A REPORT ON

Advances in VLSI Based Signal Processing and Applications

Date: 26th June, 2021
Platform: Cisco WebEx Meeting

Introduction

In accordance with the mission and vision of IEEE Signal Processing Society, Gujarat Chapter aim to provide the best possible technical upliftment to its members and keep them acquainted with the latest information and trends of Signal Processing.
Keeping this motto in view, an expert talk on "Advances in VLSI Based Signal Processing and Applications" was organized by IEEE SPS GUJARAT CHAPTER in collaboration with IEEE SPS BOMBAY SECTION and IEEE SILVER OAK UNIVERSITY SPS SBC under the Technical Talk Series 2021 with a unique guide about development and advances in VLSI technology.

About the Speaker

For this session, we had an expert and an experienced speaker, Dr. Satyanarayana Bhesette. He did his B.Tech in Electronics and Communication Engineering from J.N.T University, Hyderabad, and Ph.D. in Physics from IIT Bombay. He has been working in the Department of High Energy Physics, Tata Institute of Fundamental Research (TIFR) since 1983 – and is currently a Scientific Officer (H) and Coordinator of the INO Project. Dr. Satyanarayana sir has published about 250 research papers and proceedings in national and international journals and conferences, besides scores of invited talks. His very first paper won the best paper award from the Institution of Electronics and Telecommunication Engineers (IETE). Recently he was honoured with Homi Bhabha Award in Science Education (HBASE-2020) and has been selected as AICTE-INAE Distinguished Visiting Professor at the Symbiosis Institute of Technology, Pune. He is also a Senior Member of IEEE, currently an Executive Committee member and Vice-Chair of the IEEE Bombay Section as well as the Chair of IEEE Bombay section. He won IEEE Bombay Section's Outstanding Volunteer Award for 2014 and IEEE Head Quarter's MGA Achievement Award for 2016.

About the Session

Date: 26th June, 2021
Time: 10:00 PM to 12:00 PM IST
Platform: Cisco WebEx Meeting
Participants: 143

The event began at 10 A.M. after the welcome speech, Dr. Chirag Paunwala who is the Chair of IEEE Signal Processing Society Gujarat Chapter, the Regional Director at Large candidate for R10, nominated by the Board of directors of IEEE SPS shared a few things about Gujarat Section its events and speakers. After his wise words, Prof. Viren Patel, Faculty Coordinator of Silver Oak University IEEE Student Branch was invited to brief the participants about the speaker, Dr. Satyanarayana Bhesette. Starting with the event Dr. Satyanarayana Sir explained about Sensor Signal Processing, Issues of Sensor Signal Production like duration, Linearity, Reproductivity, and Ageing.

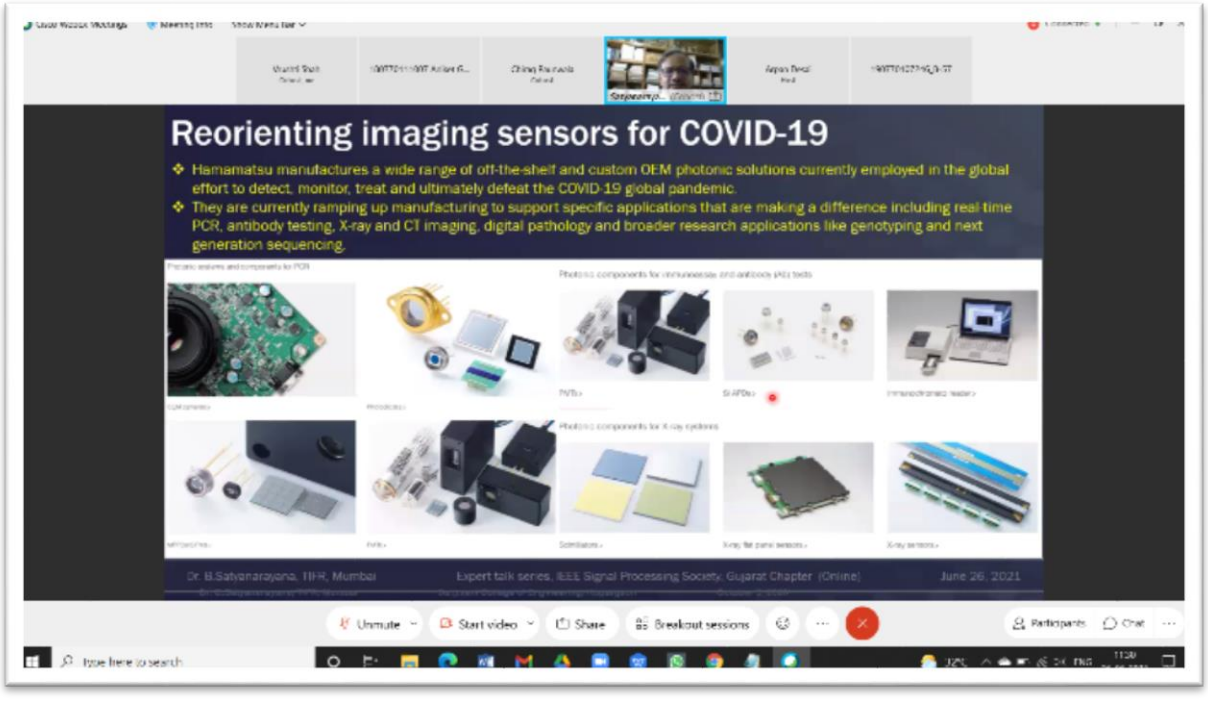
He also threw some light on Industry Standard Integrated Circuit (ISIC), Application Specific Integrated Circuit (ASIC). He further explained how the Intellectual Property (IP) can be built into the FPGA fabric to provide rich functionality, also discussed the Intel FPGA IP Ecosystem, and many more. He also expressed the current scenario in VLSI and also mentioned India's position in this technology.

Conclusion

An expert Q&A session followed after the event's conclusion, during which attendees asked the questions. And all the doubts were solved thoroughly. Later, Prof. Yeshudas Muttu, Vice-Chair, TPAC, IEEE Bombay Section presented the vote of thanks to our esteemed speaker. We thanked speaker Dr. Satyanarayana Bhesette for such an insightful session and we were honoured to extend our gratitude by presenting a memento to the Sir. We thanked him on behalf of the IEEE SPS GUJARAT CHAPTER, IEEE SPS BOMBAY SECTION, and IEEE SILVER OAK UNIVERSITY SPS Student Branch Chapter.
Last but not least, we thanked all the enthusiastic participants and committee members for attending and making this session successful.

Some glimpse of the event


Issues of sensor signal production
Duration
Depends on the type of physical process exciting the sensor and details of signal production process in the external circuit
Linearity
Most sensors are characterised or chosen for linearity
Commercial components can expect non-linearity, offset and possible saturation
Reproducibility
Many signals are temperature dependent in magnitude - mobility of charges, other effects easily possible as well
Ageing
Sensor signals can change with time for many reasons
Natural degradation of sensor, variation in operating conditions, ambient parameters, etc.
All these issues mean that one should always be checking or calibrating measurements intended for accuracy, as best as one can.
Dr. B.Satyanarayana, TIFR, Mumbai
Expert talk series, IEEE Signal Processing Society, Gujarat Chapter (Online)
June 26, 2021


Reorienting imaging sensors for COVID-19
Hamamatsu manufactures a wide range of off-the-shelf and custom OEM photonic solutions currently employed in the global effort to detect, monitor, treat and ultimately defeat the COVID-19 global pandemic.
They are currently ramping up manufacturing to support specific applications that are making a difference including real-time PCR, antibody testing, X-ray and CT imaging, digital pathology and broader research applications like genotyping and next generation sequencing.
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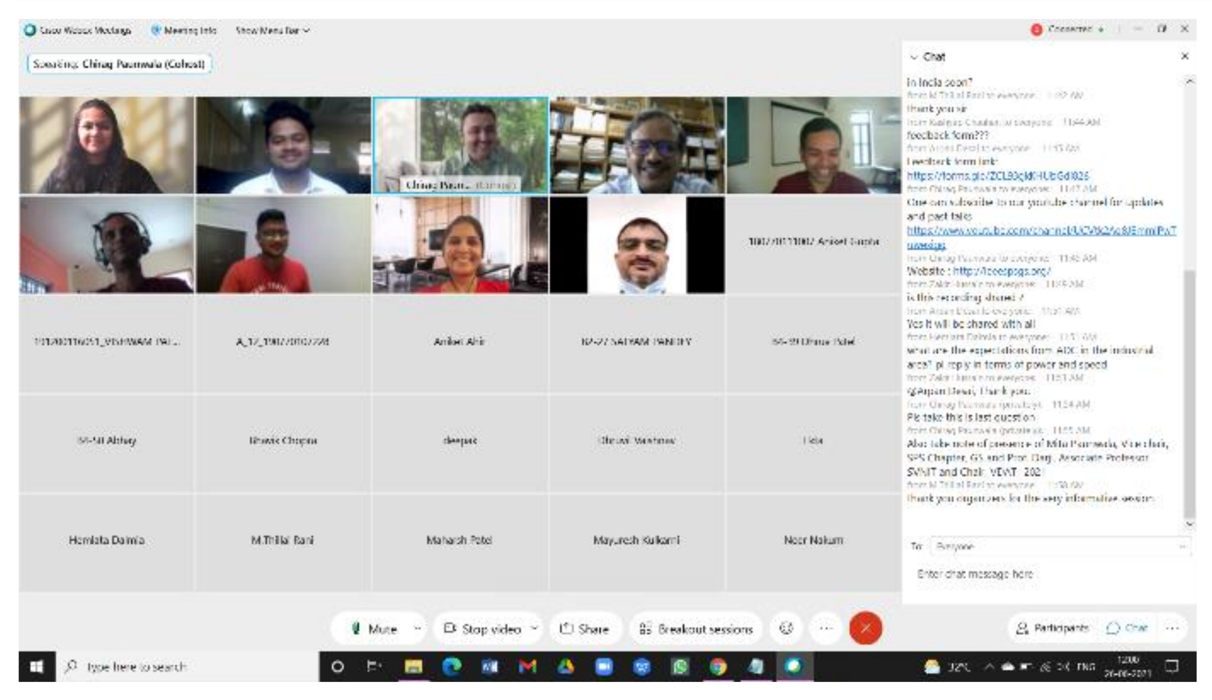
Hemlata Dalmia
M.Thillai Rani
Mahesh Patel
Mayuresh Kulkarni
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