Technical Programme for
4th International Conference on Range Technology (ICORT-2025)
06-08 March 2025

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<tr><td>0900-1000</td><td colspan="4">Spot Registration</td></tr>
<tr><td>1000-1045</td><td colspan="4">Inauguration
Chief Guest
Shri Anindya Biswas, Distinguished Scientist, Direcor RCI, DRDO</td></tr>
<tr><td>1045-1115</td><td colspan="4">HIGH TEA</td></tr>
<tr><td>1115-1215</td><td colspan="4">Special Invited Talk
Philippe Klaeyle, Safran
Venue: Hall-1 (Main Auditorium)</td></tr>
<tr><td>1215-1300</td><td colspan="4">Inauguration of Industrial Exhibition</td></tr>
<tr><td>1300-1400</td><td colspan="4">LUNCH (Venue: NOCCi Dining Area)</td></tr>
<tr><td>1400-1600</td><td colspan="4">Tutorial-1
Dr. Jagannath Nayak & Dr. Vivek Patil
CHESS(DRDO)
Topic: Directed Energy Weapons: Advancing Technology and Optimizing Test Ranges for Future
Venue: Hall-1 (Main Auditorium)</td></tr>
<tr><td>1600-1615</td><td colspan="4">TEA BREAK</td></tr>
<tr><td rowspan="2">1615-1815</td><td colspan="4">Parallel Sessions (23 Papers)</td></tr>
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Track: Range Instrumentation
Session Theme: Range Telemetry Systems
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Track: Data Analytics, AI & ML
Session Theme: Data Analytics in Meteorology
Venue: Hall-1 (Main Auditorium)</td><td>Parallel Session-3
Track: Antenna, RF & MW
Session Theme: Advances in Microwave & Radar Technologies
Venue: Hall 3 (Emerald)</td><td>Parallel Session-4
Track: Communication & IoT
Session Theme: Communication & IoT
Venue: Hall 4 (Sapphire)</td></tr>
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1615-1630	***Primary Key Based Merging on Unsynchronized Data for Aeronautical Telemetry Systems***	***The Investigation of Cyclone ROANU Using MWR***	***A Broadband Artificial Magnetic Conductor for S-Band Applications***	***Performance Analysis of FSO Communication Under Foggy Conditions***
1630-1645	***Low-Cost MEMS Gyroscope-Driven Measurement System for Real-Time Aircraft Attitude Dynamics***	***Linking Premonsoon and Monsoon Patterns in Above-Normal and Below-Normal for Central India Monsoon Years***	***Beam Revisit Time Based Clustering Algorithm for Classification of Radars and Modes***	***Design of a Multipurpose Communicable Handglove Based on Navigation Tools and Microcontroller Unit***
1645-1700	***Application of Modelling and Simulation in the Measurement of Weapon Chamber Pressures by Copper Crusher Gauges in Test Ranges***	***Quality Control (QC) and Quality Assurance (QA) Procedures for Meteorological Data from Automatic Weather Stations***	***Development of an Integrated Real-Time SAR Simulation System for Pre-Deployment Evaluation***	***Deep Learning-Based Model for Simultaneous Channel Estimation and Signal Decoding for Wireless Communication***
1700-1715	***Drone Based Telemetry Transceiver for Low Altitude Target Tracking***	***Investigation of Long-Term Rainfall Analysis: Trends, Anomalies, and Implications for Operational Mission Planning at Integrated Test Range, Chandipur***	***Evolutionary and Hybrid Optimization Techniques for Orthogonal Polyphase Code Design: a Comprehensive Review for ONRS and MIMO Radar Applications***	***FPGA Implementation of Adaptive Modulation Scheme-Based Underwater Acoustic Modem***
1715-1730	***Satellite-Based Telemetry Data Relay for Long-Range Aerial Vehicle Monitoring: Challenges, Feasibility, and Future Prospects***	***A Comparative Study of Weather Prediction Models: GFS, ECMWF and ICON for Coastal Area***	***Augmentation of TRM with Upgraded High-Power Pulsed Amplifier for Active Aperture Radar***	***FPGA-Based Acoustic Detection and Ranging System for Underwater Applications***
1730-1745	***Realization of s-Band Multi Beam Phased Array Telemetry***	***Hybrid Deep Recurrent Neural Networks for Accurate Wind Speed Prediction***	***Feedback from Session Chair***	***Feedback from Session Chair***
1745-1800	***Feedback from Session Chair***	***Adaptive Resilience and Self-Healing in Aerospace System-of-Systems (SoS) Using Graph Neural Networks and Adversarial Machine Learning***		
1800-1815		***Feedback from Session Chair***		

Day-2 (07 March 2025: Friday)				
0900-1100	**Tutorial-2** **Prof. P K Biswas & Prof. Saumik Bhattacharya** **IIT Kharagpur** ***Topic: Deep Learning Model and Image Generation*** Venue: Hall-1 (Main Auditorium)			
1100-1115	TEA BREAK			
1115-1145	**Session for Diamond Sponsors (M/s Anadrone Systems Pvt. Ltd., Gurugram)** Venue: Hall-1 (Main Auditorium)			
1145-1245	**INVITED TALKS**			
	Invited Talk-1 *IDDCA for indigenous thermal imager* **Speaker: Dr. Ravinder Pal** SSPL(DRDO) Venue: Hall-1 (Main Auditorium)	**Invited Talk-2** *Range of the future: how the Telemetry architecture is evolving?* **Speaker: Pierre Bastie** SEMCO, USA Venue: Hall-2 (Crystal)	**Invited Talk-3** *Unmanned Autonomous Systems for Photogrammetric Measurement* **Speaker: Dr. Narayan Panigrahi** CAIR(DRDO) Venue: Hall-3 (Emerald)	**Invited Talk-4** *Machine Learning in Image Analysis: Surveillance and Strategic Applications in Defence* **Speaker: Prof. Santi Prasad Maity** IIEST, Shibpur Venue: Hall -4 (Sapphire)
1245-1300	Session for Platinum Sponsor-1 **(M/s Safran)** Venue: Hall-1 (Main Auditorium)	Session for Platinum Sponsor-2 **(M/s Weibel)** Venue: Hall-2 (Crystal)	Session for Platinum Sponsor-3 **(M/s AMPL)** Venue: Hall-3 (Emerald)	Session for IEEE **IEEE Kolkata & Bhubaneswar Section** Venue: Hall-4 (Sapphire)
1300-1400	LUNCH			
1400-1645	**Parallel Sessions (34 papers)**			
	Parallel Session-5 **Track: Range Instrumentation**	**Parallel Session-6** **Track: Data Analytics, AI & ML**	**Parallel Session-7** **Track: Antenna, RF & MW**	**Parallel Session-8** **Track: Communication & IoT**

	Session Theme: *Optics & Image Processing* **Venue: Hall 2 (Crystal)**	**Session Theme**: *Data Analytics, AI & ML* **Venue: Hall-1 (Main Auditorium)**	**Session Theme**: *Antenna & MW* **Venue: Hall 3 (Emerald)**	**Session Theme**: *Data/Network security & Cryptography* **Venue: Hall 4 (Sapphire)**
1400-1415	***Robustness Verification of Classification Through Image Perturbations***	***Intention Prediction Using Ground Based Sensors and Multiple Apriori Trajectory Estimation Models***	***UHF-Band Helical Antenna for High Power Telecommand Application***	***Advancing Adversarial Detection of Anomalous Wi-Fi Activity Through Residual Generative Adversarial Networks: a Novel Approach for Robust Wireless Network Security***
1415-1430	***Real-Time Object Detection and Navigation in Harsh Environments Using YOLOv7 and IoT Sensors***	***Particle Filter Resampling Using Sequential Draining***	***Survey of Antennas for Artillery Shell Telemetry***	***Randomised RC6 Algorithm with Python Implementation for Secure Email Communication***
1430-1445	***Auto Object Detection and Tracking Using Trajectory Matching in Test Range Scenarios***	***Heterogeneous Track to Track Fusion from Radar and IRST on an Aircraft***	***Design and Development of Spiral Antenna for Electronic Warfare Systems***	***An Efficient and Secure Model for WSN Using Heuristic Approach***
1445-1500	***Parallel Data Processing Algorithm for Processing Electro-Optical Tracking System (EOTS) Data for Range Servers***	***Integrated Framework of CNNs and Machine Learning for Enhanced SAR Image Classification***	***A High Gain s-Band Circularly Polarized Antenna Array Using SFT for Telemetry Application***	***Comprehensive Modeling and Design of Low Cost Piezoelectric Based Ultrasound Wireless Power Transfer for Submersible Sensors***
1500-1515	***Passive Ranging of Ballistic Missile with Infrared Sensors Using Angle-Only Tracks***	***Towards Explainable Image Fusion: Gradient-Based Heatmaps for Modal Contributions***	***Design of Rectangular MIMO Array with Self-Decoupling Wall for Hybrid Beamforming***	***An Architecture of Low Latency Low Bandwidth Mission Critical LAN and WAN Based Multichannel Multi-Source Secure Video Streaming for Range Application***
1515-1530	***Real-Time Implementation of Automatic Video Tracking Algorithms for Performance Evaluation of Flight Vehicles***	***Intelligent Fault Detection in HIL Simulations: Leveraging AI and ML for Enhanced Operational Reliability***	***UHF-Band QuadrifilarHelix Antenna with near Hemispherical Coverage for High Power Telecommand Application***	***ENDGAN: an End-to-End Robust Video Steganography Using Encoder-Decoder Cross Association Graph-Based Generative Adversarial Network***
1530-1545	TEA BREAK			

1545-1600	***Detection of Field Deployed Targets in Airborne Hyperspectral Image Data (SWIR Region): a Case Study***	***Non-Uniform Illumination Image Thresholding Using MLP***	***Compact Spider Web Shaped Patch Antenna for Wireless Communication***	***An Efficient Framework for IoT Security Using Machine Learning and High-Performance Computing***
1600-1615	***Image Enhancement Using Spiral Phase and Computational Imaging***	***Forecasting Bandwidth of Network Interfaces Using Advanced Machine Learning Techniques***	***Microstrip Antenna Array Design and Fault Diagnosis Using Deep Learning***	***Remote Sensing Image Encryption Leveraging Unimodular Transformation and Galois Field***
1615-1630	***Feedback from Session Chair***	***Feedback from Session Chair***	***Design and Analysis of Tapered Slot Antennas: Geometry and Wideband Frequency Effects***	***Intelligent Intrusion Detection in Military IoT Networks Using Recursive Feature Elimination with Extreme Gradient Boosting***
1630-1645			***Feedback from Session Chair***	***Feedback from Session Chair***
1830 onwards	**Cultural Programme & Conference Dinner**			

Day-3 (08 March 2025: Saturday)				
0900-1000	**INVITED TALKS**			
	Invited Talk-5 *Range Instrumentation: Doppler Radar Technology* **Speaker: Eduardo Elias de Molins** Weibel, Denmark Venue: Hall-1 (Main Auditorium)	**Invited Talk-6** *RF Sensing and Applications (Unlocking the Potential of Wireless Technology for Advanced Applications)* **Speaker: Prof. Siba K Udgata** University of Hyderabad Venue: Hall 2 (Crystal)	**Invited Talk-7** *Impact of Machine Learning on Advanced RF Sensing Systems* **Speaker: Dr. Avik Santra** Infineon Technology Venue: Hall 3 (Emerald)	**Invited Talk-8** *Advances in modern radar technologies for range applications* **Speaker: Dr. G Viswam** LRDE (DRDO) Venue: Hall 4 (Sapphire)
1000-1015	TEA BREAK			
1015-1300	**Parallel Sessions (34 Papers)**			
	Parallel Session-9 **Track: Range Instrumentation** ***Session Theme:***	**Parallel Session-10** **Track: Data Analytics AI & ML** ***Session Theme:*** *Data*	**Parallel Session-11** **Track: Antenna, RF &MW** ***Session Theme:*** *RF*	**Parallel Session-12** **Track: Communication & IoT** ***Session Theme:***

	Navigation, Timing, Signal Processing **Venue: Hall 2 (Crystal)**	*Analytics* **Venue: Hall-1 (Main Auditorium)**	*System Design, Analysis & Measurement* **Venue: Hall-3 (Emerald)**	*Communication & IoT* **Venue: Hall-4 (Sapphire)**
1015-1030	***A Scheme to Generate NavIC-Based IRIG-B Signal for Strategic Applications***	***Performance Assessment of OLSR Protocol in UAVNETs for Reconnaissance Operations***	***Full-Wave Coupling Impact on DoA Computation***	***Exploring Frame Synchronization Pilots Orthogonality for Space Time Coded SOQPSK-TG***
1030-1045	***Design and Implementation of LabVIEW-Based Soft Program Clock with Mission Hold Interface Unit***	***Simulation of Bubble Pulsation and Migration Phenomena Due to Underwater Explosion***	***Harmonic Generation in Modified Relativistic Magnetron with Diffraction Output***	***90dB Dynamic Range, Multi-Channel Data Acquisition ASIC for SONAR Application***
1045-1100	***Low-Cost RTK Using Compact GNSS Modules for Efficient Land Surveying***	***Flight Path Planning for UAVs in Environment with Moving Obstacles***	***Design and Analysis of Electromagnetic Composite for RCS Reduction***	***Design Optimization of Viterbi-Decoder Based Convolutional Codes on Reconfigurable Hardware***
1100-1115	***GLB-UniLog: a Time-Tagged Data Recording Software for Time and Frequency Applications***	***Simplified anti-Disturbance Control for the Roll Channel of a Low-Cost Short-Range Weapon***	***A CSRR Loaded SIW Based Band Pass Filter with Improved Stop-Band Rejection***	***Concept of Data Fusion for Multi Carrier Wave with Co-Resident Low End Transmission of 1/100th Data Rate***
1115-1130	***Statistical Analysis of Artillery Surveying Procedure in an Artillery Test Range***	***Range Automation System - an Ensemble Enhanced Transfer Learning-Based Approach for Monitoring Movement(s) in Range***	***A 3.5GHz 70dB SNDR Direct RF Sampling Time Interleaved Pipeline SAR-ADC with Capacitor Mismatch Calibration in CMOS 28nm***	***Performance-Trade-Offs in ELINT Systems***
1130-1145	***GPS, Galileo, and Combined Performance Using SwaP-C Receiver for Defence Applications***	***RaSim: a Radar Data Simulator Using Machine Learning***	***Effectiveness of VMD in Removing of in Band Interference***	***A Novel Coprime Array Configuration for Real-Valued Sources in Moving Platform with Increased DOF***
1145-1200	***Reducing Impulse Noise in Audio Signals Using Cascaded Vector Median Filtering***	***Performance Analysis of Cascaded Bidirectional Converters in Electric Vehicle Applications***	***Prediction of System Load in RF Signal Propagation Using Hyperparameter-Tuned Light Gradient Boosting Model***	***2D Fractal Based Sparse Array with Reduced Mutual Coupling for Direction of Arrival Estimation***
1200-1215	***A Novel Optical Technique to Study the Flow Field Around a Sub-Calibre Projectile***	***Arc of Safety***	***Design and Analysis of Quad-Port MIMO Antenna for Super Wide Band Coverage***	***Feedback from Session Chair***
1215-1230	***Sparse Array***	***Cramer-Rao Lower Bounds***	***Feedback from Session***	

	Configurations for DOA Estimation of Non-Circular Sources: a Review	***of Position Estimate Using Angle-Only Measurements***	***Chair***	
1230-1245	***Feedback from Session Chair***	***Closed Loop Performance Enhancement in Real-Time Object Tracking with Multi Tracker Fusion***		
1245-1300		***Feedback from Session Chair***		
1300-1400	LUNCH			
1400-1500	**Panel Discussion** **Chair** **Dr. B K Das, Distinguished Scientist, Director General (ECS), DRDO** Venue: Hall-1 (Main Auditorium)			
1500-1530	HIGH TEA			
1530-1730	**Valedictory Function** **Chief Guest** **Dr. B K Das, Distinguished Scientist, Director General (ECS), DRDO**			