

2021 International Conference on Smart Applications, Communications and Networking (SmartNets 2021)

**Glasgow, United Kingdom
22-24 September 2021**



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**Technical Program of the International Conference
on Smart Applications, Communications and Networking
(SmartNets-2021)
September 22-23, 2021 – Glasgow, UK**

Day 1 – Wednesday September 22, 2021	
Time	Event
9:00 am – 09:30 am	<p style="text-align: center;">Welcome & Opening Ceremony Dr. James Irvine & Prof. Nidal Nasser (General Chairs) Dr. Tony Gachagan, Head of Department Electronic and Electrical Engineering University of Strathclyde (Guest of Honour) Dr. Tarek Bejaoui & Dr. Kinan Ghanem (Technical Program Chairs)</p>
09:30 am – 10:30 am	<p>Keynote Speaker: Mr. Raj Sivalingam (DCMS, UK)</p> <p>Title: Achieving Spectrum Abundance for a Connected World - Realistic or pipe dream?</p> <p>Session Chair: Dr. Kinan Ghanem (Strathclyde University, UK)</p>
10:30 am – 10:45 am	Coffee Break
10:45 am – 12:00 pm	<p>Session A1: Next Generation Networks and Communications</p> <p>Session Chair: Dr. Bokamoso Basutli, Botswana International University of Science and Technology (BIUST)</p> <ol style="list-style-type: none"> 1. 1570720454 - Reflective In-Band Full Duplex NOMA Communications for Secure 5G Networks 1 Rabia Khan and Rameez Asif (University of Strathclyde, United Kingdom (Great Britain)) 2. 1570731408 - Performance Characterization of Communication Protocols in Microservice Applications 7 Prajwal Kiran Kumar, Radhika Agarwal and Rahul Shivaprasad (PES University, India); Dinkar Sitaram (PESIT, India); Subramaniam Kalambur (PES University, India) 3. 1570738399 - Privacy-Aware Robust Proactive Content Caching Using Edge Service Providers 12 Rishi Kashyap, Manasa V Bhat, Deepa Umashankar and Vamsi Krishna Tumuluru (PES University, India) 4. 1570720757 - A Mixed Spectrum Sharing Strategy for Cognitive Radio Systems 18 Raouia Masmoudi Ghodhbane (Safran Tech, Safran Sensing Systems, France) 5. 1570738400 - Decentralized Computation Offloading in Mobile Edge Computing Systems 24 Rohan Sharma, Kushaal Gummaraju, Pranav Anantharam, Ojaswi Saraf and Vamsi Krishna Tumuluru (PES University, India)
12:00 pm – 2:00 pm	Lunch

2:00 pm – 3:15 pm	<p>Session B1: Cybersecurity and Privacy</p> <p><i>Session Chair: Dr. Ross McPherson (Strathclyde University, UK)</i></p> <ol style="list-style-type: none"> 1570732019 - Industrial and Consumer Internet of Things: Cyber Security Considerations, Threat Landscape, and Countermeasure Opportunities 30 Stephen O Ugwuanyi and James Irvine (University of Strathclyde, United Kingdom (Great Britain)) 1570727364 - Detecting Application-Level Associations Between IoT Devices Using A Modified Apriori Algorithm 38 Juan Benedicto L. Acheron and Marc Elizette Teves (University of the Philippines Diliman, Philippines); Wilson Tan (University of the Philippines, Philippines) 1570731805- Cost Effective and Accurate Vehicle Make/Model Recognition Method Using YoloV5 46 Di Wang (Khalifa University, United Arab Emirates); Ahmad Al-Rubaie (EBTIC-Khalifa University & BT Plc, United Arab Emirates); Yaqoub Ismail Alsarkal (Abu Dhabi Police, United Arab Emirates); Sandra Stincic Clarke (BlackRock & British Telecom, United Kingdom (Great Britain)); John Davies (BT, United Kingdom (Great Britain)) 1570723620 - Bandwidth Efficient Secure Authentication and Encryption Techniques on IEC-60870-5-104 for Remote Outstations 50 Kinan Ghanem (University of Strathclyde & Power Networks Demonstration Centre, United Kingdom (Great Britain)); Stephen O Ugwuanyi, Jidapa Hansawangkit, Ross McPherson, Rameez Asif and James Irvine (University of Strathclyde, United Kingdom (Great Britain))
3:15 pm – 3:30 pm	Coffee Break
3:30 pm – 4:45 pm	<p>Session B2: Industry 4.0 and Connected Factory</p> <p><i>Session Chair: Dr. Rabia Khan (Strathclyde University, UK)</i></p> <ol style="list-style-type: none"> 1570720395- Smart & Automated Production Based on MQTT 56 Christian Überall, Marcel Bartholet and Roman Khudaybergenov (University of Applied Sciences Mittelhessen, Germany) 1570731878- Fault Prediction in HVAC Chillers by Analysis of Internal System Dynamics 62 Kumar Padmanabh (EBTIC, United Arab Emirates); Ahmad Al-Rubaie (EBTIC-Khalifa University & BT Plc, United Arab Emirates); John Davies (BT, United Kingdom (Great Britain)); Alia Aljasmī (Etisalat, United Arab Emirates) 1570731978- Precise Fruits: Hardware Supported Time-Synchronisation on the RaspberryPI 68 Marian Ulbricht (TU Dresden & InnoRoute GmbH München, Germany); Javier Acevedo (Technical Univierstiy of Dresden, Germany); Surik Krdoyan (TU Munich, Germany); Frank H.P. Fitzek (Technische Universität Dresden & ComNets - Communication Networks Group, Germany)

4. 1570731939- Deployment of 5G Experiments on Underserved Areas Using the Open5GENESIS Suite 74

Alejandro Fornés-Leal (Universitat Politècnica de València, Spain); Regel Usach (Universitat Politecnica de Valencia, Spain); Dimitris Lioprasitis (Space Hellas S.A., Greece); Andreas Perentos (Avanti HYLAS 2 Cyprus LTD, Cyprus); Michael Georgiades (Primetel & PLC, Cyprus); Georgios Gardikis (Space Hellas S.A., Greece); Carlos E Palau (Universitat Politecnica Valencia, Spain); Athanasios Priovolos (Space Hellas S.A., Greece); Spiros Pantazis and Socrates Costicoglou (Space Hellas SA, Greece); Eleeria Hadjioannou (Avanti Hylas 2 Cyprus Ltd, Cyprus); Alexander Phinikarides (Primetel PLC, Cyprus); Manuel Esteve (Universitat Politècnica de València, Spain)

5. 1570727434- AMQP and Beyond 78

Ambar Prajapati (International Paper & University of Memphis, USA)

Day 2 – Thursday September 23, 2021	
Time	Event
9:30 am–12:30 am	PNDC-SGC Workshop
9:30 am – 9:50 am	Welcome & Opening Ceremony James Irvine / Steven Whyte / Kinan Ghanem (Workshop General Chairs)
09:50 am – 10:10 am	Speaker: Nigel Nawacki, Nokia <i>Title:</i> Smart Grid Communications –Smart Energy Grid – Building Secure Ultra Low Latency Networking and the implicit need for Energy System Informatics
10:10 am –10:30am	Speaker: Richard Wiles, Trilliant <i>Title:</i> Connecting the World of Things® For a True Smart Grid
10:30 am – 10:50 am	Speaker: Julian Stafford, EUTC <i>Title:</i> Energy Digitalisation: Consultations and Strategies (EU & UK)
11:00 am– 11:15am	Coffee Break
11:10 am – 11:30 am	Speaker: Howard Downey, Scottish Power Energy Networks (SPEN) <i>Title:</i> Security and Resilience for Distributed Restart
11:30 am– 11:50 am	Speaker: Greig Paul, Strathclyde University <i>Title:</i> Building utilities comm. networks for security and resilience in a digital, 5G world
11:50 am –12:30 pm	Panel Discussion on communication challenges for smart grid
12:30 pm	Closing of PNDC Workshop
12:15 am – 2:00 pm	Lunch
2:00 am – 3:00 pm	Keynote Speaker: Prof. Neeli Prasad (VehicleAvatar Inc., USA) <i>Title:</i> <i>Smart Farming: Advancing Sustainability & Efficiency</i> <i>Session Chair:</i> Dr. Greig Paul (Strathclyde University, UK)
3:00 pm – 3:15 pm	Coffee Break
3:15 pm – 4:15 pm	Session C1: Next Generation Networks & Industrial Applications <i>Session Chair:</i> Dr. Mohsen Hosamo, Visolit, Oslo, Norway <ol style="list-style-type: none"> 1570739339- Node Clustering in Binary Asymmetric Stochastic Block Model With Noisy Label Attributes via SDP 84 Aydin Jadidi (Federal University of Bahia, Brazil); Mostafa Rahimi Dizadji (University of Texas at Arlington, USA) 1570720435- Cushioning the Impact of Covid-19 on the Psyche of Individuals by Using Internet of Things 90 Syed Rameem Zahra (NIT Srinagar, India); Mohammad Ahsan Chishti (Central University of Kashmir, India); Asif Baba (Tuskegee University USA); Fan Wu (Tuskegee University, USA) 1570736314- Campus Microgrid-Design and Secure Operation to Prevent Overvoltage 94 Safaa S. Qasim Al-Maliki (University of New Haven, USA & Northern Technical University- Iraq), Junhui Zhao (University of New Haven, USA), Zaid H Ali (Northern Technical University, Iraq)

	<p>4. 1570726075- Using Deep Learning for COVID-19 Control: Implementing a Convolutional Neural Network in a Facemask Detection Application 99 Caolan Deery and Kevin Meehan (Letterkenny Institute of Technology, Ireland)</p> <p>5. 1570735266- Challenges and Approaches to Time-Series Forecasting for Traffic Prediction at Data Center 105 Shruti Jadon (USA)</p>
4:30 pm – 4:45 pm	Coffee Break
4:45 pm – 5:45 pm	<p>Session C2: Smart Cities Applications and IoE</p> <p><i>Session Chair: Dr Tania Wallis (Glasgow university, UK)</i></p> <p>1. 1570720911- On Finger Stretching and Bending Dynamics as a Biometric Modality 113 Sraddhanjali Acharya and Abdul Serwadda (Texas Tech University, USA)</p> <p>2. 1570729074- D2D Communication: COVID-19 Contact Tracing Application Using Wi-Fi Direct 121 Hamid Mcheick (University of Quebec at Chicoutimi, Canada); Houssam Hajj Hassan and Hanane Kteich (Student, Lebanese University, Lebanon)</p> <p>3. 1570731329- Data-Driven Anomaly Detection Based on MultiSensor Data Fusion 127 Di Wang (Khalifa University, United Arab Emirates); Ahmad Al-Rubaie (EBTIC-Khalifa University & BT Plc, United Arab Emirates); Sandra Stincic Clarke (BlackRock & British Telecom, United Kingdom (Great Britain)); John Davies (BT, United Kingdom (Great Britain)); Alia Aljasmi (Etisalat, United Arab Emirates)</p> <p>4. 1570741998- Position Discrimination of a 2.4 GHz IEEE 802.15.4 RF Mobile Source Inside-Outside a Vehicle 135 Vlad Alexandru Marsic (University of Warwick, United Kingdom (Great Britain)); Erik Kampert (WMG, University of Warwick, United Kingdom (Great Britain)); Matthew D Higgins (University of Warwick, United Kingdom (Great Britain))</p> <p>5. 570740098 - A Hybridized Approach for Testing Neural Network Based Intrusion Detection Systems 141 Faqeer ur Rehman and Clemente Izurieta (Montana State University, USA)</p>
5:45 pm	Closing Ceremony