



Conference Report

Report of A National Workshop on Current State of Affairs in Cyber Security and Cryptology

On the 13th and 14th of September, 2019 a workshop titled “*National Workshop on Current State of Affairs in Cyber Security and Cryptology*” (NWCSC) was held at the National Institute of Technology (NIT), Durgapur, West Bengal. The workshop was jointly organised by the NIT, Durgapur and the Vivekananda Vijnan Mission (VVM), West Bengal. The event was sponsored by AICTE (All India Council for Technical Education), Vigyan Prasar and DST (Department of Science & Technology).

The programme was held under the chairmanship of the eminent statistician-cum-mathematician Professor Bimal Kumar Roy, Chairman, National Statistical Commission, Government of India and former Director, Indian Statistical Institute (ISI), Kolkata. He took great initiative in selecting eminent and erudite speakers for the academic sessions and also gave expert guidance for acquiring necessary funds for organising the event. Professor Anupam Basu, Director of NIT, Durgapur was the ‘*Patron*’ of the said workshop. He extended all help and assistance needed for holding the event successfully in the NIT campus.

Dr. Ajai Kumar Himanshu, a senior scientist of the VECC (Variable Energy Cyclotron Centre), Kolkata and a member of the Vigyan Bharati (VIBHA) was the Convener of the workshop. He and his team worked very hard to make the workshop a success. He was ably supported by the two Co-Conveners Professors Jaydeep Howlader and Sandip Karmakar both from NIT, Durgapur. The Organising Secretary, Professor Tandra Pal of the Department of Computer Science and Engineering, NIT, Durgapur and the two Joint Organising Secretaries Dr. Ratnesh Pandey of VECC, Kolkata and VIBHA and Sri M. K. Sreepasad of VIBHA worked untiringly and meticulously looked after

every details to make the national workshop an amazingly successful event.

The two-day event had a plethora of eminent speakers who spoke on issues related to risks involved in cyber technology and strategies to mitigate them. There was also a good exposure to the recent developments in the fields of Cryptography and Network Security.

On the 13th September, 2019 the “*Inaugural Programme*” was presided over by the Director of NIT, Durgapur. The programme started with the felicitations of the dignitaries present on the dais and the ritual lighting of the lamp. The ‘*Welcome Address*’ was delivered by Dr. Himanshu, the Convener of the Workshop. He also gave a detailed account of the academic programme to be covered in the two days of the Workshop. Professor Anupam Basu, Director of the Host Institute, NIT, Durgapur extended a warm welcome to all the participants, which included a large number of research scholars and undergraduate students from various Institutions from West Bengal as well as from other parts of India. As Chief Guest, Professor Bimal K. Roy elaborated on the importance and usefulness of the Workshop. Professor Tandra Pal delivered the ‘*Vote of Thanks*’.

After a high tea, the ‘*Technical Session I*’ commenced.

Professor Anupam Basu chaired the session. The speaker in this session was Professor Bimal Roy. He delivered an excellent talk of one and half hours duration in his inimitable style. He explained in details the problems involved in the domain of cyber security and the usefulness of Cryptography in mitigating cyber crimes. He gave very common place examples and made the talk very lucid and interesting. After his talk was over, students asked many questions and Professor Roy satisfied their

inquisitiveness.

The first session was followed by a one hour lunch break.

After the lunch break, the Technical Session II started. The session had two speakers. The first speaker was Professor Avishek Adhikari of the Department of Mathematics, Presidency University, Kolkata. The topic of his talk was "*Various Aspects of Secret Sharing: Few open Issues*". He in his 45 minutes lecture explained in details the importance of secret sharing in Information Sciences. The major areas identified by him were *Multiparty Computations, Private Information Retrieval, Private Distributed Storage* etc. He also analysed the two major directions in terms of cheating participants. He elaborated on a special kind of secret sharing scheme, known as *Visual Cryptographic Scheme*. He also identified the various open issues related to visual cryptographic scheme.

The second speaker of the Session II was Professor Debdeep Mukhopadhyay of the Department of Computer Science and Engineering, Indian Institute of Technology (IIT), Kharagpur. The title of his talk was "*A Penny Saved is more than a Penny Earned: An Overview on Cyber Security Research*". In his lecture he explained how and why without understanding and adopting proper security measures many of the new age technologies like Internet-of-Things could be catastrophic. He then went on to describe how using proper cryptographic techniques can lead to a safe adoption of the cyber physical systems. He also provided an overview on several ongoing research problems in the world of cyber security.

The first day's programme ended with an interactive session between the participating students and Professor Bimal Roy.

On the 14th September, 2019 the Technical Session III started. There were 4 speakers and each of them spoke for 45 minutes. The Session started with the talk of Dr. Rintu Nath, Scientist-F and Head, Publications and Information Technology Group, Vigyan Prasar, DST. In his talk he discussed about the revolution in communication systems, where the efficiency of the exchange of information had obliterated the limits of geographical locations as well as time. He however pointed out the inadequacies in the communication network for services like internet banking, mobile banking,

security services etc. Giving a brief historical account of the science of Cryptography and its growth starting from the ancient times, he went on to describe Cryptological techniques involving encryption along with message integrity checking and sender/receiver identity authentication. He explained the method of the exchange of digital information and the importance of electronic transactions in the world economy. He also informed the audience about the modern day public key encryption methods, such as RSA and Diffie-Hellman.

The second speaker was Dr. K. Srinathan of IIIT (International Institute of Information Technology), Hyderabad. He talked on Security and Cryptography.

The third speaker was Dr. Nakul Parasar, Director, Vigyan Prasar, DST. He talked about the relevance of Cyber Security and Cryptology in the modern day world. He stressed on the issues related to risks and strategies to mitigate them. He was hopeful that such workshops would create a lot of thinking platforms for researchers as well as students at the graduate and post-graduate level. He was optimistic about the fact that such interests would create new job opportunities and give fresh impetus and novel thoughts for start-ups as well.

The last speaker of the day was Professor Dhiren Patel, Director, VJTI (Veermata Jijabai Technological Institute), Mumbai. The title of his talk was "*Understanding Attack Campaigns and Threat Actors on Cyber Landscape*". In his 45 minutes talk he said that dependency on technology had become ubiquitous. Since everything was connected so one had to continuously think and be vigilant about which of the weakest links would be compromised. In his talk he encompassed in details various attack campaigns, malware families and threat actors to understand cybercriminals; and thus get prepared for the risk mitigation strategies.

The two-day event was very well attended. The hall was full on both the days. A contemporary topic was discussed in all details highlighting its usefulness, inadequacies and necessary remedies. The organizers of the workshop deserve to be praised for this fine venture.

(A few photographs are printed in back inside cover)

**Reported by
Purabi Mukherji**

[A participant and Vice-President, VVM]
