
Workshops

Sunday 24 Sept. 2017 9:00 – 17:30 York

W1: IEEE Workshop on Next Generation Backhaul/Fronthaul Networks (IEEE BackNets 2017)

Heterogeneous small-cell networks (HetNets) are considered as one of the key architectural enablers to the challenging demands such as high spectral and energy efficiency of 5G mobile networks. Although the small-cell concept has been articulated and studied for many years within the 4G LTE framework, the concept has never found widespread application mainly due to the cost of deployment. In the conventional wireless networks, the cost of the macro-BS has been a dominant factor. The cost of a small-cell BS, on the other hand, is much lower in comparison to that of a macro-BS; but efficient and satisfactory operation of all these densely deployed small cells hinges on a smart, economical and ubiquitous backhaul/fronthaul networks provisioning ultra-low latency (time to reaction over wireless links), high data rate and high reliability. Such backhaul and fronthaul networks will guarantee the global information and communication requirements in future smart and resilient cities and solve the ubiquitous connectivity. Hence, there are considerable market interests on the development of innovative and smart wireless backhaul/fronthaul solutions for ultra-dense small cells deployed in HetNets.

The workshop will provide an opportunity for exchanging ideas and creating new space for innovative game-changing backhaul/fronthaul solutions to the challenging problems of designing smart backhauling/fronthauling for ultra-dense small cell deployment in HetNet. Proceedings of BackNets 2017 will be a collection of outstanding technical research/position and industrial papers covering novel backhaul/fronthaul solutions and recent research results with wide range of technologies within the 5G frameworks. The workshop keynote speakers and panelists will examine the technical challenges, review the economic feasibility, and discuss possible paths to research and regulatory solutions for future generation of backhaul/fronthaul communications and networking.

Workshop Chairs

Muhammad Zeeshan Shakir, University of the West of Scotland

Muhammad Ali Imran, University of Glasgow

David J. Love, Purdue University

Syed Ali Raza Zaidi, University of Leeds

Technical Programme Committee:

Bessie Malila, University of Cape Town

Anvar Tukmanov, BT

Bhavani Shankar, Mysore R, University of Luxembourg

Hina Tabassum, University of Manitoba

Mihailovic Andrej, Kings College London

Omid Semiari, Virginia Tech

Josep Mangués-Bafalluy, Centre Tecnològic de

Telecomunicacions de Catalunya (CTTC)

Program

Sunday 24 September 2017 9:00 – 10:30 York

Keynote Session 1

Chair: Halim Yanikomeroglu, Carleton University, Canada

1 Ultra-Agile Infrastructure for Ultra-Fast Connectivity

Halim Yanikomeroglu, Carleton University, Canada

2 Towards 5G Mobile Transport Platforms for Industry Verticals

Xavier Costa-Pérez, NEC Laboratories Europe, Germany

3 The Internet of Everything: When Drones meet 5G in Context-Aware Smart Cities

Walid Saad, Virginia Tech, USA

Sunday 24 September 2017 11:00 – 12:30 York

Keynote Session 2

Chair: Hayssam Dahrouj, Effat University, Saudi Arabia

5 Next Generation Fronthaul Interface towards 5G mobile networks: IEEE P1914.1 Standard for Packet-based Fronthaul Transport Networks

Aleksandra Checko, MTI Radiocomp, Denmark and IEEE 1914.1 Project

6 On the Design of Hybrid Radio/Free-Space Optical Backhauls for Next Generation Wireless Systems

Hayssam Dahrouj, Effat University, Saudi Arabia

Sunday 24 September 2017 14:00 – 15:30 York

Paper Session 1

Chair: Hayssam Dahrouj, Effat University, Saudi Arabia

4 Case Study on Using the User-Centric-Backhaul Scheme to Unlock the Realistic Backhaul

Mona Jaber, University of Surrey; Muhammad Ali Imran, University of Glasgow; Anvar Tukmanov, BT Research and Innovation; Andy Sutton, University of Salford; Rahim Tafazolli, University of Surrey

2 An Energy Efficient Integral Routing Algorithm for Software-defined Networks

Ghadeer, Mohamad Khattar Awad, Kuwait University

3 Auction Based Spectrum Efficient Offloading Mechanism in HetNets

Lu Wang, Pu Cheng, Sihai Zhang, Zhou Wuyang, University of Science and Technology of China

4 Transmission Rate Maximization in Self-Backhauled Wireless Small Cell Networks

Maryam Lashgari, University of Tehran; Behrouz Maham, Nazarbayev University; Walid Saad, Virginia Tech

5 Energy-Aware Sensor Networks via Sensor Selection and Power Allocation

Lama Niyazi, Effat University; Anas Chaaban, King Abdullah University of Science and Technology; Hayssam Dahrouj, Effat University; Tareq Y. Al-Naffouri, King Abdullah University of Science and Technology; Mohamed-Slim Alouini, King Abdulah University of Science and Technology (KAUST)

6 3D Transition Matrix Solution for a Path Dependency Problem of Markov Chains-Based Prediction in Cellular Networks

Metin Ozturk, Paulo Valente Klaine, Muhammad Ali Imran, University of Glasgow

Sunday 24 September 2017 16:00 – 16:30 York Room

Paper Session 2

Chair: Hayssam Dahrouj, Effat University, Saudi Arabia

1 Improvement on the Performance of Predictive Handover Management by Setting a Threshold

Metin Ozturk, Paulo Valente Klaine, Muhammad Ali Imran, University of Glasgow

2 Transport Network Design for FrontHaul

Philippe Sehier, Anne Bouillard, Fabien Matthieu, Thomas Deiss, Nokia

Sunday 24 September 2017 16:30 – 17:30 York

Panel

Fronthaul and Backhaul for 5G and Beyond

Moderator: Frank Rayal, Xona Partners, Canada

Panelists: Hesham ElBakoury, Huawei
Aleksandra Checko, MTI Group
Mohammad Akhter, IDT
Glenn Parsons, Ericsson
Yves Lostanlen, Siradel
Scott Wakelin, Microsemi