



# 22<sup>nd</sup> IBCAST-2025

International Bhurban Conference  
on Applied Sciences & Technology

19 - 22 August 2025

Murree Hills, Pakistan

## CALL FOR PAPERS

### Conference Committee

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Patron-in-Chief

**Dr. M. Anwar Mughal**  
Scientific Secretary

**Abdul Ahad Qureshi**  
Coordinator IBCAST

**Dr. Khurram Shahzad Sana**  
Technical Coordinator

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### Scientific Committee

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Dr. Muhammad Ahmed

#### Artificial Intelligence & Software Technologies

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#### Biosciences

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#### Control & Signal Processing

Dr. Sajjad Asghar  
Dr. Awais Akhtar

#### Cyber Security

Dr. Mureed Hussain  
Dr. Shiraz Ahmad

#### Fluid Dynamics

Dr. Muhammad Rafique  
Dr. Basharat Ali Haider

#### Wireless Communication & Radar

Dr. Naveed Ahsan  
Dr. Abdul Moeed

### Conference Tracks

The scope of conference includes all research aspects, applications and related technologies under following tracks:

- **Advanced Materials**
- **Artificial Intelligence & Software Technologies**
- **Biosciences**
- **Control & Signal Processing**
- **Cyber Security**
- **Fluid Dynamics**
- **Wireless Communication & Radar**

The topics of interest include but are not limited to the following link: <https://www.ibcast.org.pk>

### Paper Submission

- Prospective authors are invited to submit full length paper through EasyChair: <https://easychair.org/account/signin>
- All submissions to IBCAST are passed through the blind review process by the committee of experts. Accepted and presented papers are reviewed before submission for the inclusion into IEEE Xplore subject to meeting IEEE scope and quality requirements.
- The use of the IEEE manuscript template provided on the conference website is strongly encouraged.

### Registration Fee

- Pakistani Participants & CESAT Speakers **Rs. 20,000**
- Pakistani Universities Students **Rs. 12,000**
- Foreign Participants **US Dollars 500**
- Foreign Universities Students **US Dollars 300**

IEEE members will be discounted by 20%

Accommodation to the paper presenters from local universities/institutes will be provided for presentation day only.

### Key Dates

**10 May 2025**  
Paper Submission  
Deadline

**30 June 2025**  
Participants Registration  
Deadline

**10 July 2025**  
Notification of Paper  
Acceptance

### Conference Venue

- Murree is situated on the southern slopes of the Western Himalayan foothills. It is a popular hill station with glorious views of lush green landscapes and mountains. Tourist attractions around Murree include Kashmir Point, Patriata, Dunga Gali, Pipeline Track, Bhurban and Nathiagali resorts.
- This time activity of Biosciences track will be held in Karachi.

Previous IBCAST Proceedings are accessible at <https://ieeexplore.ieee.org/xpl/conhome/1001898/all-proceedings>

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### More Information

<https://www.ibcast.org.pk>

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## CONFERENCE TOPICS

### Advanced Materials

- Polymers & Polymer / Fiber Composites
- Nanomaterials and Nanotechnology
- Adhesives and Sealants
- Energetic Materials
- Electro-chemical Materials for Batteries
- Magnetic and Ferro-materials
- Photonic and Optical Materials
- Semiconductor Materials and Technology
- Peizo-ceramics and Peizo-composites
- Thin Film Coating and Surface Technology
- Materials for EMI and Microwave Shielding
- Science and Engineering of Meta-materials
- Ceramics and Ceramic Matrix Composites
- Powder Metallurgy, Alloys and Metal Matrix Composites
- Emergent Materials
- Modeling and Simulation of Materials

### AI & Software Technologies

- AI and Data Engineering
- Indigenization in Robotics and AI
- Generative AI and Recommenders Systems
- Large Language Models
- Generative AI for Image, Cyber Security and Robotics
- Agentic AI
- Advancements in Software Reliability
- Automated Software Engineering and System Development
- Architectural Design, Patterns & Frameworks and User-centered Designs
- Software Quality Assurance and Process Improvement
- Real-time Systems and Domain Applications
- Formal & Model-based Engineering of Critical Systems
- Software Project and Product Management
- Software Fault Tolerance and Fault Containment
- Virtual and Augmented Reality
- AI at the Edge and Swarm Robotics
- High-integrity Systems and Reliability
- AI in Control Systems (Hybrid Fuzzy Control)
- AI in Healthcare
- Software Verification and Validation

### Biosciences

- Pandemic Preparedness and Response Innovations
- Zoonotic & Vector borne Emerging / Re-emerging Infectious Diseases
- MDR & XDR Microbes and their Control Strategies
- Biodetection Technologies – Recent Innovations, Trends and Challenges
- Recent Advancements in Vaccine Development and Biopharmaceuticals
- Integration of Multidisciplinary Science, AI and Deep Learning Tools in Biological Research
- Bio-process Challenges in Development of Prophylactic Measures
- Industrial Biotechnology
- Collaborative Model of Academia, Industry & Regulators
- Regulatory Affairs and Certifications of Diagnostics Kits, Biotherapeutics and Vaccines

### Control & Signal Processing

#### Control:

- Nonlinear Systems and Control
- Robust and Adaptive Control
- Modeling, System Identification and Simulation
- Optimization and Model Predictive Control
- Variable Structure and Sliding Mode Control
- Safe and Resilient Control Systems
- Filtering Techniques and Multi-sensors Data Fusion
- Fault-tolerant Control
- Perception, Guidance, Navigation and Control
- Swarm Optimization Algorithms
- Control of Renewable Power Generation Systems and Smart Grids
- Process Control of Chemical and Biological Systems
- Quantum Systems and Control
- Remote Sensing
- Big Data and Image/ Audio/ Text/ Analytics
- Pattern Recognition, Bagging and Boosting Classifiers
- Image Recognition and Tracking
- Adversarial Attack Mitigation
- Single Shot Learning
- Medical Imaging Applications for Diagnostics and Pathology
- Multidimensional Signal Processing and Speech Recognition
- Sensor Networks
- Hyperspectral and Multispectral Imaging
- 3D Point Cloud Sensing and Processing
- Video Processing and Compression
- Algorithmic Implementation on FPGA/ASIC/Embedded Systems
- DSP Related RTOS Issues
- Quantum Signal Processing

#### Signal Processing:

- Computer Vision and Graphics
- Statistical Methods and Learning Algorithms

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## CONFERENCE TOPICS

### Cyber Security

- Emerging Cyber Threats, Attacks and Tactics:
  - o Zero-days
  - o Bugs, Implants and Vulnerabilities
  - o Malware and Ransomware
  - o Phishing, Spear Phishing and Whaling
  - o Advanced Persistent Threats (APTs)
- Emerging Technologies and Cyber Security:
  - o AI and ML in Cyber Security
  - o Blockchain Security
  - o Quantum Computing and Encryption
  - o Edge-computing, Cloud, IoT and 5G Security
- o Secure Software Development and DevSecOps
- Hardware and Software Security:
  - o Security of Cyber-Physical Systems
  - o Endpoint Security & Data Loss Prevention Techniques
- Threat Intelligence, Hunting/ Detection and Prevention
- Digital Forensics and Incident Response
- Cryptography and Post Quantum Cryptography
- AI based Threat Detection and Prevention
- Security Automation using AI

### Fluid Dynamics

- Aerodynamics: Theoretical, Computational and Experimental Aspects
- Aerothermodynamics and Heat Transfer
- Air Intakes: Design, Analysis and Optimization
- Airbreathing Propulsion: Design, Analysis and Testing
- Fluid-Structure Interactions
- Gas Dynamics
- Hydrodynamics: Theoretical, Computational and Experimental Aspects
- Microfluidics
- Multiphase Flows
- Static and Dynamic Stability and Controllability of Aerial and Submersible Vehicles
- Wind Tunnel: Design, Testing and Visualization Techniques
- High and Low-speed Wind Tunnel: Design Trends and Latest Techniques in Testing
- Captive Trajectory Simulation: Challenges and Current Trends

### Wireless Communication & Radar

#### Radar:

- AESA Radar
- Radar Performance Modeling / Measurement
- Radar Signal Processing (Algorithms & Hardware)
- Phased Array Radar Calibration
- Multifunction Phased Array Radar
- Bistatic / Multi-static Radars
- Analog / Digital Beam Forming
- Ultra Wide Band Radar
- Ground Penetrating Radar (GPR)
- MIMO Radars
- Synthetic Aperture Radars SAR/ ISAR
- Space Time Adaptive Processing (STAP)
- RF / Microwave Circuit Design
- RFICs & MMICs
- Reconfigurable Front-ends
- Active / Passive Device Modeling and Circuits
- Computational Electromagnetics
- Radio Imaging including mm-wave and THz Imaging Systems
- RCS Reduction / Stealth Design
- Antenna Design

- Near Field and Far Field Antenna Characterization
- EMC/EMI

#### Wireless Communication:

- Software defined Radios
- Satellite & Space Communication
- Emerging Wireless Mobile Applications
- Network Centric Warfare
- Electromagnetic Scattering, Channel / Interference Modeling
- Adhoc Networks
- Wireless Technologies in Electro Medical Devices
- Metamaterials, FSSs and Electromagnetic Bandgap Structures
- Communication Systems Simulation
- Integrated Transceivers
- Wireless Power Transfer and Energy Harvesting
- Smart Antennas
- MIMO Systems
- Antenna Systems: Theory, Modeling and Measurement
- Internet of Things Near Body Communication

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## Glimpses of last IBCAST



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