# JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY WAKNAGHAT

**Online Short Term Course**

**on**

# Recent Advances in Computational Intelligence for Signal Processing (RACISP-2020)

**$10^{th}$ -$15^{th}$ AUGUST, 2020**

**organized by**

**Department of Electronics and Communication Engineering**
**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT,**
**SOLAN (H.P), PIN-173234**

## ABOUT UNIVERSITY

Jaypee University of Information Technology (JUIT) was set up by Act No. 14 of 2002 vide Extraordinary Gazette notification of Government of Himachal Pradesh dated May 23, 2002 and it is approved by UGC under section 2(f). The University located in serene, calm and dense forestry surroundings of lower Himalayas near to Shimla and it is governed by non-profit charitable trust of **Jaypee Seva Sansthan**. The University is accredited by NAAC, NBA and its NIRF ranking is among top 100 engineering institutes including IIT's, NIT's and Central Universities.

## ABOUT DEPARTMENT

Department of Electronics and Communication Engineering is providing high quality, self motivated, creative, ethical engineers and technologist contributing effectively to universal science and contemporary education. Department is accreditated by NBA and most of the faculty members in the Department are Ph.D degree holders. ECE Department is well equipped with latest laboratories, name of few are Wireless Sensor Network & IOT, Digital Signal Processing, and Embedded Systems & Robotics. Also, it has the latest software of LABVIEW, MATLAB, and VIVADO. Presently, the Department is offering UG, PG, and Ph.D degree programs in Electronics and Communication Engineering with excellent placement records.

## ABOUT THE SHORT TERM COURSE

This short term course is offered as an online/virtual training programme and is aimed to up-grade the knowledge and skills of the students, research scholars, faculties and scientists involved in active research in the area of **Computational Intelligence in Signal Processing**. The goal of the course is to provide a forum to exchange latest research ideas, recent trends and innovations in the field of **Computational Intelligence in Signal Processing**. This course would surely help and offer opportunities to the new researchers, academicians and industry professionals to enhance the knowledge and pursue research in this area.

## OBJECTIVE OF THE COURSE

This short term course has been intended to provide knowledge of recent technologies used in signal processing, image processing and machine learning. The objectives of the course are:

1. Constructive understanding and implementation of computational principles of signal and image processing.
2. To address latest applications of signal processing in machine learning.

## PROGRAM SCHEDULE

| Date | Timing | Speaker | Topic |
|---|---|---|---|
| **10-08-2020** | 11:30AM | | INAUGURAL |
| | 11:40AM - 12:30PM | Dr. Nafis U Khan<br>Assistant Professor, JUIT Waknaghat | Fuzzy Inference based Edge Detection in Digital Images |
| | 02:00PM - 03:00PM | Dr. Nishant Jain<br>Assistant Professor, JUIT Waknaghat | Fusion of Biomedical Imaging Modalities |
| **11-08-2020** | 11:30AM - 12:30PM | Dr. Shruti Jain<br>Associate Professor, JUIT Waknaghat | Futuristic Trends and Challenges in Biomedical Image Processing |
| | 02:00PM - 03:00PM | Dr. Harsh Sohal<br>Assistant Professor, JUIT Waknaghat | Introduction of FPGA based Digital Signal Processing |
| **12-08-2020** | 11:30AM - 12:30PM | Dr. Sunil Datt Sharma<br>Assistant Professor, JUIT Waknaghat | Digital Signal Processing for Genomics Data Analysis |
| | 02:00PM - 03:00PM | Mr.Pardeep Garg<br>Assistant Professor, JUIT Waknaghat | |
| **13-08-2020** | 11:30AM - 12:30PM | Dr. Vikas Baghel<br>Assistant Professor, JUIT Waknaghat | Multi-objective Optimization: Fundamentals and Evolutionary Methods |
| | 02:00PM - 03:00PM | | |
| **14-08-2020** | 11:30AM - 12:30PM | Dr. Emjee Puthooran<br>Assistant Professor, JUIT Waknaghat | Machine Learning using Python |
| | 02:00PM - 03:00PM | | |
| **15-08-2020** | 11:30AM - 12:30PM | Dr. Alok Kumar<br>Assistant Professor, JUIT Waknaghat | Role of Thresholding in Spectrum Sensing |
| | 02:00PM - 03:00PM | | Open forum and Discussion |

## PROGRAMME COMMITTEE

### CHIEF PATRONS

- Shri Jaiprakash Gaur Ji, Founder Chairman, Jaypee Group
- Shri Manoj Gaur Ji, Executive Chairman Jaypee Group, and Pro-Chancellor, Jaypee University of Information Technology, Waknaghat, H.P.

### PATRONS

- Prof. Vinod Kumar, Vice Chancellor, Jaypee University of Information Technology, Waknaghat, H.P.
- Prof. Samir Dev Gupta, Director and Dean Academics, Jaypee University of Information Technology, Waknaghat, H.P.

### PROGRAMME CHAIR

- Dr. Rajiv Kumar,
  Head of the Department, Electronics and Communication Engineering (ECE),
  Jaypee University of Information Technology, Waknaghat, H.P.

### COURSE CO-ORDINATORS

- Dr. Nafis Uddin Khan, Assistant Professor
- Dr. Sunil Datt Sharma, Assistant Professor
- Dr. Vikas Baghel, Assistant Professor

## WHO CAN ATTEND

Faculty/Research Scholars/Industry Professionals from the field of Electronics & Communication Engineering, Electronics & Instrumentation Engineering, Computer Science Engineering & Information Technology, Electrical Engineering, Biomedical Engineering and Bio-Informatics can attend this course.

## BENEFITS OFFERED TO PARTICIPANTS

- No Registration fees
- E-certificate of participation will be provided on the successful completion of the programme

## REGISTRATION

- Participants may register through following Google link:
  https://sites.google.com/juitsolan.in/racisp-2020/registration
- **Last date for the registration is August 09, 2020.**

## CONTACT INFORMATION


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- Dr. Sunil Datt Sharma,
  Mobile No. 9826868418
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- Dr. Vikas Baghel,
  Mobile No. 9878330166
  Email:vikas.baghel@juit.ac.in

# Recent Advances in Computational Intelligence for Signal Processing (RACISP-2020)

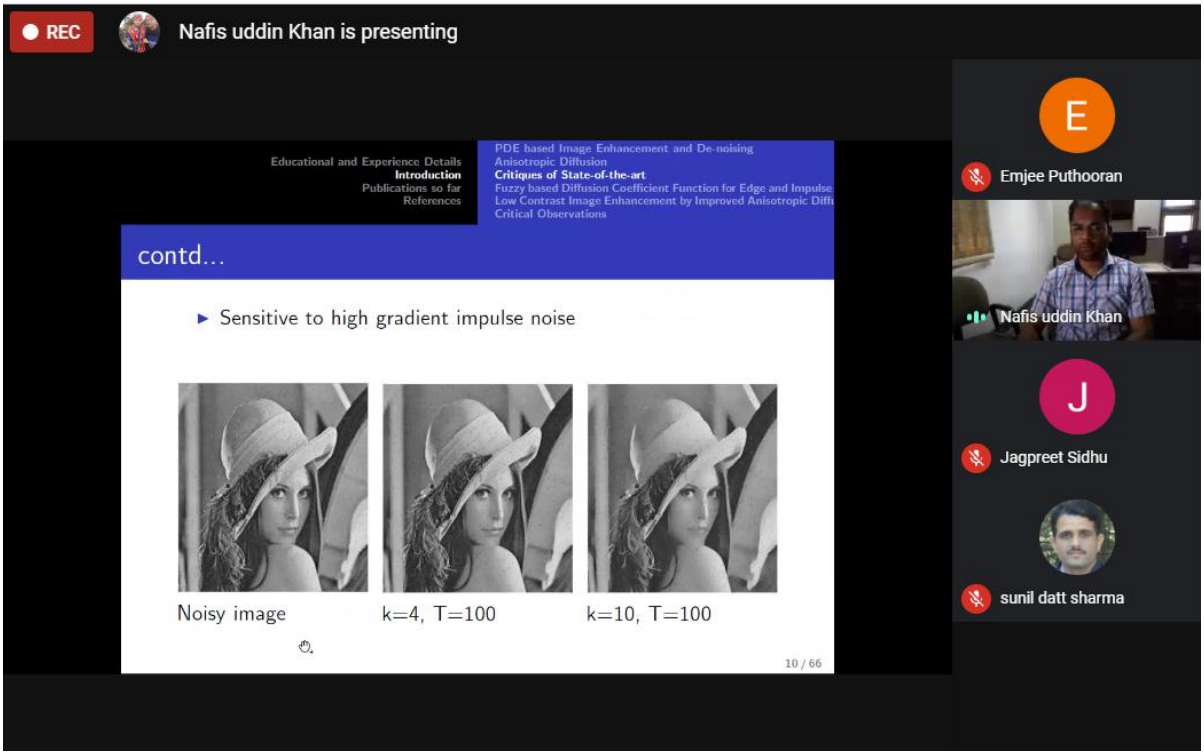
## REPORT

**Department of Electronics and Communication Engineering** organized one week online short term course on **"Recent Advances in Computational Intelligence for Signal Processing (RACISP-2020)"**. The program was scheduled from $10^{th}$ -$15^{th}$ August, 2020. This short term course was coordinated by **Dr. Sunil Datt Sharma** and **Dr. Vikas Baghel**. **Dr. Nafis Uddin Khan** was the convener of the course.

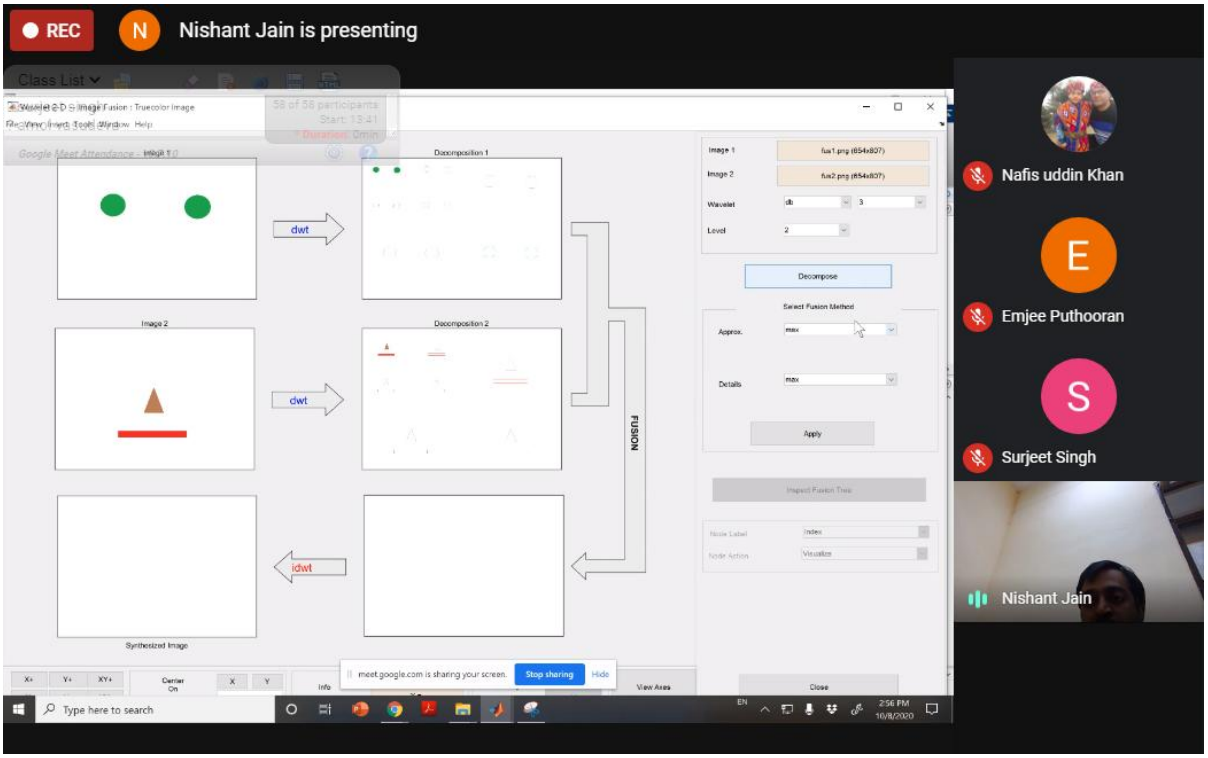
The program was inaugurated by honourable Vice –chancellor (**Prof. Vinod Kumar**) and Dean Research (**Prof. Samir Dev Gupta**). They highlighted the importance of computational techniques in signal processing and motivated the participants. More than 110 faculty members, research scholars from various universities/institutes and industry professionals from different organizations participated in this course.


## Expert Sessions:

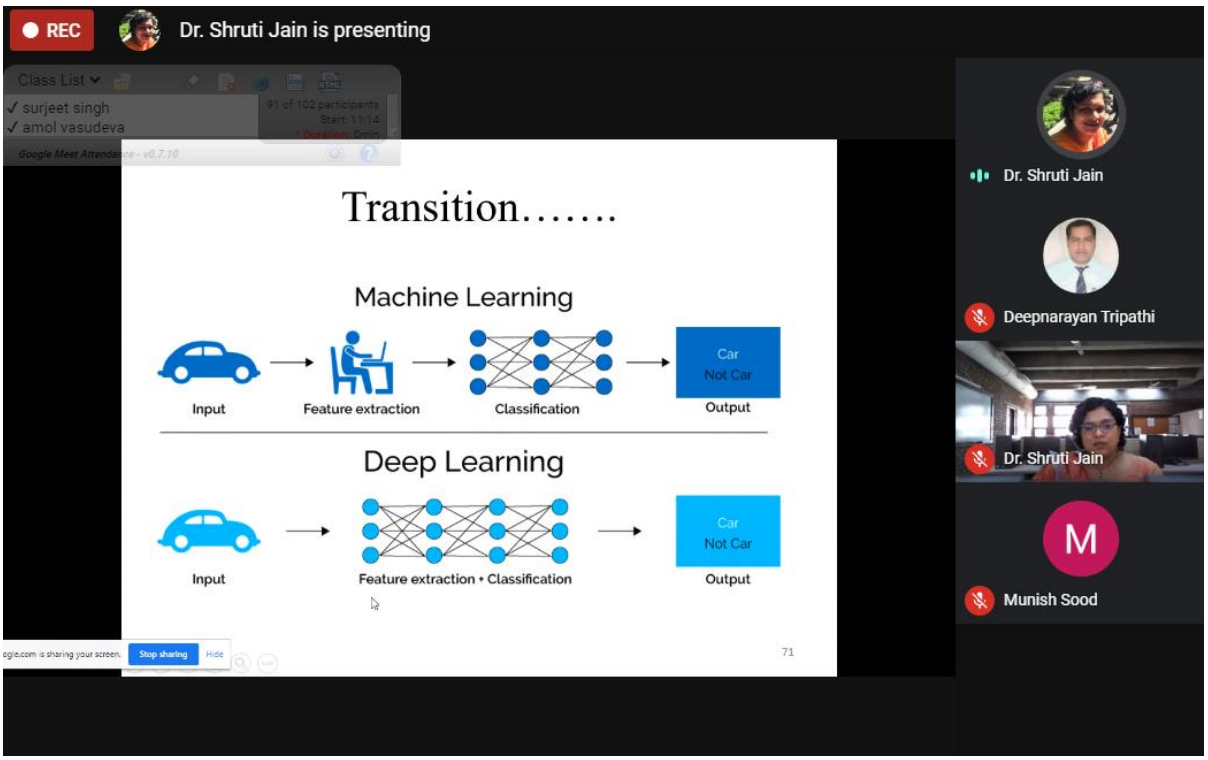
First session was taken by **Dr. Nafis Uddin Khan** and he focussed on Fuzzy inference based edge detection in digital image processing and also highlighted on the open research problems in this area.



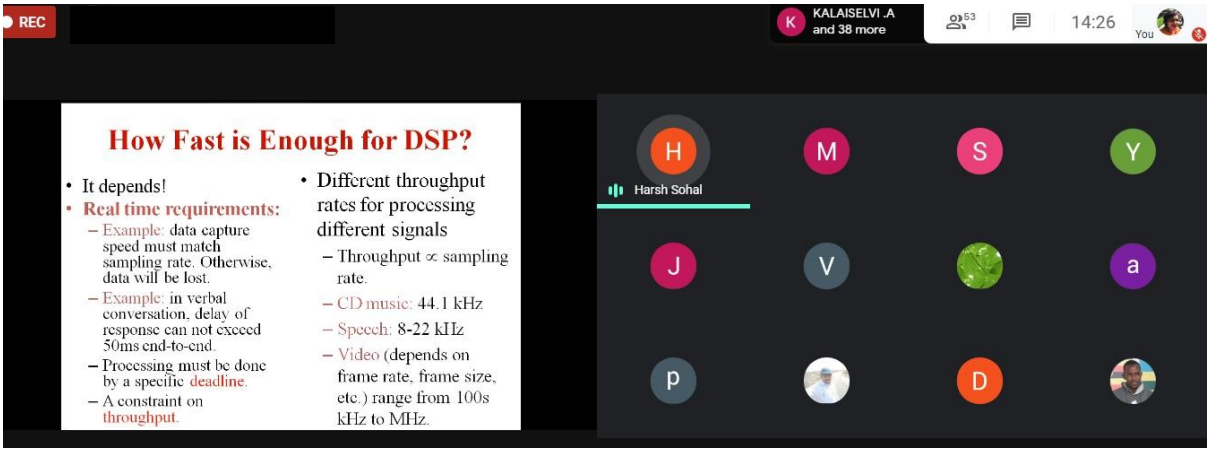
**Dr. Nishant Jain** discussed about the fusion of biomedical imaging modalities in the second session.



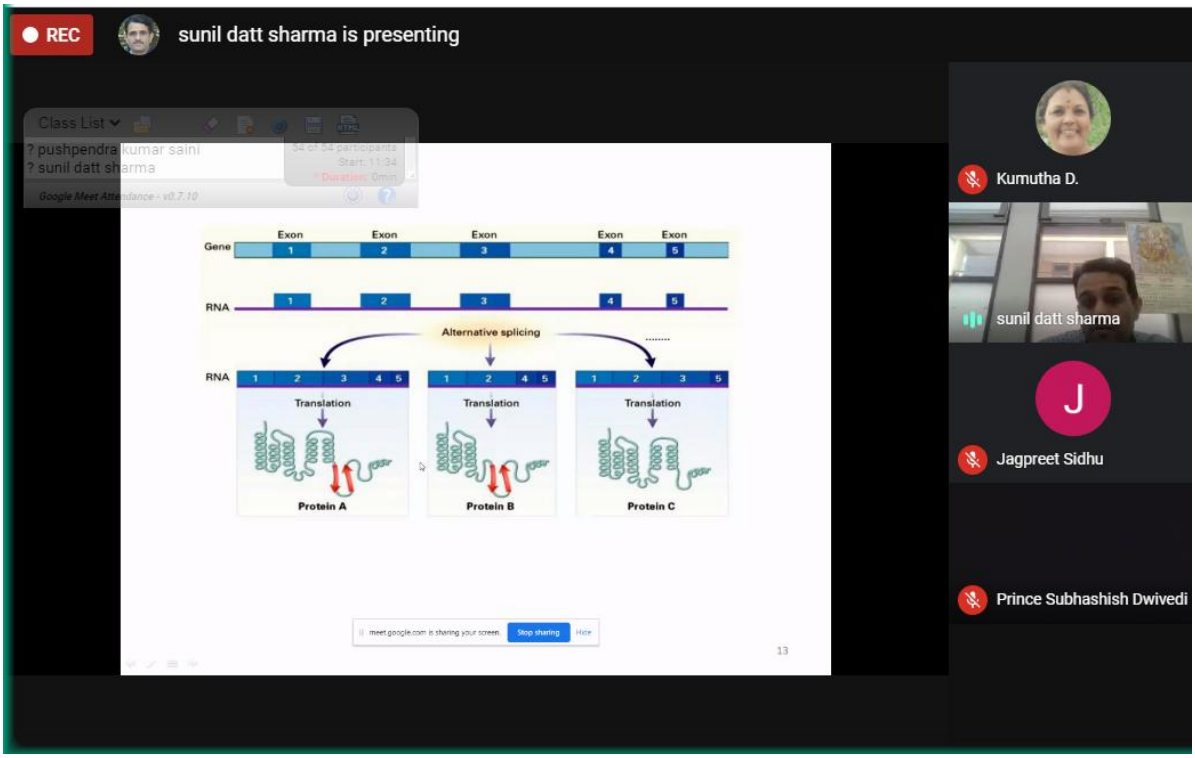

Third Session was conducted by **Dr. Shruti Jain, Associate Professor,** and she highlighted the area of biomedical engineering, time and frequency characterisation of bio signals and bio signal processing. She also motivated the participants to do the research in this area.



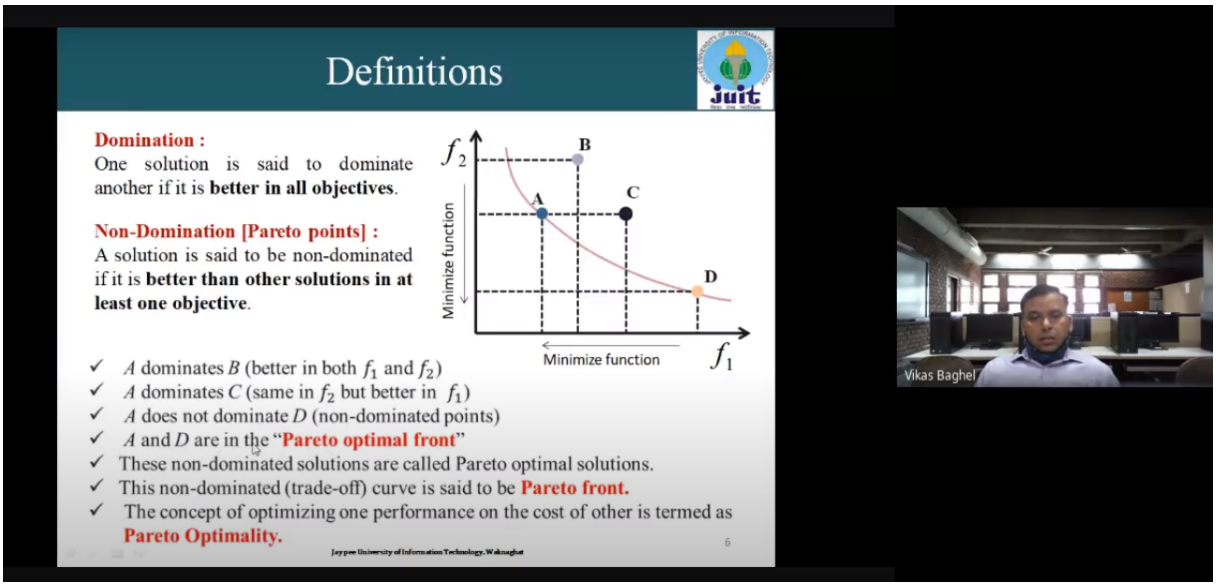
**Dr. Harsh Sohal** discussed the FPGA based digital signal processing and their implementation in fourth session.



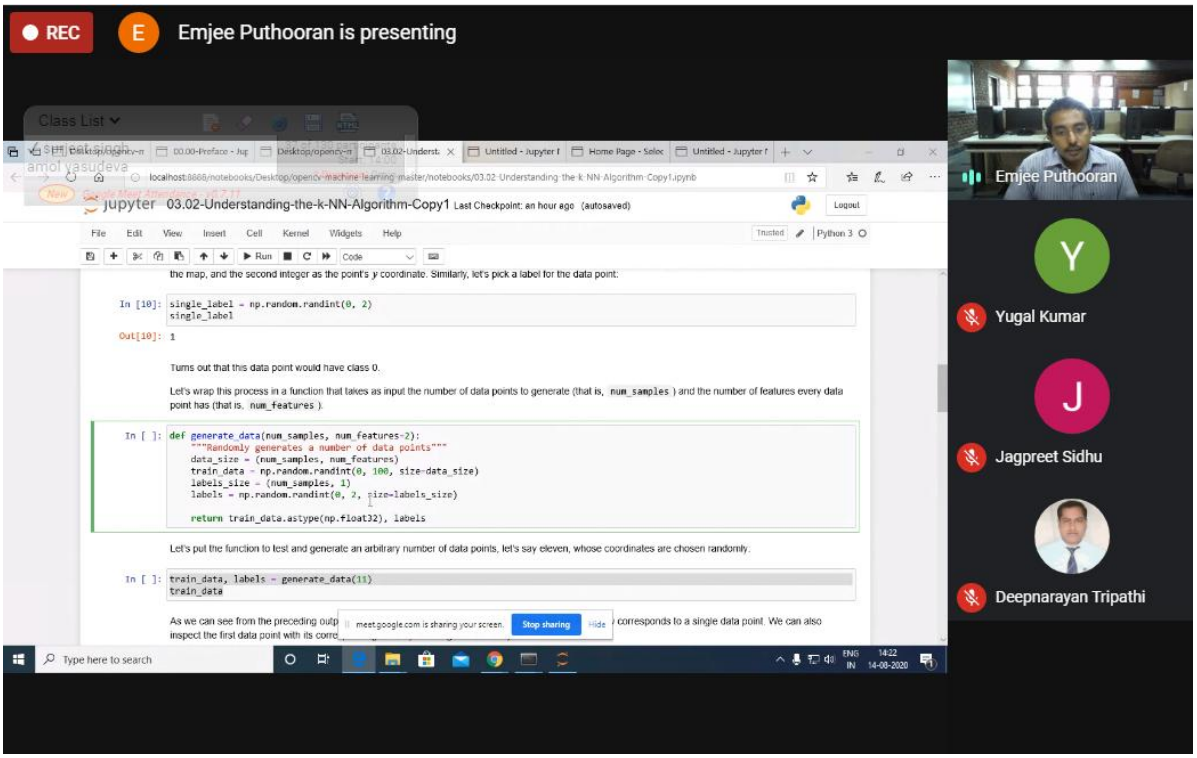

Fifth session & Sixth session were taken by **Dr. Sunil Datt Sharma** with **Mr. Pardeep Garg** and they discussed about the importance genomics signal processing in coming era and also discussed the open research research directions in this area.



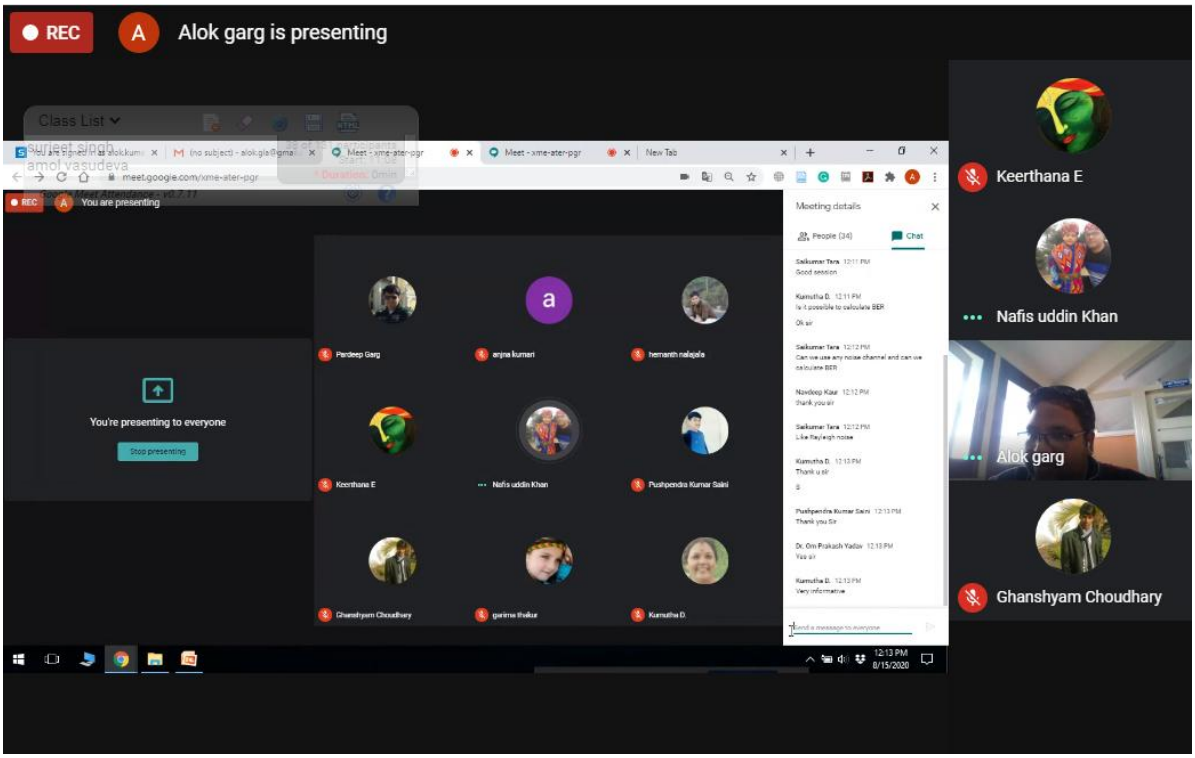
Session seven was taken by **Dr. Vikas Baghel** and he discussed the fundamentals and evolutionary methods for multi-objective optimization. He also conducted hand-on-session on the same topic in eighth session.




**Dr. Emjee Puthooran** conducted talk and hands on session machine learning using python in ninth and tenth session respectively.



Eleventh session was taken by **Dr. Alok Kumar** on role of threshold in spectrum sensing and he also highlighted on open research directions in this area.



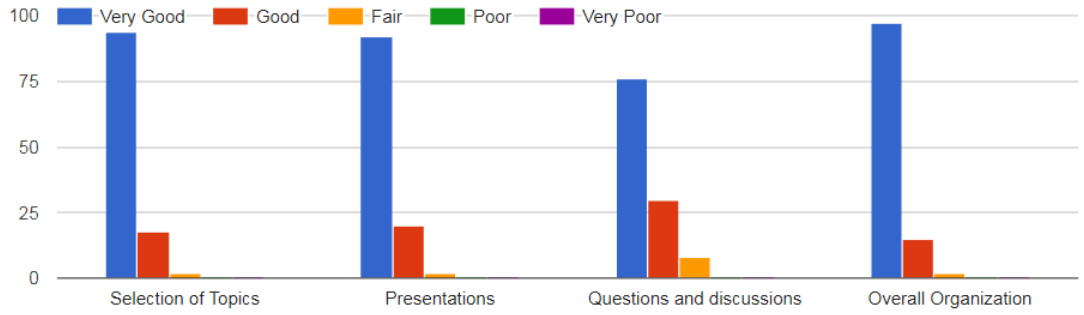

In the last session of the course, queries of the participants were answered by all speakers and suggestions from the participants were taken.

The short term course was concluded with valedictory function. The highlights of the course were given by **Dr. Vikas Baghel**. The valedictory speech was given by **Dr. Nafis U. Khan**. The vote of thanks was given by **Dr. Sunil Datt Sharma.** He highlighted the immense contribution of the Organizing Committee members and experts. He presented a special thanks to **Prof. Vinod Kumar,** Vice–chancellor, **Prof. Samir Dev Gupta**, Dean Research and **Dr. Rajiv Kumar**, Program chair & HoD ECE. He also showed his gratitude towards all speakers for their wonderful talks. He also thanked all the participants who made this event a grand success by participating wholeheartedly.

## Feedback by Participants:

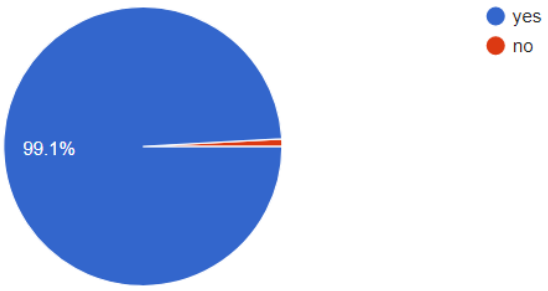
Most participants felt that the correct direction and knowledge for conducting scientific research was obtained in the short term course.

What is your rating of the following aspects of STC?




Did the STC meet your learning and research objectives?

114 responses




What is your overall evaluation of the short term course?

114 responses