

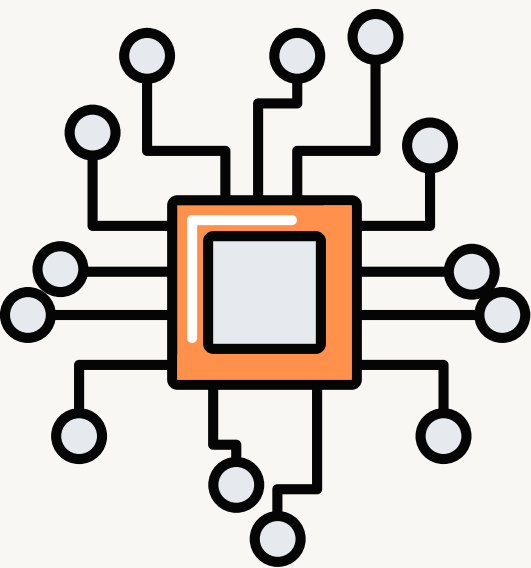
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CURRENT

The Official Newsletter of
**Department of
Electronics Engineering**

Sardar Vallabhbhai National Institute of Technology,
Surat, Gujarat, India.



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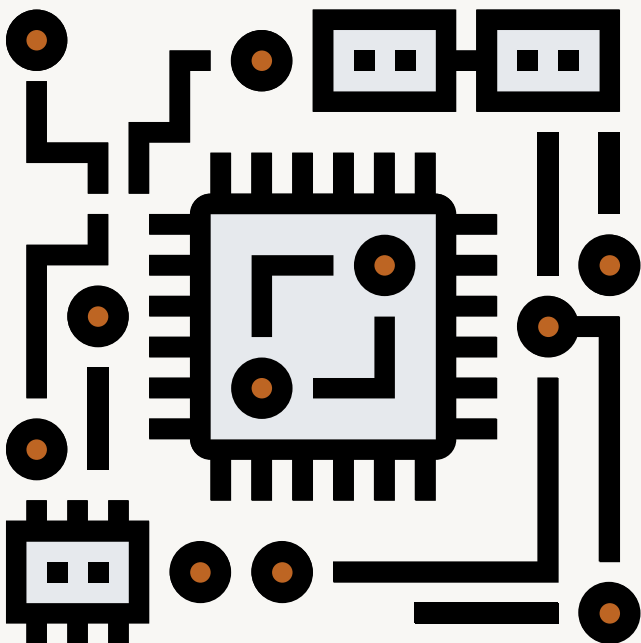
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Mission

The mission of the Electronics Engineering Department is to contribute to society and industry through excellence in education, research, innovations and ethics by stakeholders.

Vision

The vision of the Electronics Engineering Department is to aim to achieve quality in education and research to create leading Electronics engineers, researchers and entrepreneurs.

A Walk to Remember.....

I have been sharing this memory of my journey of more than two decades at SVNIT with my eyelids wet due to tears of gratitude. It has shaped me a lot in the process of shaping up the future global sensible citizens. To be honest enough, it cannot be claimed to be the smooth or impactful journey. But, definitely happens to be an unforgettable experience having unfolded many hidden aspects of the TRUTH and yet waiting many more to be revealed. It is perfectly relevant to sketch my career path over here, As It is directly related to the contribution, I attempted to have at ECED, SVNIT. I joined as a Lecturer on 1st January,1998 after M.E. qualification through GATE from MSU, Baroda and five years of work experience on the same position through GPSC, A state government gazetted position. Immediately after joining, I had taken up the responsibility as A Hostel Warden to create an insight into the life of the students. As I recollect, I used to take up the courses like microprocessors (8085/8086), Digital Circuits, Computational methods using C etc during that time followed by DIGITAL SIGNAL PROCESSING (in UG/PG after course revision and introduction of the same in curriculum) and many more.

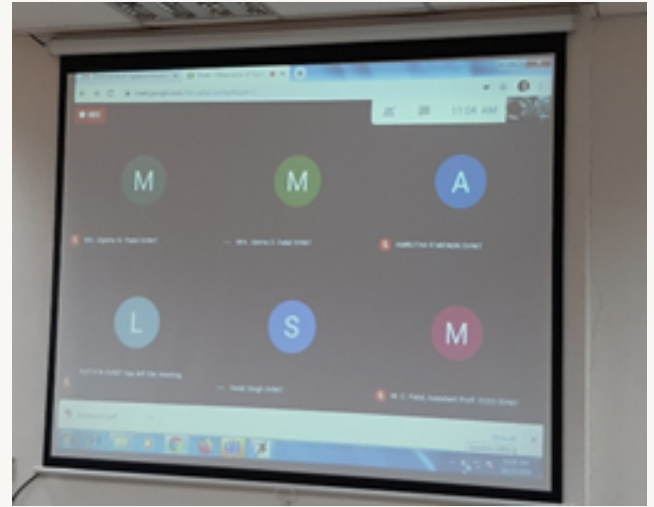


I was eager to have Ph.D as early as possible as that was one of the main driving forces for me to be at (then) SVRCET (popularly known as REC, Surat). But probably nature wanted me to traverse the path of most resistance for the same. I had been at MNNIT, Allahabad during 2006-9 for Ph.D and in part time during 2009-12. I had course work with 10 CGPA over there and also my supervisors had certified in writing that, my work required for Ph.D was 90 percent over in just two years of my stay. But unfortunately, whatever the reason may be, I could not complete Ph.D in the prescribed time limit. At SVNIT, I attempted for admission transfer or extension of Ph.D there. But it ultimately led to the unfortunate failure there. From May-2012, I had taken up the responsibility as a head of the department. With the whole hearted cooperation of faculty colleagues, I could complete one term. I was blessed to work as a PG in charge of communication systems from 2014-16. Immediately after my headship was over, I had registered for Ph.D at SVNIT in June-2014 and with the support of all, it is going to be over very soon under the able guidance of Dr.U.D. Dalal madam and S.N. Sharma sir. In last few years, I have purposefully attempted to take up the new elective courses for both UG and PG like, Global electives such as Statistical signal analysis, Neural Networks and Applications, final year elective course of Adaptive Signal Processing and PG elective course Estimation and Detection Theory etc. I enjoy to be the student within a teacher. I love my involvement in both UG project/seminar and PG dissertation and seminar as a Guide/Supervisor. To support my activities outside, the driving force happens to be deep inner intention of holistic approach for technical education. I find these experiences both rewarding as well as worthwhile. My greatest morale booster happens to be the reciprocation from the students for the efforts put in right direction in line with the vision and mission of the institute.

Finally, I can only be grateful for the SVNIT as a bread and butter for my family as a unit. I consider myself to be privileged as a member of ECED family and hope for the best to play its role in the process of bringing out the best from the talented young and channelise the same for the societal upliftment. At present, the department is venturing for the cause under the able guidance of current head Dr. A. D. Darji. I hope this journey to be progressing in leaps and bounds in future too. Thanks for your patience reading.

Prof. Prashant K. Shah
Associate Professor and Former Head,
Electronics Engineering Department,
Sardar Vallabhbhai National Institute of Technology, Surat

Observance of Vigilance Awareness Week 2020:



The institute had organized Observance of Vigilance awareness week-2020 with the theme “SATARK BHARAT, SAMRIDDH BHARAT” (VIGILANT INDIA, PROSPEROUS INDIA) during 27-10-2020 to 02-11-2020. Under this vigilance week the department organized a slogan competition. In this competition Dr. S.N. Shah and Dr. R.N. Dhavse won 1st and 2nd position with the slogan title "Integrity is Gainful; Corruption is Painful" and “Our Vigilance will outcast their corruption. It surely did before, and it will do it again. So, be vigilant fight Corruption” respectively. Also pledge was taken at department level about vigilance awareness in online mode.

Sponsored Research Projects

Sanctioned Sponsored Research Projects :

Project Title: A TCAD Framework for Assessment of Spacer Material and Back-Gate Bias on the Electrical Performance of Negative Capacitance FETs.

Duration: 2020-2022

Agency: SVNIT, Surat.

Amount: 10 lacs

Investigators: Dr. Abhishek Acharya (PI)



Project Description:

The main idea of investigating the Negative Capacitance FET and Tunnel FETs is to explore its low voltage operation. The steep slope of Tunnel FETs and NCFETs provide an additional degree of freedom to the designer to utilize these devices for low power and low voltage IoT and healthcare applications. In such applications, sensor should consume extremely low power supply and hence energy harvesting is important aspect. However, the device physics of these devices are still underexplored thus creates some misleading research outcomes. Interface traps and spacers severely affect the performance of ferroelectric material used; hence a systematic design methodology to use these devices in the analog and digital circuits is required to impede the further scientifically misleading claims. In addition, analog and digital performance matrices need to be evaluated under different bias and design conditions. The concept of Negative Capacitance in tunnel FETs is being explored to achieve steep slope. In addition, the potential of the combination of epitaxial layer-based line tunnel FET with Negative Capacitance is also under explored, as the drive capability of line tunnelling devices are superior to their point tunnelling counterparts. After developing a well calibrated simulation deck for NCFETs using self-consistent numerical simulations, the simulation framework will be validated against experimental results. Following are the specific objectives of the proposed research:

1. To investigate the impact of back gate bias and spacer dielectric on the analog/digital performance of NCFETs.
2. To investigate the concept of Negative Capacitance in the epitaxial layer enabled line Tunnelling FETs.

Sponsored Research Projects

Sanctioned Sponsored Research Projects :

Project Title: Cognitive Radio Enabled Internet of Things for Smart Homes

Duration: 2020-2022

Agency: SVNIT, Surat.

Amount: 10 lacs

Investigators: Dr. Kamal Captain (PI)



Project Description:

A smart home is a residence that uses internet-connected devices to facilitate owners the remote monitoring and management of appliances and systems, such as lighting and security. In the IoT based smart homes technology, different devices in the home such as sensors and other appliances are connected to the internet that can be remotely monitored, controller or accessed. Smart homes consist of large number of sensors and devices which need to communicate over the internet. It is not cost effective to lay cables and fibers for connectivity between devices and hence wireless connectivity appears as the only solution. The 2.4 GHz unlicensed ISM band is used for such applications which is getting crowded due to extensive utilization. Hence, we need to look for alternatives for radio frequency resource. In this project, cognitive radio is proposed to solve this issue by opportunistic use of licensed spectrum for wireless connectivity.

MOU Signed

Elena Geosystems Pvt. Ltd. and SVNIT has joined hands by signing the MoU of the duration 5 years in recognizing the importance of research and development in the areas of NavIC based monitoring, as well as imparting industrial training to the engineering/technology/sciences students, etc. Also appreciating the need for the creation of a large reservoir of highly qualified manpower in all fields related to the Global Navigation Satellite System (GNSS).



Dr. Shweta N. Shah

Completed Consultancy Projects

- **Investigators:** Dr. Upena D. Dalal (PI), Dr. Shweta N. Shah (Co-PI), Dr.S.J. Patel (Co-PI)
- **Duration:** 2019-2020
- **Organization:** SCMxpert, USA
- **Project Detail:**
 - 1.Design and build own IoT Device for cold chain management
 - 2.To build its proprietary Middleware
 3. All test Components provided by SCMXPERT. It can be considered as product development also.

Academic Activity

Organization of Short-Term Training Program:

1. STTP on Emerging Trends in VLSI Design

The department had organized a TEQIP-III sponsored online STTP on Emerging trends in VLSI Design from 12th sept to 16th sept 2020. The STTP was coordinated by **Dr. Abhishek Acharya** and **Dr. Deepak Joshi**. Total 77 participants registered in this STTP. In this STTP following speakers have delivered the lecture.

- **Speaker's name:** Dr. Shivam Verma, Assistant Professor, IIT BHU.
- **Topic:** Spintronics-based devices and circuits.
- **Speaker's name:** H.S. Jatana, Group Head, SCL, Chandigarh.
- **Topic:** Issues in CMOS analog circuit design.
- **Speaker's name:** Dr. Sunil Dutt, Assistant Professor, IIIT, Vadodara.
- **Topic:** Fundamentals of approximate computing.
- **Speaker's name:** Dr. Narendra Parihar, R&D Engineer, IMEC, Belgium.
- **Topic:** Front end of line reliability issues in advance CMOS devices.
- **Speaker's name:** Dr. Mohd. Tasleem Khan, Assistant Professor, IIT (ISM), Dhanbad.
- **Topic:** Low complexity distributed arithmetic based VLSI architectures for pipelined adaptive filters.
- **Speaker's name:** Dr. Saroj Mondal, Assistant Professor, BITS Pilani, Hyderabad.
- **Topic:** Powering the Internet of Things.
- **Speaker's name:** Dr. Brajesh Rawat, Assistant Professor, IIT Ropar.
- **Topic:** 2D material- based device for next generation of electronic.
- **Speaker's name:** Dr. Navjeet Bagga, Assistant Professor, IIITDM, Jabalpur.
- **Topic:** Emerging trends in device engineering for improved performance.
- **Speaker's name:** Dr. Anand D. Darji, Associate Professor, SVNIT.
- **Topic:** Optimization of VLSI DSP architectures.

Academic Activity

- **Speaker's name:** Dr. Rasika Dhavse, Associate Professor, SVNIT.
- **Topic:** Hybrid SETMOS circuits.

- **Speaker's name:** Dr. Dheeraj Sinha, Assistant Professor, IIIT, Bhagalpur.
- **Topic:** Issues in designing ESD protection devices/circuits for current CMOS ICs.

2. STTP on Emerging Trends in Biomedical and Speech Signal Processing

The department had organized a TEQIP-III sponsored online STTP on Emerging trends in Biomedical and Speech signal processing from 23th sept to 27th sept 2020. The STTP was coordinated by **Dr. Suman Deb** and **Dr. Deepak Joshi**. Total 34 participants registered in this STTP. In this STTP following speakers have delivered the lecture.

- **Speaker's name:** Prof. Samrendra Dandapat, Professor, IIT Guwahati.
- **Topic:** Cardiovascular Signal: Information and Machine learning.

- **Speaker's name:** Prof. Hemant A. Patil, Professor, DA-IICT Gandhinagar.
- **Topic:** ISCA Distinguished Lecture: Spoofing Attacks for Automatic Speaker Verification (ASV)

- **Speaker's name:** Dr. Ashutosh Kar, Assistant Professor, IIITDM Kancheepuram, Chennai.
- **Topic:** Sound quality enhancement in digital hearing-aids using adaptive signal processing techniques.

- **Speaker's name:** Dr. Gayadhar Pradhan , Associate Professor, NIT Patna.
- **Topic:** Front-end analysis through single pole filter for development of robust speech-based application.

- **Speaker's name:** Dr. Vinal Patel, Assistant Professor, ABV-IIIT Gwalior.
- **Topic:** Hearing aid for speech quality enhancement.

- **Speaker's name:** Dr. Rajesh Tripathy, Assistant Professor, BITS Pilani, Hyderabad.
- **Topic:** Empirical wavelet transform and its biomedical applications.

- **Speaker's name:** Dr. Bidisha Sharma Research Associate, NUS Singapore.
- **Topic:** Intelligent applications of speech and music processing.

Academic Activity

- **Speaker's name:** Dr. Hemant Kathania Assistant Professor, NIT Sikkim.
- **Topic:** Automatic speech recognition: Recent trends, Applications, Low data scenario.

- **Speaker's name:** Dr. Nagendra Kumar R&D Engineer, Eaten India Innovation Centre.
- **Topic:** Machine Learning & Artificial Intelligence and Its Application to Aerospace Industry.

- **Speaker's name:** Dr. Ganji Sreeram R&D Engineer, Reliance Jio.
- **Topic:** End to End ASR of Hindi-English Code-Switching Data.

3. STTP on Recent Trends in RF and 5G Technology

The department had organized a TEQIP-III sponsored online STTP on Recent Trends in RF and 5G Technology from 12th oct. to 16th oct. 2020. The STTP was coordinated by **Dr. Shilpi Gupta** and **Dr. Kirti Inamdar**. Total 45 participants registered in this STTP. In this STTP following speakers have delivered the lecture.

- **Speaker's name:** Dr. Dhaval Pujara, Nirma University.
- **Topic:** Recent Trends in RF Technology.

- **Speaker's name:** Dr. Shrivishal, IIIT Raipur.
- **Topic:** Enabling Technologies for IoT
Antennas for IoT.

- **Speaker's name:** Dr. Arani Ali Khan, IIT Jodhpur.
- **Topic:** SIW Antenna for IoT Applications.

- **Speaker's name:** Prof. M. Ganesh Madhan, Anna University.
- **Topic:** Powering IoT from RF Energy.

- **Speaker's name:** Dr. Sanjeev Kumar, IIIT Bhubaneswar.
- **Topic:** Directional Antenna for IoT.

- **Speaker's name:** Dr Shishir Jagtap, PEC Mumbai.
- **Topic:** MIMO Antenna Technology- I
MIMO Antenna Technology- II.

- **Speaker's name:** Dr. Taimoor Khan, NIT Silchar.
- **Topic:** Fundamental Requirements for Designing an Efficient RF Energy Harvester.

Academic Activity

- **Speaker's name:** Dr. Raghvendra Chaudhary, ISM Dhanbad.
- **Topic:** MIMO and Cognitive Radio for Sub-6 GHz 5G Applications -I
MIMO and Cognitive Radio for Sub-6 GHz 5G Applications -II
- **Speaker's name:** Dr. S. S. Kartikeyan, NIT Trichy.
- **Topic:** Smart Antennas for 5G Applications.
- **Speaker's name:** Dr. Debarati Ganguly, Postdoctoral Research Fellow, Canada.
- **Topic:** Channel Modelling of MIMO& UWB Antenna for 5G Applications.
- **Speaker's name:** Mr. Abhishek Jyoti, Electronics Ahmedabad, India.
- **Topic:** Demonstration of 5G MIMO Antenna for IOT Application using CST Studio Suite 2020.07.
- **Speaker's name:** Mr. Swapnil Gaul, Founder and Director Numergion Technology Pvt. Ltd.
- **Topic:** Demonstration and hands on TaraNG Software.
- **Speaker's name:** Mr. Kaviarasu K., Entuple Technologies Pvt. Ltd.
- **Topic :** 5G Solutions from ANSYS
Simulation of Massive MIMO Antenna using HFSS
Different Simulation Approaches of Antenna Array

4. STTP on Recent Trends in Optical Engineering (RTOE- 2020)

The department had organized a TEQIP-III sponsored online STTP on Recent trends in Optical Engineering (RTOE 2020) from 19th Oct. to 23rd Oct. 2020. The STTP was coordinated by **Dr. Piyush Patel, Dr. Abhilash Mandloi** and **Dr.Dharmdrakumar**. Total 35 participants registered in this STTP. In this STTP following speakers have delivered the lecture.

- **Speaker's name:** Dr. Santosh Kumar, School of Physics Science & Information Technology, Liaocheng University, China.
- **Topic:** Optical fiber based Plasmonics and Biosensors for Clinical Applications.
- **Speaker's name:** Dr. Saurabh Kumar Pandey, IIT Patna.
- **Topic:** Modern trends and developments in semiconductor optoelectronics.

Academic Activity

- **Speaker's name:** Dr. Ravi Hegde, IITGN.
- **Topic:** Optical technologies enabled by Nano photonics.

- **Speaker's name:** Dr. Vijayshri Chourasia, MANIT Bhopal.
- **Topic:** Photonic Devices.

- **Speaker's name:** Dr. Vijay Janyani, MNIT Jaipur.
- **Topic:** Photonic Crystal based solar cell.

- **Speaker's name:** Dr. Amitesh Kumar, IIT(ISM) Dhanbad.
- **Topic:** Fiber optic sensors and its applications.

- **Speaker's name:** Dr. Anamika Singh, VNIT Nagpur.
- **Topic:** Future of Integrated Circuits- Silicon Photonics.

- **Speaker's name:** Shri. Hitesh Mehta, Managing Director Eagle Photonics Mumbai.
- **Topic:** Hi Fidelity Distributed Fiber Sensors.

- **Speaker's name:** Dr. Yogendra Kr. Prajapati, MNNIT Allahabad.
- **Topic:** Role of Photonic spin Hall effect in sensing application

- **Speaker's name:** Dr. Ajay Kumar, NIT Jamshedpur.
- **Topic:** Optical digital computation using some optical switching units.

5. STTP on Recent Trends in Machine Learning: An Industry Perspective

The department had organized a TEQIP-III sponsored online STTP on Recent Trends in Machine Learning: An Industry Perspective from 8th Nov. to 12th Nov. 2020. The STTP was coordinated by **Dr. Kamal Captain** and **Dr. Kirti Inamdar**. Total 29 participants registered in this STTP. In this STTP following speakers have delivered the lecture.

- **Speaker's name:** Mr. Falak Shah, Lead Research Scientist/ ML Research lead at Info Cusp.
- **Topic:** ML industry case studies and practical tips.

Academic Activity

- **Speaker's name:** Mr. Peddakota Vikash, Data Scientist, Share Chat.
 - **Topic:** Beyond just Algorithms: Identifying and Approaching an ML problem in Industry.
- **Speaker's name:** Mr. Meet Soni, Researcher, TCS Research and Innovation.
 - **Topic:** An Industry perspective on Speech Processing.
- **Speaker's name:** Dr. Hardik Sailor, Lead Senior Engineer, Samsung Research Institute Bangalore.
 - **Topic:** Automatic Speech Recognition from theory to applications.
- **Speaker's name:** Dr. Manjira Sinha, Assistant Professor, CET, IIT Kharagpur.
Dr. Tirthankar Dasgupta, Scientist, Innovation Lab, Tata Consultancy Services.
 - **Topic:** Mining Biomedical and Clinical Texts for Efficient Retrieval of Clinical Trials.
- **Speaker's name:** Dr. Sourish Dasgupta, Founder and CEO Rygbee and Professor at DAIICT.
 - **Topic:** Extracting Concepts and Relations from Textual Documents.
- **Speaker's name:** Dr. Udit Satija, Assistant Professor, IIT Patna.
 - **Topic:** Machine Learning for Biomedical Signals.
- **Speaker's name:** Dr. Nilesh Vaishnav, Lead Design Engineer, Cadence Design Systems, Audio R&D Group.
 - **Topic:** Trends in Hardware Design for Audio/Speech Neural Network Applications.
- **Speaker's name:** Dr. Parth Mehta, NLP Research Scientist, Parmonic.
 - **Topic:** Neural Text Summarization, Bridging the gap between best practices in academia and Industry.
- **Speaker's name:** Mr. Nitin Ramrakhiyani and Dr. Sachin Pawar, Researcher, TRDDC.
 - **Topic:** Knowledge Extraction from Text Narratives and its Applications.

6. STTP on Recent Trends in Sensor Technology and Automation (RTSTA 2020)

Our department organized a TEQIP-III sponsored online STTP on Recent trends in Optical Engineering (RTSTA 2020) from 21st Dec. to 25th Dec. 2020. The STTP was coordinated by **Dr. Piyush Patel** and **Dr.P.J. Engineer**. Total 60 participants registered in this STTP. In this STTP following speakers have delivered the lecture.

Academic Activity

- **Speaker's name:** Nisith Bhatt, General Manager, DesignTech Systems Ltd, Pune.
- **Topic:** Sensors and transmitters for industrial automation.
Role of Robotics in Industrial Automation.

- **Speaker's name:** Prof. Piyush N. Patel, SVNIT Surat.
- **Topic:** Research in RF and Optical Sensors- Case Study.

- **Speaker's name:** Vinay Palaparthi, Assistant professor, DAIICT, Gandhinagar.
- **Topic:** Application of 2D Nanomaterials based MEMS sensors technology for the insitu agriculture applications.

- **Speaker's name:** Dr. Subhas Chandra Mukhopadhyay, Professor of Mechanical/Electronics Engineering Distinguished Lecturer, IEEE Sensors Council, School of Engineering Macquarie University.
- **Topic:** Trends for Wearable and Medical Devices.

- **Speaker's name:** Jitendra Bahadur Maurya, Assistant Professor, NIT Patna.
- **Topic:** Optical Sensors: Nanomaterials for Biosensing.

- **Speaker's name:** Dr. Brahma P Pandey, MMMUT Gorakhpur.
- **Topic:** Nano Sensors.

- **Speaker's name:** Dr. Anindya Bose, Department of Physics, Burdwan University, Golapbag.
- **Topic:** Location Sensors and Agriculture Application use cases.

- **Speaker's name:** Dr. Anand Darji, Associate Professor SVNIT, Surat.
- **Topic:** Biomedical Sensors and related processing.

- **Speaker's name:** Prof. Maryam Shojaei, Professor, Indian Institute of Technology, Bombay.
- **Topic:** Sensor Interfacing, Signal Conditioning, Digitization and Energy Harvesting.

- **Speaker's name:** Janak Patel, Associate Professor, SVNIT, Surat.
- **Topic:** Designing Automation system with various sensors (Demo).

Academic Activity

Organization of other Activities:

Dr. Rasika Dhavse, Chairperson ICC, organized a virtual Poster competition on “Women Empowerment” sponsored by ICC, SVNIT on 27th November 2020 which is coordinated by G. Sushnigdha and Dimple Shah. Total 52 students participated in this competition.

Dr. Rasika Dhavse, organized webinar on “How can you extend and exchange power to women community” sponsored by TEQIP (EQUATE) which is coordinated by Dr. Ravikant and Dr. Kalpana Maheria. Total 100 students participated in this webinar.

FACULTY CORNER

Faculty Specific Achievements

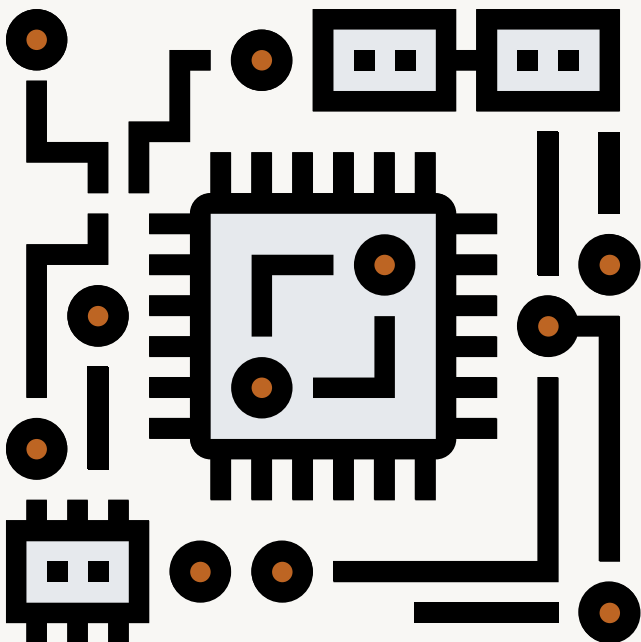
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Paper Publication

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Expert Lectures and Talks Delivered

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Faculty Specific Achievements

Dr. Kishor P. Upla

He has awarded the ERCIM (European Research Consortium for Informatics and Mathematics) post-doctoral fellowship at NTNU, Norway for the duration of one year (i.e., from November 2019 to October 2020). The purpose of ERCIM fellowship is to enable bright young scientists from all over the world to work on challenging problems as fellows in ERCIM member institutes. During fellowship, his collaborate works have been well recognized in international platform such as CVPR, IWBF, etc., Further, his work has also been awarded as best paper in reputed CVPR workshop (<http://vciplokstate.org/pbvs/20/awards.html>). One of his works on thermal super-resolution has obtained first rank in PBVS competition at CVPR, 2020 (<http://vciplokstate.org/pbvs/20/challenge.html>). Additionally, he was nominated for the recruitment process at NBL, NTNU, Norway during this fellowship.



Dr. Upena Dalal

Upena Dalal ,Poojan Dalal, Ojas Ramwala, Himansh Mulchandani, Parima Dalal, Mita Paunwala, Chirag Paunwala “Throat Inflammation based mass screening of Covid-19 on Embedded Platform” published in Springer Iccsoftcomp 2020 on 12/12/2020 (with only 14% acceptance rate of papers out of total papers received) awarded with **Best paper** and selected for Springer Nature journal-SN Computer Science.

Upena Dalal, Poojan Dalal, Ojas Ramwala, Himansh Mulchandani, Parima Dalal, Mita Paunwala, Chirag Paunwala “Tonsillitis based early diagnosis of Covid-19 for Mass screening using One-shot Learning framework” published in IEEE Indicon 2020 on 11 to 13/12/2020 and **won the student paper contest of Best paper** by Ojas Ramwala-present on -19/12/2020.

Dr. Rasika Dhavse

Dr. Rasika Dhavse appointed as Vice chair of IEEE NTC, Gujarat section.

Dr. Abhishek Acharya

He has designated with IEEE EDS golden reviewer 2020.

Paper Publication

Research Papers Published in International Journals

- Mehul V. Desai, Shweta N. Shah, “**A local Multivariate Polynomial Regression approach for ionospheric delay estimation of single-frequency NavIC receiver**”, Springer’s Journal of SN Applied Sciences, vol. 2, pp-1-13 2020, SCI Index.
- Hetal Pathak, Shweta Shah, “**Novel Test Set Up for GTEM Cell characterization**”, IETE Journal of Research, vol. 6, pp. 1-7, 2020, SCI Index.
- Swati Sakhare, Upena Dalal, “**Improving PSNR and processing speed for HEVC using hybrid PSO for Intraframe prediction**”, Transaction on Multimedia Tools and Its Applications (IJMA), vol.12, pp-1-15, August-2020, PeerReviewed.
- Swati Sakhare, Upena Dalal, “**Computational complexity reduction in HEVC Intraprediction using dual tree complex wavelet transform and holoentropy.**”, Transaction on Asian Journal of Convergence in Technology, vol VI, Issue II, pp-16-27, September-2020, PeerReviewed.
- Swati Sakhare, Upena Dalal, “**Performance Analysis of DTCWT, DCT and Hadamard SATD in HEVC Intraprediction**”, Transaction on International Journal of Emerging Technology and Advanced Engineering (IJETAEE), vol. 10. Issue 11, pp-104-109, November 2020, SCOPUS Index.
- Vishal Chudasama, Kishor Upla, “**E-ProSRNet: An enhanced progressive single image super-resolution approach**”, Computer Vision and Image Understanding, vol.200, pp. 103038,2020, SCI Index.
- Vishal Chudasama, Kishor Upla, “**RSRGAN: computationally efficient real-world single image super-resolution using generative adversarial network**”, Machine Vision and Applications, vol.323,2020, SCI Index.
- Naveen Kabra, Zuber Patel, “**Novel Approach to Design Hard Multiple Generator for Radix-8 Modulo $2n-1$ Multiplier using Inclusive-OR Adder**”, Integration, the VLSI Journal, Elsevier Publishing, vol.75, pp.102-113, July 2020, SCI Index.
- Arpan Shah, Piyush Patel, “**Suspended embroidered triangular e-textile broadband antenna loaded with shorting pins.**”, AEUE - International Journal of Electronics and Communications, vol.130, pp-153573 2020, SCI Index.
- Adhvaryu Meghayu, Piyush Patel N., Chetan Modhera D., “**Development of Interdigitated-Type Planar Capacitive Flex-Sensor Array for the Detection of Damages in Civil Engineering Structures**”, Sensor Letters, vol.18, pp.389-394, 2020, SCOPUS Index.

Paper Publication

- Abhishek Tripathi, Gireesh G. Soni, Shilpi Gupta, Abhilash Mandloi, “**An Optical Architecture of 12×2.5 Gbps Wavelength-Interleaving Free Space Hybrid Distribution System Under Turbulent Atmosphere**”, Wireless Personal Communications, vol.115, pp. 2615-2626, 2020, SCI Index.

Research Papers Published in International Conference

- A. Vighnesh, Rasika Dhavse, “**Design a High accuracy, Power efficient and Area Efficient 16X16 Approximate Multiplier.**”, 2020 IEEE 17th India Council International Conference (INDICON), NSUT, Delhi, India. 11-13 December, 2020, SCI, SCOPUS Index.
- Sudhanshu Janwadkar, Rasika Dhavse, “**Strategic Reduction of Area and Power in FIR Filter Architecture for ECG Signal Acquisition**”, 2020 IEEE 17th India Council International Conference (INDICON), NSUT, Delhi, India. 11-13 December, 2020, SCI, SCOPUS index.
- Sudhanshu Janwadkar, Rasika Dhavse, “**Implementation and Performance Evaluation of Novel Line Adder Architecture for Portable Systems**”, TENCON 2020 IEEE Region 10 Conference, Osaka, Japan, 16-19 November, 2020, SCI SCOPUS Index.
- Himanshu Kumar, Ashwin Porwal, Hardiki Mukesh Devre, Mayank Kumar Jethwa, Rasika Dhavse, Ritu Parekh, “**Effect of different channel material on the performance parameters for FinFET device**”, 5th International Conference on Microelectronics, Computing and Communication Systems (MCCS2020) organised by IETE Ranchi Centre, 11th and 12th July 2020, SCOPUS Index.
- Sudhanshu Janwadkar, Rasika Dhavse, “**Strategic Design and Optimization of Vedic Low Pass FIR Filter for ECG Signals**”, 5th International Conference on Microelectronics, Computing and Communication Systems (MCCS2020) organised by IETE Ranchi Centre, 11th and 12th July 2020, SCOPUS Index.
- Fabian Barreto, Sushi Kumar Yadav, Dr. Suprava Patnaik, Dr. Jignesh Sarvaiya, “**SIFT Features for deep and Variational Autoencoders: A performance Comparison**”, International Conference on Advances in Computing, Communication control and Networking (ICACCCN), 2020.
- Ketki C. Pathak, Jignesh N. Sarvaiya, Anand D. Darji, Shreya Diwan, Anjali Gangadwala, Zinal Bhatt, Azba Patel “**An Efficient Dadda Multiplier using approximate Adder**” IEEE Region 10 Conference (TENCON), Osaka, Japan, Nov.16-19,2020.
- Heena Patel, Kishor P. Upla “**Night Vision Surveillance: Object Detection using Thermal and Visible Images**” 2020 International Conference for Emerging Technology (INCET), Belgaum, India, 03 August 2020.

Expert Lecture/Talk

Delivered By ECED Faculty

Over the course of this academic year, several expert talks have been delivered by our esteemed faculty members. The lectures/talks covered a vast range of topics and gave exposure to all the attendees. It helped in enhancing and diversifying the knowledge of each individual. Given below are the Lectures/Talks delivered by the faculty members.

Dr. Upena D. Dalal:

AI and Machine Learning in Wireless communication:

The talk was delivered through a Webinar Series on 31st October 2020 which was hosted by SVKM, NMIMS, Shirpur

Emerging Technologies for Effective Management of the Pandemic:

The talk was delivered on IETE Foundation day on 2nd November 2020 which was hosted by IETE Surat Subcentre

Dr. Rasika N. Dhavse:

Hybrid SETMOS circuits:

The talk was delivered under TEQIP III sponsored STTP on Emerging Trends in VLSI Design on 16th September 2020 which was organized by Electronics Department, SVNIT, Surat.

Dr. Piyush Patel:

WDM Components and Systems:

The talk was delivered in 2 Week FDP on Recent Trends in Communication Networking and computing Paradigms on 7th and 18th September 2020 which was organized by TEQIP 3, UCET, Bikaner Technical University.

Recent advancements in Optical Sensors:

The talk was delivered in 2 Week FDP on Recent Trends in Communication Networking and computing Paradigms on 7th and 18th September 2020 which was organized by TEQIP 3, UCET, Bikaner Technical University.

Research in RF and Optical Sensors: Case Study:

The talk was delivered in One Week STTP on Recent Trends in Sensors Technology and Automation on 21 to 25 December 2020 which was organized by TEQIP III, SVNIT, Surat.

Expert Lecture/Talk

Delivered By ECED Faculty

Dr. Kishor P. Upla:

Face Super-resolution:

The talk was delivered in Research Exchange program on 4th October 2020 which was organized by Visual Computing & Machine Intelligence Research Group IPPR Research Area - Centre for Telecommunications and Multimedia, Porto, Portugal.

Unsupervised Super-resolution:

The talk was delivered in Research Exchange program on 22nd October 2020 which was organized by Smart Living & Biometric Technologies Fraunhofer Institute for Computer Graphics Research IGD, Germany.

Dr. Shweta N. Shah:

Effect of Interference and Jamming in GNSS:

The talk was delivered in AICTE Training and Learning (ATAL) Academy Programme on workshop on 'Global Navigation Satellite System (GNSS)', on 21st December 2020 which was organized by NIT Mizoram.

Wireless Body Area Network:

It was delivered in 5 Day Faculty Development Program (FDP), under AICTE Training and Learning (ATAL) Academy SENSORS TECHNOLOGY, on 5th November 2020, which was organized by Department of Physics, The University of Burdwan.

Dr. Kirti Inamdar:

Trends in Antenna Design:

The talk was delivered in one week FDP on Antenna Design and Analysis under AICTE- ISTE sponsored Induction refresher program on 8th December 2020 organized by St. Xavier's Technical Institute, Mahim, Mumbai.

Dr. Kamal Captain:

Spectrum Sensing for Cognitive Radio:

The talk was delivered through a webinar on 1st October 2020, which was organized by EC Department, Silver Oak University, Ahmedabad.

Expert Lecture/Talk Delivered By ECED Faculty

Dr. Deepak Joshi:

Advanced CMOS VLSI Design:

The talk was delivered virtually in FDP on Digital design and Emerging Trends in Signal processing on 14th August 2020, 18th August 2020, 19th August 2020 which was organized by Government Engineering College, Bikaner

Industrial Aspects of Modern Education:

The talk was delivered virtually in AICTE-ISTE sponsored refresher program on Modern Pedagogy for teaching and research methods on 2nd November 2020, which was organized by Bhartiya Institute of Engineering and Technology, Sikar, Rajasthan.

Dr. Suman Deb:

Filter Design:

The talk was delivered virtually in FDP on Digital Design and Emerging Trends in Signal Processing on 12-13-14 August 2020 which was organized by Government Engineering College, Bikaner.

Dr. Abhishek Acharya:

MOS Device Physics:

The talk was delivered in 2 Week FDP on Digital Design and Emerging Trends in Signal Processing on 11th ,12th ,13th,20th August 2020 which was organized by Government Engineering College, Bikaner.

State of Art LEDs for Communication:

The talk was delivered in 2 Week FDP on Communication and Networking on 8th and 14th September 2020 which was organized by UCET, Bikaner Technical University.

LTSPICE for Analog and Digital Design:

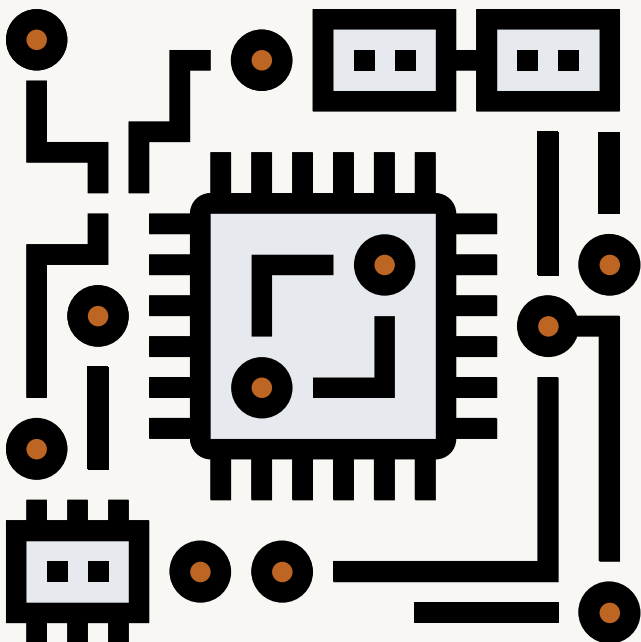
The talk was delivered in A hands-on Approach for Design and implementation of Digital circuits using open-source Computer Aided Design (CAD) tools on 19th,23rd October 2020 and 6th November 2020 which was organized by SRM Vallimmai Engineering College Chennai

Changing and Evolving Expectations from the Engineering Teachers:

The talk was delivered in AICTE-ISTE sponsored refresher program on Modern Pedagogy for teaching and research methods on 4th November 2020 which was organized by AICTE - ATAL, BIET Sikar.

STUDENT CORNER

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Ph.D. Completed Students

Name : Ms. Priyanka L. Lineswala
Roll Number : DS14EC005
Title of Thesis : Development of Robust Jammer Mitigation Algorithm – Strengthening the NavIC Receiver by Intentional Interference Rectification (SNRIIR).
Completion Date : 14th December, 2020
Supervisor Name : Dr. S. N. Shah, Assistant Professor, ECED, SVNIT, Surat.

Technical Event Achievement

- **Winner in a competition held in PBVS challenge 2020 in conjunction with CVPR 2020**

<http://vcipl-okstate.org/pbvs/20/challenge.html>

Team Members: Heena Patel, Vishal Chudasama, Kalpesh Prajapati and Dr. Kishor Upla.

The Perception Beyond the Visible Spectrum (PBVS) challenge was the competition for thermal super-resolution held in conjunction with Computer Vision and Pattern Recognition (CVPR) 2020 International conference. CVPR is the top- rated conference in the domain of computer vision. They participated in this competition and obtained first rank and received 500USD as a token of prize money being the winner of this competition. Following are the details of that challenge.

Rivadeneira, Rafael E., Angel D. Sappa, Boris X. Vintimilla, Lin Guo, Jiankun Hou, Armin Mehri, Parichehr Behjati Ardakani et al. "Thermal Image Super-Resolution Challenge-PBVS 2020." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops, pp. 96-97. 2020 **(Winner of the Challenge)**.

Technical Event Achievement



- **Obtained position in the final round of NTIRE challenge:**

<https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9150677>

Team Members: Kalpesh Prajapati, Vishal Chudasama, Heena Patel and Dr. Kishor Upla.

The work on unsupervised super resolution image has been recognized in NTIRE CVPR challenge 2020. NTIRE (New Trends in Image Restoration and Enhancement) 2020 which is very famous challenge and it was organized in the conjunction with CVPR conference every year. CVPR is the top- rated conference in our domain. That work got 14th, 16th, and 21st rank in Track-1 challenge of NTIRE challenge. The total number of participating teams where more than 200 across the globe.

- **Best paper award in CVPR workshop:**

<http://vcip1-okstate.org/pbvs/20/awards.html>

Team Members: Vishal Chudasama, Heena Patel, Kalpesh Prajapati and Dr. Kishor Upla.

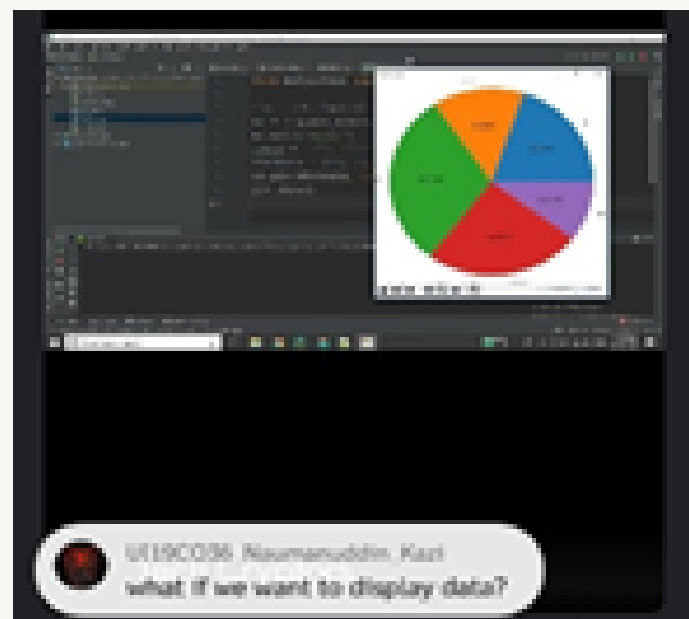
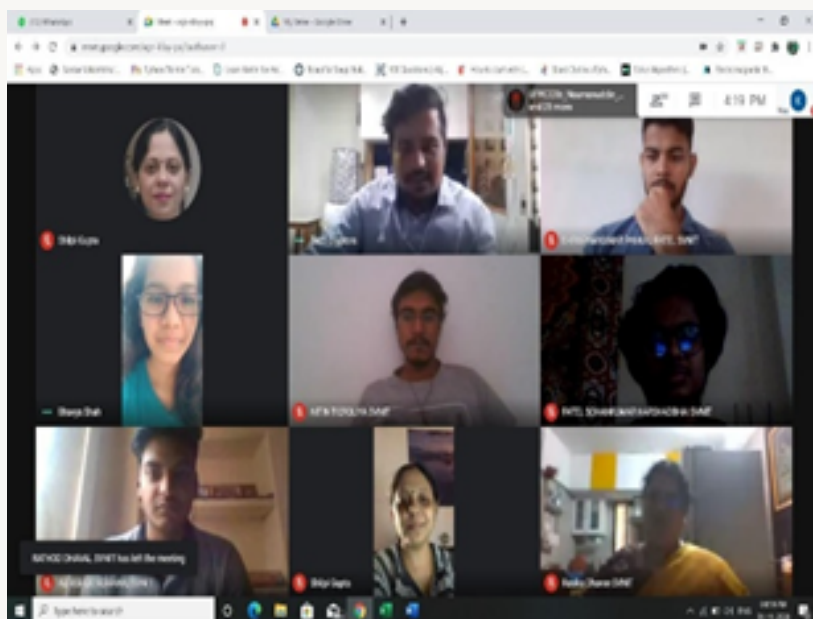
The following paper received best paper award in Computer Vision and Pattern Recognition (CVPR) Workshop 2020. CVPR is a top-rated international conference in the domain of computer vision.

Chudasama Vishal, Heena Patel, Kalpesh Prajapati, Kishor P. Upla, Raghavendra Ramachandra, Kiran Raja, and Christoph Busch. "TherISuRNet - A Computationally Efficient Thermal Image Super-Resolution Network." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, pp. 86-87. 2020 (**Best Paper award**).

Student Chapter ISF Activity

ISF is the nerve Centre for various student activities in our department, they organise various events across the year which are open for students from all departments, and these events are a great opportunity for learning various technical and non-technical skills.

- IETE Students Forum SVNIT, Surat conducted **Aptigrind Quiz Competition** an Online **Weekly Test series** of 4 Aptitude based tests from **1st September 2020 to 22nd September 2020**. The event witnessed participation of 120 participants. The test was conducted on **HackerEarth** Platform to help them for the placement preparation as well as for the entrance exams for the higher studies.
- ISF, SVNIT Surat Organized online orientation program on **September 29,2020**. Around 40 participants joined the event. Benefits of joining ISF as well as a detailed procedure of the ISF membership was explained to the Participants by the ISF chairperson Ms. Bhavya Shah and a glimpse of all the events conducted throughout the year 2019-20 was presented by ISF past chairman Dhruv Golwala. Till date 28 new students have become ISF members.
- ISF, SVNIT conducted 2 days' online hands-on workshop on **Machine Learning and Artificial Intelligence** on **31st October 2020 and 1st November 2020**. To have good interaction and learning, the seats were limited to 40 participants. The contents of the workshop included Learn prediction and forecasting, Understand & Perform practically Data Visualization, Learn Python & R from basics to advance, and many more.



Placement Details

Campus placement holds a great importance for students and educational institutes. Campus placements provide the students with a foot-in- the-door opportunity, enabling them to start off their career right after they have completed their course curriculum. Our students placed into various reputed companies.

MASTER CARD

Raghav Bansal
Pooja Padmanabh Nanavati
Himanshu Didwaniya
Harshal Devdas Lalwani
Sharma Rishabh Virendrabhai
Shrijeet Jain
Amrita Ajith Nair

NOKIA

Shrangarika Gupta
Prakash saini
Monika Yadav
Dhruv M Golwala
Hajoori Insiyah Khozem
Harshwardhan Bhangale
Parmar Bhavya Jayeshbhai
Anup Anilkumar Phutane
Gondaliya Amankumar Dipakbhai
Shikhar Jaiswal

JP MORGAN

Anushka Singh
Jenim Patel
Rajat Sharma
Shrushti Dethekar
Bhumika Baid
Siddhant Kulshrestha

Placement Details

OFSS (ORACLE FINANCIAL SERVICES)

Pankaj Kumar Vijayvergiya
Rashmi Karnani
Dubey Sarvesh Sabhashankar
Ahood Zaman
Sowmini Gonuguntla
Ragir Akshay
Rajvi Tejas Shah

AMDOCS

Sanchit Jain
Vatsal Gupta
Paranj Parekh
Shrushti Dethekar
Yash Prakash Bhatt
Kunal Katariya
Kush kumar
Kalwani Prashant Lachhu
Khuman Nayan

RELIANCE JIO - P&D

Divyam Srivastava
Gaurav Kalra
Roshna Lalam
Adit Sanjanwala
Sagar H. Parmar
Srinjoy Basak
Abhishek Chandra
Ankit Gupta
Nitish Chanumolu

Placement Details

RELIANCE JIO 5G (F)

Potla Venkata Vamsi Krishna
Antriksh Ganjoo
Divyanshu Visiya
Swastik Bhattacharya
Nikunj

TCS NINJA

Parth Kalpeshkumar Gandhi
Kakkireni Nikhil
Manwani Vishal Premkumar
Khushal Gilra
Sonawane Nikhil Ramchandra

TCS DIGITAL

Sanidhya Somani
Ghosh Rion Laxman
Aman Dalan
Aditya Saggar

WIPRO

Shubham Rankawat
Vineet V Bhat
Sonawane Nikhil Ramchandra
Aditya Saggar
Lavanya Pareek

CARWALE

Aashi Mundra
Bhati Pradeepsingh Surendrasingh
Nisarg Amish Shah

Placement Details

PUBLICIS SAPIENT	Ujjwal Gupta Rishabh Shastri
ADOBE	Sweety Jain
SIEMENS (F)	Neelisetty Venkata Lakshmi Vybhav K. Vamsi
ORACLE	Deeksha Goyal
TCS R&I	Fenil Desai
L&T CONSTRUCTION & HEAVY ENGG	Yadava Dineshchandra
EXL	Aniket Satkar
UGAM	Abhishek Kumar Vineet V Bhat
ACCENTURE	Kakkireni Nikhil Sanidhya Somani
EXL	Aniket Satkar

Alumni Interview

For any institution its alumni are one of its biggest assets for they are a goldmine of knowledge and experience. We bring words of wisdom from one such alumni.

Meet our Alumni Mombasawala Mohmedsaeed, who is General Manger (Applications) at Keysight Technologies India Pvt. Ltd.



**Mombasawala
Mohmedsaeed**

Mombasawala Mohmedsaeed currently heads the Application Engineering Organization at Keysight Technologies India Pvt. Ltd. Mombasawala Mohmedsaeed has 30 years of experience in various technology domains in the field of electronics, RF and commercial communication, high speed digital and optical interface technologies, automotive electronics and network operations.

Mombasawala earned his bachelor's degree in Electronics and Communication Engineering from SVNIT- Surat. He received a Post-Graduate Diploma in Business Management (Marketing) from IGNOU.

Mombasawala's proficiency in English and Hindi language communication coupled with his immense knowledge on Science, Engineering and General Trends makes him a strong orator and interface to external world for Keysight. Mombasawala has strong strategic thinking, is visionary and is a man of integrity. He is very adaptive and strong team worker. He is also known for perfect execution of complex projects in Industry.

Mombasawala has an excellent skill on handling multiple tasks at the same time. Mombasawala's hobbies include reading, listening to music and watching science fiction movies.

Mombasawala is married to Shamim and has a son named Maaz.

Mombasawala can be reached at mohd_saeed@keysight.com or on mobile at +91-98100-90827

What are the things you fondly remember about our department?

If there is one thing that elates my mood anytime is my memories of being a student at SVNIT with extremely vibrant and inclusive electronics engineering department. The best of it was the people, faculty and students, rather I should use the word comrades, alike. Faculty was not just extremely knowledge and competent but highly approachable for honing our skills that are necessary for industry. The comradeship among students allowed us to excel in knowledge, diversity, inclusion and teamwork. Being a resounding engineer and strong industry contributor is a gift from SVNIT that is embossed in our memory.

Alumni Interview

What technology you think as the future of electronics engineering?

Impermanence is the only permanence. Nothing is static in electronics engineering. Things evolve faster than we anticipate. While we are at 800GHz in communication today, I am sure it will go to THz communication very soon. So, it is in wafer technologies where we are pushing higher packing densities and processing architecture to meet needs of digital world. The future of electronics is both evolutionary, where we will continue to strengthen our existing system for scalability, performance and resilience and revolutionary where we will have to invent new technologies for speed and scale. Quantum engineering and THz technologies are such movement. We would need much faster engines to meet the computation speed and volume of graphics. That way, electronics engineering future is in enhance speed, scale and performance.

What would be your current position if you weren't an electronics engineer?

These days everyone wants to be a data scientist. The problem is most of the people do not want to study in the right way or they rush. The skills required are not more than some basic mathematics, statistics and programming. If someone has to start with data science, they should start from the basics and take it slow and easy instead of rushing. Good things take time and it is wise to spend some time making the foundation strong. Theory as well as applications are equally important in building a data science portfolio.

Which life skills help us make it big in the real world?

30 years ago, when I graduated, engineering discipline were siloed. But now they are highly integrated. Electronics and software are pervasive across all branches of engineering. Speciality with versatility and fungibility are the key industry requirements. Therefore, my recommendation is to acquire cross domain knowledge across various engineering discipline. In my experience, successful industry professionals should have wide spectrum of knowledge. So just knowing about electronics engineering alone would not take you beyond a point in industry. My suggestion is to use this time and acquire knowledge that gives you a distinct advantage. Moreover, student seldom ponder on soft skills like prudent and succinct communication, presentation, time management and personality development. I suggest students to have these skills for their industry readiness.

If you were now in your first year of college what are the things that you would like to explore?

As a student, my focus was on studies, and I guess I missed out on extracurricular activities like sports, socialising, debating and activity management. If I go back in time, I will want to correct this obsession of studies alone and would want to balance life with studies and fun.

Creative Corner

Test your academic intellectual level with these brain raking questions.

Send your answers once you have completed to newsletterce20@gmail.com

Happy Solving!

Q- [1] X company is a leading semiconductor memory manufacturer. Before expanding into the semiconductor business, it was a trading company which specialized in fertilizers and sweeteners. X company first partnered with an American semiconductor company to expand into the business in the early 1980s. Find X.

Q- [2] X is a dynamic binary translator which derives its name from an artefact which enabled decipherment of Egyptian scripts. Find X.

Q- [3] X is the world's most valuable semiconductor company and the largest dedicated independent foundry. Find X.

Q- [4] X is a quantum computing company whose name refers to their initial designs which used "X" superconductors. Find X.

Q- [5] Intel, AMD:x86_64:: nvidia,apple:X. Find X

Comments & Suggestions

Most valuable thing for any publisher is their reader and we are no different. We care deeply about what you thought about this newsletter and would love to hear any positive remarks or constructive criticism from your side.

Please send your feedback to newsletterce20@gmail.com

CONTRIBUTIONS

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