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IEEE ANTS 2021

15th IEEE International Conference on Advanced Networks and Telecommunications Systems

Hyderabad, India | December 13-16, 2021

Technical Agenda

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TECHNICAL AGENDA

Day 1 - December 13, 2021 (Monday)	
9.00 AM onwards	**Registration** **(Room No. 212)**
9.30 – 11.00 AM	**Tutorial – 1** **(Room No. 205)** **Towards Global Connectivity Using Aerial and Space Networks** Dr. Mustafa Kishk & Prof. Mohamed-Slim Alouini from King Abdullah University of Science and Technology
	Tutorial – 3 **(Room No. 212)** **Optical Wireless Communications: Fundamentals and Potential Applications with a vision for 5G and Beyond** Prof. Anand Srivastava, Professor, IIIT Delhi
	Tutorial – 4 **(Room No. 323)** **Delay Tolerant Network and its usage in Emergency situation** Prof. Sipra Das Bit, Professor, IIEST, Shibpur
11.00 – 11.30 AM	**Refreshments (Room No. 307)**
11.30 AM – 1.00 PM	**Tutorial – 1 (Continues)** **(Room No. 205)**
	Tutorial – 3 (Continues) **(Room No. 212)**
	Tutorial – 4 (Continues) **(Room No. 323)**
1.00 – 2.00 PM	**Lunch Break**

2.00 – 3.30 PM	**Tutorial – 5** **(Room No. 205)** **Artificial Intelligence and its applications in beyond 5G networks** Prof. Vimal Bhatia, Professor, IIT Indore
	Tutorial – 2 **(Room No. 212)** **5G and Edge – Enabling Intelligent Systems and Enhanced User Experience** Chelladurai Adisesh – Distinguished Member of Technical Staff (DMTS) and Practice Head, Wipro Shailesh Prabhu – Senior Technical Specialist, Nokia
	Workshop – 2 **(Room No. 323)** **Open RAN for 5G and beyond**
3.30 – 4.00 PM	**Refreshments (Room No. 307)**
4.00 – 5.30 PM	**Tutorial – 5 (Continues)** **(Room No. 205)**
	Tutorial – 2 (Continues) **(Room No. 212)**
	Workshop – 2 (Continues) **(Room No. 323)**

Day 2 - December 14, 2021 (Tuesday)	
9.00 AM onwards	**Registration**
9.30 – 10.30 AM	**Inauguration** **(Auditorium)**
10.30 – 11.00 AM	**Keynote Talk** **(Auditorium)** **Shri. Ravindra Pandey** Deputy Managing Director & Chief Information Officer, State Bank of India
11.00 – 11.30 AM	**Refreshments (Room No. 307)**

11.30 AM – 1.00 PM	**Workshop – 1** **(Room No. 205)** **Second International Workshop on Fog Networks: The Next Generation Cellular Communication**
	Technical Track – 1 (Room No. 212) **Communication Systems** (6 Papers)
	Technical Track – 2 **(Room No. 318)** **5G Networks** (6 Papers)
	Technical Track – 3 **(Room No. 323)** **Wireless Networks** (6 Papers)
1.00 – 2.00 PM	**Lunch Break**
2.00 – 3.30 PM	**Workshop – 3** **(Room No. 205)** **THz Communications: Opportunities and Challenges for 6G**
	Workshop – 4 **(Room No. 212)** **Computational Intelligence in Digital Data Processing and Evidence Analysis**
	Workshop – 8 **(Room No. 318)** **Routing Security in RPL-based Internet of Things Environment**
	Workshop – 9 **(Room No. 323)** **Connecting the Unconnected – Standards Driven Research for Financial Inclusion**
3.30 – 4.00 PM	**Refreshments (Room No. 307)**
4.00 – 5.30	**Workshop – 3 (Continues)** **(Room No. 205)**
	Workshop – 4 (Continues) **(Room No. 212)**
	Workshop – 8 (Continues) **(Room No. 318)**
	Workshop – 9 (Continues) **(Room No. 323)**

6.00 – 6.30 PM	**Keynote Talk** **(Room No. 318)** **Banking Technology in Present Era** **Shri. Ishraq Ali Khan** Executive Director, UCO Bank
6.30 – 7.00 PM	**Keynote Talk** **(Room No. 318)** **Standards Driven Research – The Catalyst for achieving Economic Prosperity for All through Ubiquitous connectivity** **Ms. Pamela Kumar** DG, TSDSI
7.00 PM Onwards	**Reception**

Day 3 - December 15, 2021 (Wednesday)	
9.00 AM onwards	**Registration**
9.30 – 10.00 AM	**Keynote Talk** **(Room No. 318)** **Prof. Rajat Moona** Director, IIT Bhilai
10.00 – 10.30 AM	**Keynote Talk** **(Room No. 318)** **Dr. B. K. Murthy** CEO, IIT Bhilai Innovation and Technology Foundation
10.30 – 11.00 AM	**Keynote Talk** **(Room No. 318)** **Towards a Hyper Connected Future** **Shri. Amit Mannan** Head - Networks R&D, Samsung R&D Institute India-Bangalore
11.00 11.30 AM	**Refreshments (Room No. 307)**
11.30 – 1.00 PM	**Workshop – 7 (Room No. 205)** **6th International Workshop on 5G and Future Wireless Technology**
	Technical Track – 4 (Room No. 212) **Security-I** (4 Papers)
	Technical Track – 5 (Room No. 318) **Security-II** (4 Papers)
	Women in Engineering (Room No. 323)

1.00 – 2.00 PM	**Lunch Break**
2.00 – 3.30 PM	**Workshop – 7 (Continues)** **(Room No. 205)**
	Workshop – 5 **(Room No. 212)** **Multi-access Edge Computing (MEC) and Emerging Applications**
	Workshop – 6 **(Room No. 318)** **AI/Machine Learning Enabled Connected Vehicles**
	Women in Engineering (Continues) **(Room No. 323)**
3.30 – 4.00 PM	**Refreshments (Room No. 307)**
4.00 – 5.30 PM	**Workshop – 7 (Continues)** **(Room No. 205)**
	Workshop – 5 (Continues) **(Room No. 212)**
	Workshop – 6 (Continues) **(Room No. 318)**
	Women in Engineering (Continues) **(Room No. 323)**
5.30 – 7.00 PM	**Panel (Room No. 318)** **Ubiquitous Digital Connectivity and Economic Prosperity for All | The Path to Financial Inclusion** Moderator **Shri. Rajiv Ramachandran,** Senior Domain Expert, IDRBT
7.00 PM Onwards	**Special Dinner**

Day 4 - December 16, 2021 (Thursday)	
9.00 – 10.00 AM	**Panel** **(Room No. 318)** **How can Blockchain Technology help achieve Ubiquitous Digital Connectivity and Economic Prosperity for All** Moderator **Dr. Mydhili K Nair,** Professor, MS Ramaiah Institute of Technology
10.00 – 10.30 AM	**Keynote Talk** **(Room No. 318)** **Prof. Uday Desai** Emeritus Professor, IIT Hyderabad
10.30 – 11.00 AM	**Networking & Sponsor Events**
11.00 – 11.30 AM	**Refreshments (Room No. 307)**
11.30 AM – 1.00 PM	**Technical Track – 6** **(Room No. 318)** **Cryptography** (4 Papers)
	Technical Track – 7 **(Room No. 323)** **Cellular Networks** (6 Papers)
	Technical Track – 8 **(Room No. 205)** **Internet of Things** (6 Papers)
1.00 – 2.00 PM	**Lunch Break**
2.00 – 3.30 PM	**Technical Track – 9** **(Room No. 318)** **Heterogeneous Networks** (6 Papers)
	Technical Track – 10 **(Room No. 323)** **Spectrum and Channels in Cellular Networks** (6 Papers)
	Technical Track – 11 **(Room No. 205)** **Simulation and Modeling** (4 Papers)
3.30 – 4.00 PM	**Refreshments (Room No. 307)**

4.00 – 5.30 PM	**Technical Track – 12** **(Room No. 318)** **Applications and Systems Configuration** (4 Papers)
	Technical Track – 13 **(Room No. 323)** **Short Papers** (5 Papers)
	Early Research Forum **(Room No. 205)**
5.30 PM Onwards	**OC Announcements and Valediction**

Technical Agenda

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Tutorials

December 13, 2021 (Monday) 9.30 AM – 5.30 PM	
Duration	**Topic & Speaker**
9.30 – 11.00 AM	**Tutorial 1** **Towards Global Connectivity Using Aerial and Space Networks** **Prof. G. Dr. Mustafa Kishk & Prof. Mohamed-Slim Alouini** King Abdullah University of Science and Technology
	Tutorial 3 **Optical Wireless Communications: Fundamentals and Potential Applications with a vision for 5G and Beyond** **Prof. Anand Srivastava** Professor, IIIT Delhi
	Tutorial 4 **Delay Tolerant Network and its usage in Emergency situation** **Prof. Sipra Das Bit** Professor, IIEST, Shibpur
Refreshments (11.00 – 11.30 AM)	
11.30 – 1.00 PM	**Tutorial 5** **Artificial Intelligence and its applications in beyond 5G networks** **Prof. Vimal Bhatia** Professor, IIT Indore
	Tutorial 3 (Continues)
	Tutorial 4 (Continues)
Lunch Break (1.00 – 2.00 PM)	

2.00 – 3.30 PM	**Tutorial 5 (Continues)**
	Tutorial 2 **5G and Edge – Enabling Intelligent Systems and Enhanced User Experience** **Chelladurai Adisesh** Distinguished Member of Technical Staff (DMTS) and Practice Head, Wipro & **Shailesh Prabhu** Senior Technical Specialist, Nokia
Refreshments (3.30 – 4.00 PM)	
4.00 – 5.30 PM	**Tutorial 5 (Continues)**
	Tutorial 2 (Continues)

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WORKSHOP - 2

Open RAN for 5G and beyond

December 13, 2021 (Monday) 2.00 PM – 5.30 PM	
Duration	**Topic & Speaker**
2.00 – 2.02 PM	**Welcome and opening remarks**
2.02 – 2.10 PM	**BT's Global initiatives** **Dr. Nader Azarmi** Head, Global Research & Innovation Programme, BT
2.10 – 2.50 PM	Challenges and Opportunities in ORAN- A Startup's Perspective **Himanshu Tyagi, Founder** Banyan Intelligence Pvt. Ltd
2.50 – 3.30 PM	Feasibility of Open Source for 5G **Abhijit Chaudhary** Founder and CEO, Niral Networks
Refreshments (3.30 – 4.00 PM)	
4.00 – 4.45 PM	Beyond 5G **Rahim Tafazolli** Head of the Institute for Communication Systems (ICS), University of Surrey, UK
4.45 – 5.30 PM	Standardization efforts in future wireless systems **Oliver Holland** Director of Standards and Systems Integration at Advanced Wireless Technology Group (AWTG), Ltd. UK.

Technical Agenda

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WORKSHOP - 1

Second International Workshop on

Fog Networks: The Next Generation Cellular Communication Systems

December 14, 2021 (Wednesday)
11.30 AM – 1.00 PM

Duration	Topic & Speaker
11.30 – 11.40 AM	**Introduction to Workshop**
11.40 – 12.40 PM	**Keynote Talk** **A "Security-first" lens for deploying 5G** **Mr. Subodh Gajare** Lead Architect, CISCO
12.40 – 1.00 PM	**Paper Presentation** Fog-compute capable smart metering infrastructure **Vineet Kandunuri; Mahasweta Sarkar; Christopher Paolini** San Diego State University

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Technical Track - 1

Communication Systems

December 14, 2021 (Tuesday)

11.30 AM – 1.00 PM

1. **On the Optimal Threshold and Error Performance at Fusion Center for Diffusion-Based Molecular Communication System**

   Gaurav Sharma (Indian Institute of Technology Jammu, India); Ajay Singh (Indian Institute of Technology Jammu, India)

2. **RSMA for IRS Aided 6G Communication Systems: Joint Active and Passive Beamforming Design**

   Aditya Jolly (Indian Institute of Information Technology Guwahati, India); Sudip Biswas (Indian Institute of Information Technology Guwahati, India); Keshav Singh (National Sun Yat-sen University, Kaohsiung, Taiwan)

3. **Spatial Modulation-assisted Mobile Diffusive-Drift Molecular Communications**

   Sanjeev Sharma (Indian Institute of Technology (BHU) Varanasi, India); Rangeet Mitra (University of Quebec Montreal, India); Vimal Bhatia (Indian Institute of Technology Indore, India)

4. **An Investigation of the Diversity Performance of Vehicular Visible Light Communications System under Dirty Headlights, Mobility, Atmospheric Turbulence, and Different Weather Scenarios**

   Pranav Sharda (Indian Institute of Technology Delhi, India); Manav Bhatnagar (Indian Institute of Technology Delhi, India)

5. **Analysis of Probability of Collision of CAMs in Opportunistic Vehicular Communication**

   Alokojjwal Das and Dipamani Pathak (Indian Institute of Information Technology Guwahati, India); Kukil Khanikar (Indian Institute of Information Technology Guwahati, India)

6. **Performance of a Cooperative Full-Duplex D2D Communication in Cellular Underlay**

   Suraj Parihar (Indian Institute of Information Technology Delhi, India); Kamal Agrawal (Indian Institute of Technology Delhi, India); Pratik Chakraborty (Indian Institute of Information Technology Kalyani, India); Shankar Prakriya (Indian Institute of Technology Delhi, India)

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Technical Track - 2

5G Networks

December 14, 2021 (Tuesday)

11.30 AM – 1.00 PM

1. **Efficient Service Allocation Scheduling Algorithms for 5G User Equipments in Slice-in-Slice Networks**

   Sharvari Ravindran (International Institute of Information Technology Bangalore, India); Saptarshi Chaudhuri and Jyotsna Bapat (International Institute of Information Technology Bangalore, India); Debabrata Das (International Institute of Information Technology - Bangalore, India)

2. **Method for Optimal Resource Allocation during RRC Connection Establishment in 5GNR**

   Isha Maheshwari (Samsung R&D Institute Bangalore, India); Raju Gupta (Samsung R&D Institute Bangalore, India)

3. **Resolving Coverage and Interference conflicts in 5G**

   A. R. Ashok Kumar (Rashtreeya Vidyalaya College of Engineering, India); Harsha Hoovinalli (Cisco Systems, India); Girish Rao Salanke N S (Rashtreeya Vidyalaya College of Engineering, India)

4. **5G Networks for Industrial Applications: The Ecosystem of NPNs**

   Gabor Soos (Budapest University of Technology and Economics & Magyar Telekom Nyrt, Hungary); Daniel Ficzere (Budapest University of Technology and Economics, Hungary); Roberto Padovani (Marposs S.p.A., Italy); Attila Frankó (Budapest University of Technology and Economics, Hungary); Sándor Veress (T-Systems Hungary, Hungary); Pál Varga (Budapest University of Technology and Economics, Hungary)

5. **OCTANE: A Joint Computation Offloading and Resource Allocation Scheme for MEC Assisted 5G NR Vehicular Networks**

   Veerendra Kumar Gautam (Indian Institute of Technology Hyderabad, India); Chinmay Tompe (NYU Tandon School of Engineering, USA); Bheemarjuna Reddy Tamma (Indian Institute of Technology Hyderabad, India); Antony Franklin A (Indian Institute of Technology Hyderabad, India)

6. **Energy Efficient On/Off Switching of mmRSUs for 5G Vehicular Networks**

   Moyukh Laha (Indian Institute of Technology Kharagpur, India); Raja Datta (Indian Institute of Technology Kharagpur, India)

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Technical Track - 3

Wireless Networks

December 14, 2021 (Tuesday)

11.30 AM – 1.00 PM

1. **A Novel Load Estimation Based Dynamic CBAP Allocation Policy for mmWave WLANs**

   M. P. R. S. Kiran (Indian Institute of Technology Jodhpur, India); P Rajalakshmi (Indian Institute of Technology Hyderabad, India)

2. **Hybrid BLE/LTE/Wi-Fi/LoRa Switching Scheme for UAV-Assisted Wireless Networks**

   Wilson Ayyanthole Nelson, Yeduri Sreenivasa Reddy and Ajit Jha (University of Agder, Norway); Abhinav Kumar (Indian Institute of Technology Hyderabad, India); Linga Reddy Cenkeramaddi (University of Agder, Norway)

3. **Reinforcement Learning for Admission Control in Wireless Virtual Network Embedding**

   Haitham Afifi and Fabian Jakob Sauer (Paderborn University, Germany); Holger Karl (Hasso Plattner Institute, Germany)

4. **Centralized vs Decentralized Resource Analysis of Green FiWi Networks**

   Kinshu Kumar and Akshita Gupta (Indraprastha Institute of Information Technology Delhi, India); Vivek A Bohara (Indraprastha Institute of Information Technology Delhi, India); Anand Srivastava (Indraprastha Institute of Information Technology Delhi, India)

5. **A Contact-Based Classification to Aid Routing in Heterogeneous Wireless Networks**

   Sara El Alaoui (Purdue University, USA); Byrav Ramamurthy (University of Nebraska-Lincoln, USA)

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WORKSHOP - 3

THz Communications: Opportunities and Challenges for 6G

December 14, 2021 (Tuesday) 2.00 PM – 5.30 PM	
Duration	**Topic & Speaker**
2.00 – 2.45 PM	Broadband Connectivity with machine learning via mmW/Sub THz and potential use cases in 6G **Prof. Premanandana Rajatheva** University of Oulu, Finland
2.45 – 3.30 PM	Towards Extreme Bandwidth Communications **Prof. Mohamed-Slim Alouini** King Abdullah University of Science and Technology (KAUST), Saudi Arabia
Refreshments (3.30 – 4.00 PM)	
4.00 – 5.00 PM	**Introduction to Terahertz Communication** **Dr. Neelakandan Rajamohan,** IIT Goa
5.00 – 5.30 PM	**Q&A and THz research in India** **Prof. Vimal Bhatia,** IIT Indore **Dr. Kuntal Deka**, IIT Goa **Dr. Sanjeev Sharma**, (BHU) Varanasi

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WORKSHOP – 4

Computational Intelligence in Digital Data Processing and Evidence Analysis

December 14, 2021 (Tuesday)
2.30 PM – 5.00 PM

Duration	Topic & Speaker
2.30 – 3.30 PM	Digital Forensic Challenges and Way Ahead **Dr. Naveen Kumar Chaudhary** National Forensic Sciences University
Refreshments (3.30 – 4.00 PM)	
4.00 – 5.00 PM	Speech Signal Processing for Forensic Applications **Prof. Ram Bilas Pachori** Indian Institute of Technology Indore

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WORKSHOP - 8

Routing Security in RPL-based Internet of Things Environment

December 14, 2021 (Tuesday) 2.00 PM – 5.30 PM	
Duration	**Topic & Speaker**
2.00 – 2.30 PM	Introduction to Landscape of Attacks in IoT Prof. G. Geethakumari
2.30 – 3.30 PM	Tools for Vulnerability Analysis of RPL Dr. Rashmi Sahay
Refreshments (3.30 – 4.00 PM)	
4.00 – 4.45 PM	Developing Holistic Framework for Attack Detection in RPL-based IoT Prof. G. Geethakumari & Dr. Rashmi Sahay
4.45 – 5.30 PM	Approach to Enhance RPL for Attack Mitigation Dr. Rashmi Sahay

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WORKSHOP - 9

Connecting the Unconnected – Standards Driven Research for Financial Inclusion

December 14, 2021 (Tuesday) 2.00 PM – 5.30 PM	
Duration	**Topic & Speaker**
2.00 – 2.15 PM	About the CTU - Role of Standards & SDR **Radha Krishna Ganti** Professor, IITM
2.15 – 2.45 PM	Keynote Talk Financial Inclusion initiatives in Indian Banking and Financial Services **Rajesh Bansal** CEO- RBI Innovation Hub
2.45 – 3.30 PM	Tech Talk Rural and Remote Connectivity in Beyond 5G Networks **Sudhir Dixit** Senior Fellow and Evangelist, Basic Internet Foundation, Norway
Refreshments (3.30 – 4.00 PM)	
4.00 – 4.30 PM	Tech Talk Accessibility – varying degrees of abilities **Prof Pradipta Biswas** Indian Institute of Science
4.30 – 5.20 PM	**Panel Discussion** Enabling Rural Private Network Pilots – possible avenues *Panelists:* **R K Pathak (DoT); Sai Dhiraj Amuru (IITH); Vishal Kanvati-NPCI; Rengarajan S (IDRBT)** *Moderator:* **Abhishek Thakur**
5.20 – 5.30 PM	**Closing Remarks** **Radha Krishna Ganti**

Technical Agenda

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WORKSHOP - 7

6th International Workshop on

5G & Future Wireless Technologies (5G-FWT 2021)

December 15, 2021 (Wednesday) 11.30 AM – 5.30 PM	
Duration	**Topic & Speaker**
11.30 – 11.05 AM	Introduction to the workshop and Highlight of ComSoc and Future Networks Activities **Dr Navin Kumar**
11.35 – 12.00 PM	Visionary Talk **Dr Sudhir Dixit** Chief Strategist and Investment Advisor at Trustyfi, USA
12.00 – 12.30 PM	**5G Security: Challenges and Opportunities** **Dr Ashutosh Dutta**
12.30 – 1.00 PM	**Private 5G - Design principles & Use cases for Enterprise deployments** **Subodh Gajare** Lead Architect, CISCO
Lunch Break (1.00 – 2.00 PM)	
2.00 – 2.40 PM	**5G Advanced – Journey towards 6G** **Ms. Neha Sharma,** Staff Engineering Manager/Architect, 6G Lab, Samsung Research Institute India – Bangalore
2.40 – 3.10 PM	**RAN Disaggregation** **Subhas C Mondal,** Head R&D, HCFL
Refreshments (3.10 – 4.00 PM)	
4.00 – 5.30 PM	**Paper presentations** Organising Chair **Dr Navin Kumar** **DECT-2020 New Radio System Level Assessment for Multi-Hop Assisted mMTC usage Scenario** Tanmay Singhwi; Samya Andra; Sai Jaswanth Seelam; Rahul Makkar; Divyang Rawal; Nikhil Sharma (LMNIT Jaipur) **Ultra-Dense 5G Network Deployment Strategy: A Reinforcement Learning Approach**

	Biswapratap Singh Sahoo; Prerit Jain; Dheeraj Kumar; Satya Kumar Vankayala, (Samsung) **SDN Based Mobile Data Offloading Scheme Using LTE and WiFi Networks** Santhosh Kamath; Sanjay Singh, M Sathish Kumar, (Manipal Inst of Tech) **Sparse Dense Neural Network Architecture for Turbo Decoding in Cloud Systems** Satya Kumar Vankayala; Swaraj Kumar; Thirumulanathan D;; Seungil Yoon;Issaac Kommineni;Lakshmi Narayana V S Ch (Samsung)

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Technical Track - 4

Security-I

December 15, 2021 (Wednesday)

11.30 AM – 1.00 PM

1. **P4Filter: A two level defensive mechanism against attacks in SDN using P4**

   Ananya Saxena, Ritvik Muttreja and Shivam Upadhyay (International Institute of Information Technology Naya Raipur, India); K Shiv Kumar (Indian Institute of Technology Hyderabad, India); Venkanna U. (International Institute of Information Technology Naya Raipur, India)

2. **Addressing ICS Security Challenges using Simplex Architecture**

   Sahil Bhandary Karnoor and Prahadheeswaran Mathiyazhagan (Indian Institute of Science, India); Haresh Dagale (Indian Institute of Science, India); Chandramani Singh (Indian Institute of Science, India)

3. **Online Network Attack Detection using Statistical Features**

   Ritesh Ratti and Sukumar Nandi (Indian Institute of Technology Guwahati, India); Sanasam Ranbir Singh (Indian Institute of Technology Guwahati, India)

4. **Predicting Potentially Undetectable Flows in DPI System using Machine Learning**

   Ankan Saha (Samsung Research Institute Bangalore, India); S Varun (Samsung Research Institute Bangalore, India); Uday Trivedi (Samsung Research Institute Bangalore, India)

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Technical Track - 5

Security-II

December 15, 2021 (Wednesday)

11.30 AM – 1.00 PM

1. **Email Validation & Arbitration Framework and Platform based on Blockchain for Legal Matters**

   Rushya Sree Reddy Butukuri, Sravya Atche and Gourinath Banda (Indian Institute of Technology Indore, India)

2. **Enabling Fog Computing based Dynamic Security Service Function Chaining for 5G IoT**

   Vashish N. Imrith (University of Mauritius, Mauritius); Pasika S Ranaweera (University College Dublin, Ireland & University of Ruhuna, Sri Lanka); Sneha Damree (University of Mauritius, Mauritius); Madhusanka Liyanage (University College Dublin, Ireland & University of Oulu, Finland)

3. **DES Based IDS for detection Minimal De-Authentication DoS Attack in 802.11 Wi-Fi Networks**

   Mayank Agarwal (Indian Institute of Technology Patna, India)

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Women in Engineering

December 15, 2021 (Wednesday)
11.00 AM – 5.30 PM

Duration	Topic & Speaker
	Invited Talk (11.00 – 11.20 AM)
	Emerging Communication Technologies and their Use cases **Dr. Sakshi Kaushal** Professor, CSE, Punjab University, Chandigarh
	Track – 1 (11.20 am – 12.20 pm) **Optical NWs / Optimization**
60 Min.	**A Prediction-based Online Cost Optimization Algorithm for 5G Vertical** Jyoti Tiwari (Indian Institute of Technology, Hyderabad, India) **Efficient Seed Selection for IC-IS Multiphase Diffusion Model** Kalyanee Devi (Indian Institute of Information Technology, Guwahati, India) **Routing and Scheduling of Key Assignment in Optical Networks secured by Quantum Key Distribution** Purva Sharma (Indian Institute of Technology, Indore, India)
	Track – 2 (12.20 – 1.00 pm) **Communications**
40 Min.	**On the Performance of Hovering UAV-Based FSO Communication System** Deepshikha Singh (IIT Indore, India) **Synchronization in Power-Efficient DST-based ACO-OFDM-VLC Systems** Suseela Vappangi (VIT Andhra Pradesh, India)
	Lunch Break (1.00 – 2.20 PM)
	Track – 2 (2.20 – 2.40 pm) Continues… **Communications**
20 Min.	**Secrecy Rate Maximization at Near User in Untrusted NOMA with Trusted DF Relay** Insha Amin (Indian Institute of Technology, Jammu, India)

Track – 3 (2.40 – 3.20 pm) **Networking**	
40 Min.	**Joint Power Allocation and User-pairing in Multi-beam Hybrid Satellite Terrestrial Networks** Jayati Dutta (Indian Institute of Technology Hyderabad, India) **Maximal Ratio Sparse Vector Coding for Short Packet Transmission** Astha Awasthi (National Institute of Technology, Meghalaya & Meghalaya, India)
Refreshments (3.20 – 3.50 PM)	
Track – 3 (3.50 – 4.30 pm) Continues… **Networking**	
40 Min.	**Optimal User Pairing using the Shortest Path Algorithm** Kanchana Katta (Indian Institute of Information Technology Senapati, Manipur, India) **IB-RPL: Embedding Isolation and Blacklisting of Malicious Nodes in RPL for Securing IoT-LLNs** Rashmi Sahay (The ICFAI Foundation for Higher Education, Hyderabad, India)
Track – 4 (4.30 – 5.30 PM) **Blockchain technology/Machine Learning**	
60 Min.	**Hybrid Intrusion Detection System using an Unsupervised method for Anomaly-based Detection** Saumya Bhadauria (ABV-IIITM Gwalior, India) **Intellectual Property Protection using Blockchain and Digital Watermarking** Saumya Bhadauria (ABV-IIITM Gwalior, India) **Blockchain-inspired Distributed Trust in a Smart Vehicular Network System** Tripti Samal (North Carolina State University, USA)

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WORKSHOP - 5

Multi-access Edge Computing (MEC) and Emerging Applications

December 15, 2021 (Wednesday) 2.00 PM – 5.30 PM	
Duration	**Topic & Speaker**
2.00 – 2.45 PM	Edge computing in haptics applications **Prof. Brejesh Lall** IIT Delhi
2.45 – 3.30 PM	Edge computing and caching **Prof. Yogesh Simmhan** IISc
Refreshments (3.30 – 4.00 PM)	
4.00 – 4.30 PM	Edge Computing – Architectures, Standards and Use Cases **Dr. Samar Shailendra** Intel
4.30 – 5.00 PM	Edge Computing Technology and Applications – Insight and Trends **Dr. Niranth Amogh** Huawei
5.00 – 5.30 PM	Applications of Edge Analytics in Cloud Computing **Sairam Veeraswamy** VMWare

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WORKSHOP - 6

AI/Machine Learning Enabled Connected Vehicles

December 15, 2021 (Wednesday) 2.00 PM – 5.30 PM	
Duration	**Topic & Speaker**
2.00 – 2.30 PM	**Invited Talk** **Autonomous Networks for Connected Vehicles** **Vishnu Ram OV** TSDSI, Independent Consultant
2.30 – 3.00 PM	Route Lifetime Analysis in Vehicular Networks **Teodor Ivanescu, Halil Yetgin, Mohammed El-Hajjar, Geoff Merrett** School of Electronics and Computer Science, University of Southampton
3.00 – 3.30 PM	Technology Levels for VRU Safety Including Wireless Connected Cooperative Approaches **Marek Bachmann, Johann Götz, and Klaus David** University of Kassel, Kassel, Germany
Refreshments (3.30 – 4.00 PM)	
4.00 – 4.30 PM	Deep Learning-based WiFi Sensing in Dangerous Driving Behavior Recognition **Qiakai Cai, Zheng Shi, Guanghua Yang** School of Intelligent Systems Science and Engineering, Jinan University, China
4.30 – 5.30 PM	**Panel** **Impact of 5G and 6G on Connected Vehicles** **Dr. Seshadri Mohan** (Moderator), Professor, Systems Engineering Department, University of Arkansas at Little Rock **Panelists:** **Dr. Klaus David**, University of Kassel **Vishnu Ram OV**, TSDSI, New Delhi, Independent Consultant **Subhod Gajare**, CISCO, Bangalore **Subhas Mondal**, WIPRO, Bangalore **Dr. Pradipta Biswas**, IISc, Bangalore

Technical Agenda

December 16, 2021

IEEE ANTS 2021

IEEE International Conference on Advanced Networks and Telecommunications Systems

13-16 December 2021, IDRBT, Hyderabad, India

Technical Track - 6

Cryptography

December 16, 2021 (Thursday)

11.30 AM – 1.00 PM

1. **Construction of 4 x 4 MDS Matrices for Lightweight Block Ciphers**

   Vikas Tiwari (CR Rao Advanced Institute of Mathematics Statistics and Computer Science, India); Swamy Naidu Allu (CR Rao Advanced Institute of Mathematics Statistics and Computer Science, India); Ajeet Singh (CR Rao Advanced Institute of Mathematics Statistics and Computer Science, India); Ashutosh Saxena (Infosys Technologies Limited, India)

2. **Performance Evaluation of ANU block cipher on 8-bit AVR for IoT node security**

   Swapnil A Sutar (Acharya Nagarjuna University, India & C. R. Rao Advanced Institute of Mathematics Statistics & Computer Science, India); Priyanka Mekala (C. R. Rao Advanced Institute of Mathematics Statistics & Computer Science, India)

3. **Inviolable e-Question paper via QR code Watermarking and Visual Cryptography**

   Aniket Agrawal (Indian Institute of Technology Bhubaneswar, India); Kamalakanta Sethi (Birla Global University, India & Indian Institute of Technology Bhubaneswar, India); Padmalochan Bera (Indian Institute of Technology Bhubaneswar, India)

4. **Data Deduplication Scheme with Multiple Key Servers in Public Clouds**

   Bhautik Gosai (Dhirubhai Ambani Institute of Information and Communication Technology, India); Manik Lal Das (Dhirubhai Ambani Institute of Information and Communication Technology, India)

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Technical Track - 7

Cellular Networks

December 16, 2021 (Thursday)

11.30 AM – 1.00 PM

1. **Optimal Coverage-Aware Hovering UAV Height**

   Poonam Lohan (Punjab Engineering College Chandigarh, India); Deepak Mishra (University of New South Wales (UNSW) Sydney, Australia); Neena Gupta (PEC University of Technology, India)

2. **A Cooperative Federated Learning Mechanism for Collision Avoidance using Cellular and 802.11p based Radios Opportunistically**

   Suhel Sajjan Magdum (Indian Institute of Technology Hyderabad, India); Antony Franklin A (Indian Institute of Technology Hyderabad, India); Bheemarjuna Reddy Tamma (Indian Institute of Technology Hyderabad, India)

3. **Adaptive Sparse Aware Algorithm based Channel Estimation for mmWave Hybrid MIMO System**

   Vidya Bhasker Shukla (Indian Institute of Technology Indore, India); Rangeet Mitra (ETS Montreal, Canada); Vimal Bhatia (Indian Institute of Technology Indore, India)

4. **Performance of an Adaptive Cooperative NOMA Scheme with Transmit Antenna Selection**

   Amrita Mukherjee (National Institute of Technology Durgapur, India); Pratik Chakraborty (Indian Institute of Information Technology Kalyani, India); Shankar Prakriya (Indian Institute of Technology Delhi, India); Ashis Kumar Mal (National Institute of Technology Durgapur, India)

5. **Compressive Sensing based Low Complexity Terahertz Receiver**

   Vaishali Sharma and Vimal Bhatia (Indian Institute of Technology Indore, India); Sanjeev Sharma (Indian Institute of Technology (BHU) Varanasi, India)

6. **Comparative Study on Error in MIMO Radar DOA Estimation**

   Tata V Srinivasa Rao and Lakshi Roy (National Institute of Technology, Rourkela, India); KamalaKanta Mahapatra (National Institute of Technology Rourkela, India)

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Technical Track - 8

Internet of Things

December 16, 2021 (Thursday)

11.30 AM – 1.00 PM

1. **Adaptive Distributed Queuing Random Access Protocol for LoRa based IoT Networks**

   Devpriya Kanojia and Vinod Kumar Jain (Indian Institute of Information Technology, Design and Manufacturing Jabalpur, India)

2. **Fault-Tolerant Concurrent Data collection Trees for Industrial IoT Applications**

   Arvind Kumar (Indian Institute of Information Technology Guwahati & Jaypee University of Information Technology, India); Rakesh Matam (Indian Institute of Information Technology Guwahati, India); Somanath Tripathy (Indian Institute of Technology Patna, India)

3. **Experimental evaluation of power saving mode against powering down in an NB-IoT modem**

   Prashanth Lingala (Indian Institute of Technology Hyderabad, India & Honeywell, India); SaiDhiraj Amuru and Kiran Kuchi (Indian Institute of Technology Hyderabad, India)

4. **Location based detection mechanism for PUEA on CR enabled 5G-IoT network**

   Avinash Reddy Avuthu (Malaviya National Institute of Technology Jaipur, India); Arunima Sharma (Malaviya National Institute of Technology Jaipur, India); Dinesh Gopalani (Malaviya National Institute of Technology Jaipur, India); Ramesh Babu Battula (Malaviya National Institute of Technology Jaipur, India)

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Technical Track - 9

Heterogeneous Networks

December 16, 2021 (Thursday)

2.00 PM – 3.30 PM

1. **Utility Based Framework For Reactive And Proactive Congestion Control In SDN**

   Akhil Kumar Singh Thakur and Shatrunjay Rawat (International Institute of Information Technology Hyderabad, India)

2. **Topology control for minimizing energy consumption and improving usability in mobile ad hoc networks**

   Kouichi Genda (Nihon University, Japan)

3. **IoT-Based Aggregate Smart Grid Energy Data Extraction Using Image Recognition and Partial Homomorphic**

   Aniket Agrawal (Indian Institute of Technology Bhubaneswar, India); Kamalakanta Sethi (Birla Global University, India & Indian Institute of Technology Bhubaneswar, India); Padmalochan Bera (IIT Bhubaneswar, India)

4. **A Novel Server Selection Strategy for Multi-access Edge Computing**

   Gayan Dilanka, Lakshan Viranga, Rajitha Pamudith and Tharindu D. Gamage (University of Ruhuna, Sri Lanka); Pasika S Ranaweera (University College Dublin, Ireland & University of Ruhuna, Sri Lanka); Indika Anuradha Mendis Balapuwaduge (University of Ruhuna, Sri Lanka); Madhusanka Liyanage (University College Dublin, Ireland & University of Oulu, Finland)

5. **Improving Service Performance through Multilayer Routing and Service Intelligence in a Network Service Mesh**

   Boyang Hu (University of Nebraska-Lincoln, USA); Deepak Nadig (Purdue University, USA); Byrav Ramamurthy (University of Nebraska-Lincoln, USA)

6. **A Hybrid-Combine-and-Forward Relaying scheme for Network Coded Cooperative Systems**

   Sagnik Bhattacharyya, Pankaj Kumar and Sachin Sharma (Indian Institute of Technology Ropar, India); Sam Darshi (Indian Institute of Technology Ropar, India); Akram A. Almohammedi (South Ural State University, Malaysia).

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Technical Track - 10

Spectrum and Channels in Cellular Networks

December 16, 2021 (Thursday)

2.00 PM – 3.30 PM

1. **Detection for Spectrum Sensing in CRN Under Impact of Distributional Uncertainty of Noise and Interference**

   Madhukar Mohanrao Deshmukh (KL University, India); Albena Mihovska and Ramjee Prasad (Aarhus University, Denmark)

2. **A Robust Adaptive Algorithm using Inverse Square Root Cost Function for Underwater Channel Estimation**

   Bishnu Prasad Mishra and Annet Wilson (National Institute of Technology Goa, India); Trilochan Panigrahi (National Institute of Technology, Goa, India); Samrat Sabat (University of Hyderabad, India)

3. **Performance Evaluation of Conventional Spectrum-Allocation Policies for C+L Band Elastic Optical Networks**

   Rana K. Jana (Indraprastha Institute of Information Technology Delhi, India); Bijoy Chand Chatterjee (South Asian University, India); Abhishek P. Singh (Indraprastha Institute of Information Technology Delhi, India); Anand Srivastava (Indraprastha Institute of Information Technology Delhi, India); Biswanath Mukherjee (University of California, Davis, USA); Andrew Lord (British Telecom, United Kingdom (Great Britain)); Abhijit Mitra (Indraprastha Institute of Information Technology Delhi, India)

4. **Dynamic Page Pattern detection and validation for Cellular Networks in DSDS device**

   Rushabh Avinash Vakharia (Samsung R&D Institute Bangalore, India); Lalit Pathak (Samsung R&D Institute Bangalore, India)

5. **On the Spectral Performance of Dimming-based Multilevel Modulation Schemes for VLC Systems**

   Rishu Raj (Indian Institute of Technology Delhi, India); Abhishek Dixit (Indian Institute of Technology Delhi & IBBT, India)

6. **Traffic Aware Optimal Bandwidth Segmentation for Low Latency Communication in 5G**

   Ujjwal Pawar and Aditya Chilukuri (Indian Institute of Technology, Hyderabad, India); Antony Franklin A (Indian Institute of Technology Hyderabad, India).

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Technical Track - 11

Simulation and Modeling

December 16, 2021 (Thursday)

2.00 PM – 3.30 PM

1. **Short-cuts on Quantum Network Simulators**

   Panduranga Rao V Marella (Indian Institute of Technology Hyderabad, India); Anubhav Srivastava (IIT Hyderabad, India); Devendra Mishra (Qulabs Software India Pvt Ltd, India); Madhuri Annavazzala (IIT Hyderabad, India); Nixon Patel (Qulabs Software India Pvt Ltd, India); Antony Franklin A (Indian Institute of Technology Hyderabad, India)

2. **Analyzing Quantum Network Routing Protocols through Time-Driven Simulations**

   Panduranga Rao V Marella (Indian Institute of Technology Hyderabad, India); Anvesh Bendalam (IIT Hyderabad, India); Antony Franklin A (Indian Institute of Technology Hyderabad, India); Annavarapu Phaneendra, Marapally Anuraag, Jupally Nishith, Anubhav Srivastava and Krishnam Dhanush (IIT Hyderabad, India); Devendra Mishra and Nixon Patel (Qulabs Software India Pvt Ltd, India)

3. **Dynamic Network Slicing using Deep Reinforcement Learning**

   Swaraj Kumar (Samsung R&D Institute, India); Satya Kumar Vankayala (Samsung R&D Institute Bangalore, India); Devashish Singh (Samsung R&D Institute, India); Ishaan Roy (BITS Pilani Goa Campus, India); Biswapratap Singh Sahoo (Samsung R&D Institute Bangalore, India); Seungil Yoon (Samsung Electronics, Korea (South)); Samuel Kanakaraj (Samsung R&D Institute, India)

4. **Future Backbone Optical Networks: Fiber Densification Versus Network Densification**

   Vaishali Sharma and Vimal Bhatia (Indian Institute of Technology Indore, India); Sanjeev Sharma (Indian Institute of Technology (BHU) Varanasi, India)

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Technical Track - 12

Applications and Systems Configuration

December 16, 2021 (Thursday)

4.00 PM – 5.30 PM

1. **M-3R: A Memory Based Approach for Streaming QoE Prediction under 3R settings**

   Monalisa Ghosh (Indian Institute of Technology Kharagpur, India); Chetna Singhal (Indian Institute of Technology Kharagpur, India)

2. **Performance Analysis of Dual-Hop THz Wireless Transmission for Backhaul Applications**

   Vinay U Pai (BITS Pilani, Pilani, India); Pranay Bhardwaj and Syed Mohammad Zafaruddin (BITS Pilani, India)

3. **Synthesizing Voice User Interface for Augmented Reality Experience Enhancements**

   Syed Shahab Uddin, Mohammed Abdul Razzak and Syed Vali Mohiuddin (Osmania University & ISL Engineering College, India)

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Technical Track - 13

Short Papers

December 16, 2021 (Thursday)

4.00 PM – 5.30 PM

1. **How Much Can Edge Offload? A Tradeoff Between the Delay and Energy Consumption**

   Peiyan Yuan, Saike Shao, Lijuan Geng and Xiaoyan Zhao (Henan Normal University, China)

2. **Approximations and their Validations for RIS-assisted SISO systems**

   Saksham Bhushan and Sai Teja Suggala (Indian Institute of Technology Bhilai, India); Arzad Kherani (Indian Institute of Technology, Bhilai, India); Thazhathe Veetil Sreejith (Indian Institute of Technology Bhillai, India)

3. **2-Dimensional Reconfigurable Reflecting Unit Cell for THz Communication**

   Monisha Selvaraj (Sastra University, India); Ramya Vijay (SASTRA University, India)

4. **Towards simulating dynamic routing and wavelength assignment using GNPy and SIMON**

   Boyang Hu and Byrav Ramamurthy (University of Nebraska-Lincoln, USA)

5. **A Simple Octagonal Wideband Frequency and Pattern reconfigurable Antenna for multiband operations**

   Bhakkiyalakshmi R and Vasanthi M s (SRM Institute of Science and Technology, India)

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Early Research Forum

December 16, 2021 (Thursday)

4.00 PM – 5.00 PM

1. **Investigate & Design a unit meta-atom for Intelligent Reflecting Surfaces and develop an optimized Machine Learning Algorithm based on reflection analysis for IRS**

   Monisha Selvaraj & Ramya Vijay from SASTRA University, Thanjavur, India.

2. **Online learning via optimally compressed Non-Parametric Learning Framework**

   Hrusikesha Pradhan & Ketan Rajawat from IIT Kanpur.

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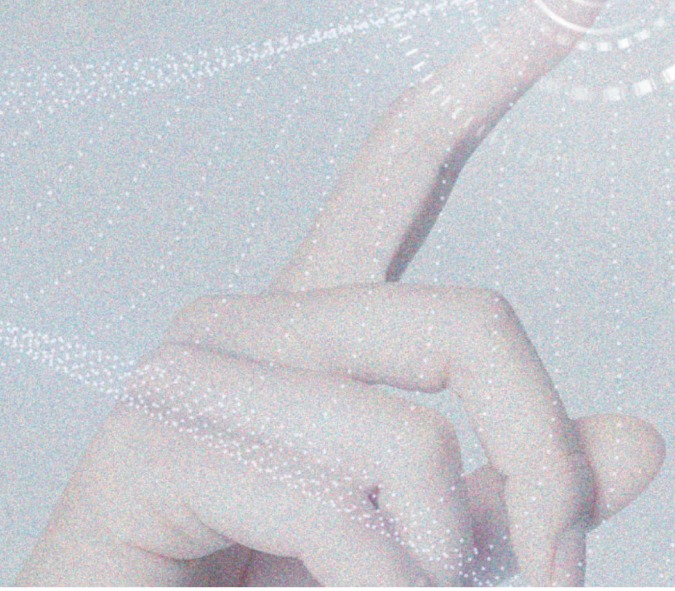

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