DEPARTMENT OF ELECTRONICS AND COMMUNICATION

NEWSLETTER

VISION

To create a centre for imparting technical education of international standards and conduct research at the cutting edge of electronics & communication technology to meet the current and future challenges of technological development.

MISSION

To create technical manpower for meeting the current and future demands of industry and academia: to recognize education and research in close interaction with electronics & communication & related industry with emphasis on the development of leadership qualities in the young men and women entering the portals of the institute with sensitivity to social development and eye for opportunities for growth in the international perspective.

Research is to see what everybody else has seen and to think what nobody else has thought-

-Albert Szent-Gyorgyi

Ahmad, Riyaz, Amit M. Joshi, Dharmendar Boolchandani, and Tarun Varma, "Novel Programmable Readout Amplifier and Potentiostat for Glucose Sensing Applications" , SN Computer Science Volume :04 / / 2023

Dimpal Janu, Sandeep Kumar, and Kuldeep Singh, "A Graph Convolution Network based Adaptive Cooperative Spectrum Sensing in Cognitive Radio Network" , IEEE Transactions on Vehicular Technology Volume :72 / / 2022

A. Sharma, S. J. Nanda, "A multi-objective chimp optimization algorithm for seismicity de-clustering" , Applied Soft Computing, Elsevier Volume :121 / 108742 / 2022 ISBN: ISSN: 1568-4946

K. Ray, G. Singh, Nhat Truong Pham, P. Hakaew, P. Prabpal, P. Yupapin, "All-optical Noise-free Circuit using Silicon Nonlinear Kerr Effect Space-Time Distortion Control" , Journal of Industrial Technology and Innovation Volume :1 / / 2022

Pankaj Binda, Rajendra Mitharwal, Ghanshyam Singh, "An equivalent surface dipoles based electric field to magnetic field transformations for estimating radiated emissions" , Sadhana – Academy Proceedings in Engineering Sciences Volume :47 / / 2022

Riya Sen, Menka Yadav, "An Investigation on Organic & Inorganic Material for Hole Transport Layer in Lead free Third Generation Solar Cell" , Journal of Optics Volume :51 / 2 / 2022 ISBN: 2

Rajesh Saha, Deepak Kumar Panda, and Rupam Goswami,, "Analysis on electrical parameters including temperature and interface trap charges in gate overlap Ge source step shape double gate TFET" , Microelectronics Journal Volume :130 / 105629 / 2022

R. Gupta and S. J. Nanda, "Cloud detection in satellite images with classical and deep neural network approach: A review" , Multimedia Tools and Applications, Springer Volume :81 / 31847-80 / 2022 ISBN: ISSN 1573-7721

N. Mudgal, Kamal Kishor Choure, Ankur Saharia, Ankit Agarwal, Manoj Kumar Falaswal, Sourabh Sahu, Sajaivir Singh, G. Singh, "Comparative Assessment of fiber SPR sensor for sensitivity enhancement using BaTiO3 layer" , Optoelectron. Adv. Mat. Volume :16 / 114-120 / 2022 ISBN: 1842 – 6573

Jitendra Kumar, Rashi Chaudhary, Shreyas Tiwari and Rajesh Saha, "Comparison of RF/Analog and Linearity Performance of Various TFETs Using Source Engineering" , Silicon Volume :Accepted / 1-8 / 2022

R. Saha, R. Goswami, B. Bhowmick, and S. Baishya, "Comprehensive investigation on RF/analog parameters in ferroelectric tunnel FET" , Semiconductor Science and Technology Volume :Accepted / 1-8 / 2022

Gupta, Manjari, Lava Bhargava, and S. Indu, "Deep neural network learning for power limited heterogeneous system with workload classification" , Computing Volume :104 / 95-122 / 2022 ISBN: https://doi.org/1

Namrata Saxena, Varshali Sharma, Ritu Sharma, K. K. Sharma, Sudha Gupta, "Design modeling and frequency domain analysis with parametric variation for fixed guided vibrational piezoelectric energy harvesters" , Microprocessors and Microsystems Volume :95 / 7 / 2022

Shreesh Kumar Agarwal, Amit M. Josh, "Device authentication with FPGA based self correcting Physical Unclonable Function for Internet of Things" , Microprocessors and Microsystems Volume :95 / 104717 / 2022

Sidharth Pancholi, Amit M. Joshi, Deepak Joshi, "DLPR: Deep Learning-Based Enhanced Pattern Recognition Framework for Improved Myoelectric Prosthesis Control" , IEEE TRANSACTIONS ON MEDICAL ROBOTICS AND BIONICS Volume :4 / 991-999 / 2022

Shreyas Tiwari and Rajesh Saha, "Electrical Noise Analysis of Z Shape Horizontal Pocket and Hetero Stack TFETs under Trap Distribution" , ECS Journal of Solid State Science and Technology Volume :0 / / 2022

A. Sharma, R. K. Vijay, S. J. Nanda, "Identification and spatio-temporal analysis of earthquake clusters using SOM�DBSCAN model" , Neural Computing and Applications, Springer Volume :1 / 1-28 / 2022 ISBN: ISSN 1433-3058

V. Pathak, S. J. Nanda, A. M. Joshi, S. S. Sahu, "Identification of characteristics frequency and hot-spots in protein sequence of COVID-19 disease" , Biomedical Signal Processing and Control, Elsevier Volume :78 / 103909 / 2022 ISBN: ISSN: 1746-8094

A. Magla, R. Saha, and R. Goswami, "Impact on performance of dual stack hetero- gated dielectric modulated TFET biosensor due to Si1-xGex pocket variation" , Microelectronics Journal Volume :in press / / 2022

Ravindra Kumar Maurya, Rajesh Saha, and Brinda Bhowmick, "Low to high-frequency noise behavior investigation of steeper sub-threshold swing NC-GeFinFET" , Microelectronics Journal Volume :131 / / 2022

B. Kalra, M. M. Sharma, G. Singh, et. al., "Material analysis of sequentially rotated 2�2 patch antenna array" , Materials Today: Proceedings Volume :in press / 1-6 / 2022 ISBN: 22147853

Jyoti Sharma, Gaurav Kumar Sharma, Tarun Varma and Dharmendar Boolchandani, "Optimization of performance parameters of phase frequency detector using Taguchi DoE and Pareto ANOVA techniques" , Journal of Circuits, Systems and Computers Volume :00 / 111 / 2022 ISBN: 111

Lokesh Sharma, Ritu Sharma, "Performance enhancement of GaN/GaAS based hybrid multi-quantum well LED structure" , Optoelectronics and Advanced materials-Rapid Communication Volume :16 / 7 / 2022

Mamta Devi Sharma, Ajay Yadav, S. Singhal, Ritu Sharma, "Performance Investigation of Flexible UWB Antenna Near Human Body for Wearable Appliances" , Progress In Electromagnetics Research B Volume :97 / 131-147 / 2022 ISBN: 1937-6472

Ankur Saharia, Nitesh Mudgal, Kamal Kishor Choure, Ravikumar Maddila, Manish Tiwari, Ghanshyam Singh, "Proposed all-optical read-only memory element employing Si3N4 based optical microring resonator" , Optik – International Journal for Light and Electron Optics Volume :251 / 168493 / 2022

Ashish Kumar, Arathy Varghese, Anup Sharma, Mahanth Prasad , Vijay Janyani, R.P.Yadav, Khaled Elgaid, "Recent Development and Futuristic Applications of MEMS based Piezoelectric Microphones" , Sensors and Actuators A: Physical Volume :332 / 113887 / 2022

Lalit Kumar Dusad, Ritu Sharma, "Role of catalyst in synthesis of porous silicon and vertically aligned nanostructures with high aspect ratio without using lithography" , Chemical Kinetics and Catalysis Volume :96 / 4 / 2022

Geetanjali Sharma, Amit M. Joshi, "SzHNN: A Novel and Scalable Deep Convolution Hybrid Neural Network Framework for Schizophrenia Detection using Multi-Channel EEG" , IEEE Transactions on Instrumentation and Measurement Volume :Early aces / 1-1 / 2022

Bourdine, Anton V., Vladimir V. Demidov, Artem A. Kuznetsov, Alexander A. Vasilets, Egishe V. Ter-Nersesyan, Ghanshyam Singh, Manish Tiwarits, Alexander V. Khokhlov, et al., "Twisted Few-Mode Optical Fiber with Improved Height of Quasi-Step Refractive Index Profile" , Sensors Volume :22/9 / / 2022 ISBN: 1424-8220

Kamal Kishor Choure, Dhirendra Bahadur Singh, Muhammad Arif Bin Jalil, Nitesh Mudgal, Ravi Kumar Maddila, Ghanshyam Singh, "Optimized All-Optical Gray Code Converter Using Si3N4 Based Ring Resonator" , 2022 Workshop on Microwave Theory and Techniques in Wireless Communications (MTTW) by :IEEE at Riga, Latvia / / 2022

B. K. Saw, G. Singh and V. Janyani, "Analysis of Space Shift Keying Modulation Over F Turbulence Channel Model in FSO Communication" , 2022 Workshop on Microwave Theory and Techniques in Wireless Communications (MTTW) by :IEEE at Riga, Latviya / 100-105 / 2022 ISBN: 978-1-6654-6439

S. Rajput, R. Chawra, P. S. Wani, S. J. Nanda, "Noisy Sonar Image Segmentation Using Reptile Search Algorithm" , 2022 IEEE International Conference on Connected Systems & Intelligence (CSI) by :IEEE at Digital University of Kerala, Trivandrum, India / 1-10 / 2022 ISBN: 978-1-6654-5815-3

R. K. Vijay, S. J. Nanda , "Sliding Temporal Window-Based Feature Extraction With K-Means Clustering for Zagros (Iran) Seismicity Analysis" , 2022 IEEE International Conference on Connected Systems & Intelligence (CSI) by :IEEE at Digital University of Kerala, Trivandrum, India / 1-10 / 2022 ISBN: 978-1-6654-5815-3

Nidhi Sinha, Amit M. Joshi, Saraju Mohanty, "iCardio 2.0 : A Smarthealthcare Framework for Cardiovascular Disease Accurate Prediction by Using T-Wave Morphology of ECG" , 8th IEEE Symposium on Smart Electronics Devices IEEE iSES- 2022 by :IEEE at NIT, Warangal / / 2022

Shreya Garg, Urvashi P. Shukla, Amit M. Joshi, "BiLSTM Calibrated iGLU With Demographic Data: Non-Invasive Glucose Measurement Device. " , 8th IEEE Symposium on Smart Electronics Devices IEEE iSES- 2022 by :IEEE at NIT, Warangal / / 2022

Geetanjali Sharma, Amit M. Joshi, "A Fractal-Based Machine Learning Method for Automatic Detection of Seizures Using EEG" , 8th International Conference on Engineering & Emerging Technologies ICEET 2022 by :IEEE at Kuala Lumpur, Malaysia / / 2022

Kuldeep Singh , Fernando Saccon, Dileepan Joseph , "Incremental Two-Network Approach to Develop a Purity Analyzer System for Canola Seeds" , IS&T International Symp. on Electronic Imaging: Intelligent Robotics and Industrial Applications Using Computer Vision by :Society for Imaging Science and Technology at San Francisco, USA / / 2022

Devender pal Singh, Menka Yadav, "PERFORMANCE ANALYSIS of JUNCTIONLESS and INVERSION MODE TRIGATE SOI FINFET at 20NM GATE LENGTH" , iSES by :IEEE at NIT Warangal / – / 2022 ISBN: –

Reference Book" Contemporary Trends in Semiconductor Devices: Theory, Experiment and Applications ISBN:1876-1100 published by – Springer Year 2022 Authors- Rupam Goswami and Rajesh Saha

Book Chapter" VLSI implementation of sEMG based classification for muscle activity control ISBN:000000 published by – Springer, (Biomedical Signal and Image Processing with Artificial Intelligence) Year 2022 Authors- Amit Joshi, Natasha Singh

Reference Book" Data Science and Intelligent Computing Techniques ISBN:978-81-955020-2-8 published by – Soft Computing Research Society Book Series on COMPUTING AND INTELLIGENT SYSTEMS Year 2022 Authors- Satyasai Jagannath Nanda, Rajendra Prasad Yadav

Text Book" Digital Electronics ISBN:978-81-959863-0-9 published by – All India Council for Technical Education Year 2022 Authors- Menka Yadav

Book Chapter" A Neural Network Model to Estimate Parameters of DBSCAN for Flood Image Segmentation ISBN:ISBN 978-981-16-6893-7 published by – Algorithms for Intelligent Systems, Springer Year 2022 Authors- R. Verma, S. J. Nanda

Book Chapter" Tri-band Elliptical Patch Antenna for GPS and IRNSS Applications ISBN:978-981-19-0588-9 published by – Dwivedi, S., Singh, S., Tiwari, M., Shrivastava, A. (eds) Flexible Electronics for Electric Vehicles. Lecture Notes in Electrical Engineering, vol 863. Springer, Singapore Year 2022 Authors- Ravi Mali, Fateh Lal Lohar & Sarthak Singhal

Book Chapter" Triple-Band Polarization Independent C-Band Metamaterial Absorber ISBN:978-981-19-2004-2 published by – Dhar, S., Do, DT., Sur, S.N., Liu, H.CM. (eds) Advances in Communication, Devices and Networking. Lecture Notes in Electrical Engineering, vol 902. Springer, Singapore Year 2022 Authors- Kashish Mahindroo, Vani Sadadiwala, Vimlesh Singh, Devender Sharma & Sarthak Singhal
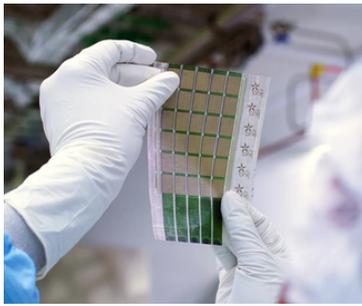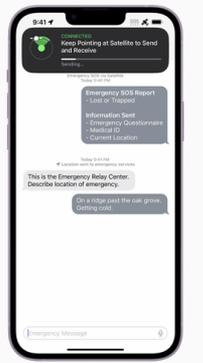
PATENTS

"A System for Developing and Analyzing a Parameter of Bohm Quantum Potential", Ravindra Kumar Maurya, Brinda Bhowmick, Rajesh Saha, Reg.No. 202022105580 [Germany patent Granted] Patent Granted Dt.10-11-2022

TECHNOLOGY HIGHLIGHTS 2022

YOUR CELLPHONE WILL BE A SATPHONE

IN 2023, YOU OR someone you know will be able to send a text message through space. Late in 2022, hardware behemoths Huawei and Apple released cellular telephones capable of texting on traditional satellite-communications networks. A pair of ambitious startups, AST SpaceMobile and Lynk Global, also started building new low Earth orbit (LEO) satellite networks designed to reach conventional 5G cellphones outside terrestrial coverage.

Paper-Thin Solar Makes Any Surface Photovoltaic

MIT researchers have made solar panels thinner than human hair that provide 18 times as much power per kilogram as today's glass and silicon-based solar panels. These solar cells are in fact one-hundredth the weight of conventional photovoltaics.

This Autonomous Robot Might Soon Make Food Deliveries in Airports

The idea for Ottobot, a delivery robot, came out of a desire to help restaurants meet the increased demand for takeout orders during the COVID-19 pandemic. Ottobot can find its way around indoor spaces where GPS can't penetrate.
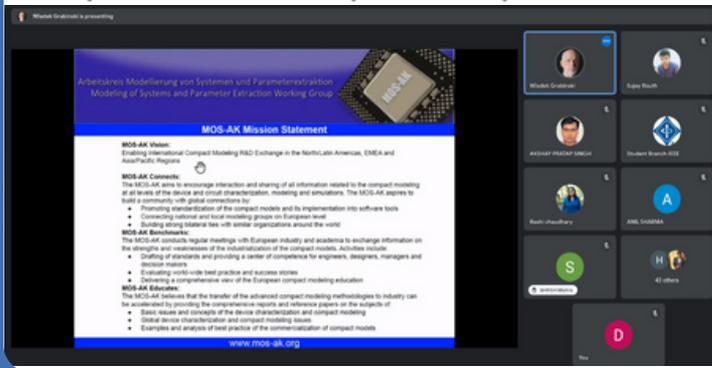
*Source: IEEE Spectrum

- "**Dr. Satyasai Jagannath Nanda**", Best Paper Award at 2nd IEEE Odisha International Conf. for presenting paper **"A Many-objective Chaotic Whale Optimization based Automatic Clustering"** given by Faculty of Engineering & Technology (ITER), Siksha O Anusandhan, Bhubaneswar
- "**Dr. Sarthak Singhal**", Enlisted in **top 2% Scientist in the world** list for given by Stanford University and Elsevier
- "**Dr. Chitrakant Sahu**", **Fellowship International Research Experience (SIRE)** scheme 2022-23 for Visit to the University of North Texas, Denton, USA for 06 months given by SERB DST
- "**Dr. Rajesh Saha**", **IEI Young Engineers Award 2022-23** for given by The Institution of Engineers (India)
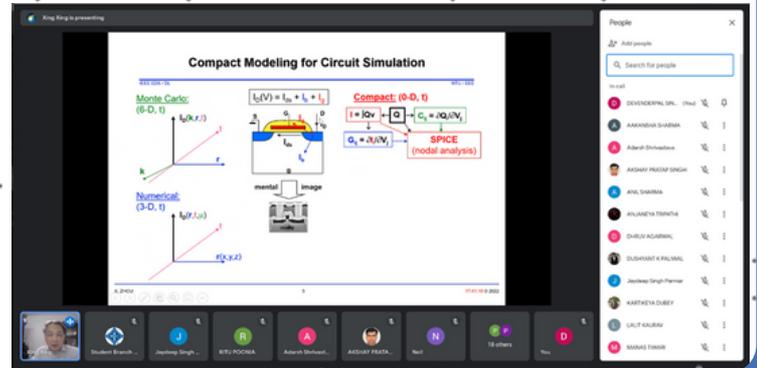
IEEE STUDENT BRANCH CHAPTER EVENTS

IEEE EDS Student Branch Chapter (Formed on Sept 2022)

Distinguished Lecture by Dr Wladek Grabinski, R & D SPICE Manager, MOS-AK (EU)

Distinguished Lecture by Dr Xing Zhou, Associate Professor, NTU, Singapore

IEEE Sensor Council Student Chapter

Webinar on "The Future of (Nano) Electronics and Possible Roles India Can Play" by Prof. Mayank Shrivastava, Associate Professor IISc Bangalore

Women In Sensor Idea to Prototype

IEEE Antennas and Propagation Society (APS) Student branch chapter

Poster Competetion

SPIE Student Chapter

Career Development Activity: Professional Resume Writing Using Latex

16th November 2022

School Visit
15th Dec 2022