

# **A Collection of Contemporary Research Articles in Electronics, Communication and Computation**

**Proceedings of NCECC- 2020**

**National Conference on Electronics, Communication and  
Computation (NCECC- 2020)**

**Organised by Dept. of Electronics & Communication  
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# PREFACE

NIT Jamshedpur organized a 2-day **Online National Conference on Electronics, Communication and Computation (NCECC-2020) on 5-6 September 2020**. This conference was one among the series of Online Conferences organized by NIT Jamshedpur since the COVID-19 lockdown. This conference was sponsored by the Technical Education Quality Improvement Program (TEQIP-3).

The conference was inaugurated online by **Prof. Rajeev Tripathi, Director of MNNIT Allahabad**, at 9:00 AM on the 5th of September 2020 in the Senate Room of NIT Jamshedpur, maintaining the norms of social distancing. **Prof. Karunesh Kumar Shukla, Director of NIT Jamshedpur**, presided over this session. Speaking on the occasion, the Chief Guest congratulated the department of Electronics and Communication Engineering for organizing the event at the right time with a suitable theme. He elaborated on the need for such events and told that young researchers from all over the country get a chance to show their innovative ideas and get them reviewed by experts in the area. Prof. Tripathi, a renowned scholar in the area, briefly explained the role of electronics and communication engineering in dealing with the pandemic situation. Prof. Shukla informed that three such online programs were inaugurated on the 5th of September, Teacher's day. Speaking on the occasion, **Prof. S N Singh, the Head of Department**, informed us about the development activities of the department and told us that more such programs were in the pipeline.

The Digital Proceedings of the conference was released in the form of a CD during the inaugural session. Briefing the conference, the Organizing Secretaries **Dr. Prashant Kumar, Dr. Jayendra Kumar and Dr. Mrutyunjay Rout** informed that research papers were invited in different areas of Electronics, Communication and Computation. In response to which 108 papers were submitted from all over India. A rigorous review process was conducted, which involved more than 50 external reviewers from various IITs, NITs and other reputed Institutes. On average, each paper was reviewed by at least three reviewers. A total of 69 papers were provisionally selected. The authors were asked to revise their papers in light of the reviewer's comments. A total of 59 papers were finally registered and presented. **Prof. Saswat Charabarty, Professor of G S Sanyal School of Information Technology, IIT Kharagpur**, was the General Chair of this Conference. In all 9 sessions and 4, Keynote Lectures by famous personalities were conducted online on the Google-meet platform. The conference's theme was 'The Role of Electronics and Communication in Pandemic Situation'. Several papers directly related to this theme were received.

On the first day, two keynote lectures were delivered by **Prof. Tarun Kanti Bhattacharya of Electronics and Electrical Communication Department, IIT Kharagpur**, and **Dr. S P Sagar, Senior Principal Scientist of NML Jamshedpur**. Dr. Bhattacharya delivered his talk on his recent innovative idea of **medicine delivery by nano-sensors**. He demonstrated how his findings could help painless medication and rapid treatment. Dr. Sagar gave a presentation on **recent developments in electronic devices**.

Six Technical Sessions were conducted on the first day in which 42 research papers were presented. These Sessions were Chaired by Prof. T K Bhattacharya, Prof. Amit Prakash, Dr. N Biradar, Dr. SP Sagar, Dr. Ajay Kumar, Dr. Nagendra Kumar, Dr. Mayank Srivastav, Dr. Basanta Bhowmik, Dr. K K Singh, Dr. Sarika Pal, Dr. Pratul Arvind, Dr. Bishanka Bratta Bhowmik, Dr. Arvind Yadav and Dr. Anumeha, Dr. Manpuran Mahto, Dr. Jayendra Kumar, and Dr. Manish Kumar.

One paper from each session was selected for the best paper award. On the last day of the conference, there were two keynote lectures engaged by **Prof. Satybrat Jit of IIT (BHU) Varanasi**, who spoke on "**Metal-oxide-nano structure properties and applications**" and **Prof. R P Yadav**, Professor of Electronics and Communication Engineering Dept. MNIT Jaipur on "**Mobile networking and smart antenna**". Three Technical Sessions were also conducted in which 17 research papers were presented. These sessions were chaired by Prof. Jit, Prof. Yadav, Dr. Arjun Singh and Dr. S K Dey of NIT Rourkela, Dr. Prabina Pattanayak of NIT Silchar, Dr. MP Singh NIT Karnataka.

The conference concluded with the valedictory session on 6-9-2020, in which best paper awards were announced. **Prof. Gopal Pathak, Vice-Chancellor, Jharkhand Technical University**, was the Chief Guest of this session. Among other present online were **Prof. Worapong of KMITL, Thailand**, Prof. R V Sharma, Dean (Research and Consultancy), Prof. Prabha Chand (Dean Faculty Welfare), Prof. Shiva Nand Singh, HoD, Electronics and Communication Engineering Dept., NIT Jamshedpur and Prof. R P Yadav, Professor, MNIT Jaipur. Speaking on the occasion, Prof. Pathak elaborated the conference's theme “**Role of Electronics and Communication in pandemic situation**” and justified the timeliness and importance of the conference. Prof. Worapong, an expert in Electronics, also spread light on how electronics and communication techniques can help fight Corona Virus and said that the research community is working hard to solve the COVID-19 problem. Prof. S N Singh informed about the ongoing activities of his department in the **diamond jubilee celebration** year of NIT Jamshedpur. He said that many such online and offline programs would be organized soon.

The following papers were awarded as the best paper in each of the nine sessions:

1. **FIST, Kerala**- Sustainable and Collaborative Automated Farming Technology with LoRa
2. **NIT Kurushetra**- WAVE, WiMAX and LTE-V2V Technologies for Vehicular Communication: A Comparative Performance Evaluation
3. **NIT Jamshedpur**- Weather Forecasting And Monitoring Using Machine Learning And Deep Neural Network Models
4. **BKIT Karnataka**- IMT estimation through Points of Interest-based on Surf and MSER descriptors
5. **NIT Jamshedpur**- Haptics and Electromyogram (EMG): Recent Advancements and Future Aspects for Enriched Haptic Experience
6. **CSIR-NML Jamshedpur**- High-temperature Eddy Current Sensor for Real-time Vibration Monitoring of Moving Engineering Components
7. **NIT Jamshedpur**- Optimization of ZnSnO/CIGS solar cell with the incorporation of Cu<sub>2</sub>O-EBL layer
8. **Jadavpur University**- Throughput Analysis Using Three-Step Two-Way Decode And Forward Multi Relay Network For Wireless Energy Harvesting
9. **NIT Jamshedpur**- COVID-19 Classification from Radiography Images using Deep Learning

The program concluded with the online feedback of the participants. Giving their feedback, the participants expressed happiness and complete satisfaction with the conduct of the online conference and appreciated the endeavour of NIT Jamshedpur.