keynote Address



Padma Shri Prof. Sankar K. Pal
Delivering Keynote Address

Two tutorials were organized on 03rd March 2016, the details are:

| Topic | Speaker | Number of participants Attended |
|-------|---------|-------------------------------|
| Cognitive Radio Networks and QoS Aware VoIP Communication | **Prof. Iti Saha Misra** Dept. of Electronics and Telecomm. Engg., Jadavpur University, Kolkata & Chairperson of IEEE ComSoc Kolkata Chapter | 54 |
| Patterns of Big Data and Analytics Adoption: Information Architecture Importance and Big Data Predictions for Technology | **Mr. Siddharth Srivastava** Principal Member of Technical Staff, Server Technologies-DB, Oracle Corporation, Bangalore | 61 |



Prof. Iti Saha Misra
Delivering Tutorial



Mr. Siddharth Srivastava
Delivering Tutorial

Both tutorials started from the very basics and held the audience captive with their lucid explanations.

The first invited talk on challenges and problems in information and communication technology research by Prof. A. K. Tripathi, IIT(BHU) Varanasi, was also held on the first day. On the second day, an invited talks on cryptographic techniques for authentication by Dr. Donghoon Chang, IIIT Delhi, content based image retrieval emphasis on the Bag-of-Visual Words by Prof. Jaya Sil, IIEST Shibpur and Deep Learning by Dr. Pabitra Mitra, IIT Kharagpur. All the talks tackled the current problems in the particular field head on. The third day saw invited talks on polynomial solvability of NP complete problems by Prof. Narendra S Chaudhari, IIT Indore, Channel Allocation on Cognitive Radio Networks by Prof. B P Sinha, ISI Kolkata, Electronic Nose by Dr. Nabarun Bhattacharya, C-DAC Kolkata and Using Technology to facilitate Healthcare for Citizens in Rural Areas by Prof. Nabendu Chaki, University of Calcutta. Another highlight of the day were the invited talks by Mr. Naveen Mehra from Fortinet about the challenges in Network Security and Mr. Manish Ranjan, from Hewlett Packard Enterprise, who talked about the oft underrated topic of Industry Academia Collaboration.


Prof. A. K. Tripathi
IIT (BHU), Varanasi


Dr. Donghoon Chang
IIIT Delhi


Prof. Jaya Sil
IIEST Shibpur


Dr. Pabitra Mitra
IIT Kharagpur


Prof. Narendra S. Chaudhari
IIT Indore


Prof. B P Sinha
ISI Kolkata


Dr. Nabarun Bhattacharya
C-DAC Kolkata


Prof. Nabendu Chaki
University of Calcutta


Mr. Naveen Mehra
Fortinet

In terms of technical paper submission, the conference has received an overwhelming response from academicians and researchers from almost all renowned Institutes of India and Universities from USA, Australia, New Zealand, Japan, UK, Taiwan, Saudi Arabia. The conference has also received the technical papers from several reputed R&D Organizations and Software Industries such as CAIR Labs – Bangalore, DRDO – New Delhi, BARC – Mumbai, CDAC – Mumbai, CDAC – Bangalore, Xerox Research Centre – Bangalore, Samsung R&D Institute India, Robert Bosch Engineering and Business Solutions Limited, Newgen Software Technology Limited, Cognizant and many more. In total we have received 344 papers and after critical review from International and National reviewers around 37.8% of the papers i.e., 130 have been accepted and 122 papers were presented during 17 technical sessions. The details of each track are presented below:

| Track No. | Track Name | Number of Papers Presented |
|---|---|---|
| 1 | Advances in Pattern Recognition and Machine Learning | 05 |
| 2 | Advances in Cryptography & Network Security-I | 05 |
| 3 | Advances in Communication - I | 12 |
| 4 | Advances in Image & Video Processing - I | 10 |
| 5 | Advances in Soft Computing - I | 11 |
| 6 | Advances in Soft Computing - II | 06 |
| 7 | Advances in Image & Video Processing - II | 06 |
| 8 | Applications of IT in Geo-Sciences and Mining | 06 |
| 9 | Advances in Signal Processing | 05 |
| 10 | Advances in VLSI Design & Embedded Systems | 04 |
| 11 | Advances in Computing & Real-Time Systems | 06 |
| 12 | Advances in Communication - II | 09 |
| 13 | Advances in Cryptography & Network Security – II | 04 |
| 14 | Applications of IT | 10 |
| 15 | Advances in Software Engineering & Information Retrieval | 07 |
| 16 | Advances in Artificial Intelligence & Knowledge Discovery | 07 |
| 17 | Miscellaneous | 09 |

The Proceedings of the Conference, which is a collection of 130 research papers, has been published in two volumes by Powerprint, Dhanbad.

In order to make this conference truly an International event, Department of Electronics and Information Technology (DeITY), Ministry of Communications and IT, Government of India, Hewlett Packard Enterprise, Fortinet, Ruckus Wireless, AIPL, ACPL, Department of Science and Technology (DST), Government of India, Council of Scientific and Industrial Research (CSIR), Defense Research and Development Organization (DRDO), Infosys, R K Mediatech Pvt. Ltd. came forward with financial support.



Valedictory Function on 05th March 2016



Prof. Narendra S. Chaudhari
Director, VNIT Nagpur
Chief Guest



Prof. B. P. Sinha
ISI, Kolkata
Guest of Honour

Dr. Chiranjeev Kumar
General Chair & Program Chair

Prof. U. K. Singh
Director (Acting), ISM

Dr. Haider Banka
Program C-Chair

During the Valedictory function, Dr. Chiranjeev Kumar, General Chair & Program Chair summarized the technical sessions and presented the recommendation of the conference. Prof. U. K. Singh, Director (acting), mentioned the rapid strides that information technology is taking, in general and expressed hope that one day, the farmers in the heart of the country would be greatly benefited by IT. The Guest of Honour Prof. B. P. Sinha from ISI Kolkata, who had attended every edition of RAIT organized by the department, remarked that the quality has been improving since 2007 and anticipated that RAIT would reach great heights in the future. Prof. N. S. Chaudhuri, Director VNIT Nagpur and Chief Guest of this function spoke about how IEEE, the technical sponsor of RAIT, provided a great platform for budding researchers and that young researcher should work hard to overcome challenges and build a better tomorrow.



The event culminated with the vote of thanks by Dr. Haider Banka, Associate Professor of the Department and the Program Co-Chair.