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Program Guide

Disaster Management: An Information & Communications Technology Approach with 5G-and-Beyond Communications & Networks

Istanbul, Turkey
18-21 September 2017

Organisers



Sponsors



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About Workshop

Disaster Management: An Information & Communications Technology Approach with 5G-and-Beyond Communications & Networks

Queen's University Belfast, UK
in partnership with
Koç University, Turkey

**Supported by the 'Newton Fund Researcher Links' Programme
18-21 September, 2017**

Early Career Researcher (ECR) opportunity fully funded by the Newton scheme

UK Coordinator: [Dr. Trung Q. Duong](#), Queen's University Belfast, Belfast, UK

Partner Country Coordinator: [Prof. Özgür B. Akan](#), Koç University, Istanbul, Turkey

Discipline: Wireless Communications, Networkings, Signal Processing

Dates and Venue: 18-21 September 2017 at Istanbul, Turkey

Workshop Location: [Hilton Istanbul Bosphorus](#)

About Workshop (cont.)

Workshop Aims: This workshop aims to support international development-relevant research with a focus on ICTs that improve the capacity of mitigation, preparedness, response, and recovery from disasters, or effective and robust communications during/after a disaster. This will contribute enormously to protecting the vulnerable population. On the other hand, the workshop will help both countries enhance the international development in ICTs. The workshop will also foster recent advances on 5G wireless communications and networking.

To achieve this, we are recruiting participants whose research is relevant to our workshop themes. This workshop is targeted at capacity building for early career researchers (ECRs) from UK and Turkey. This is attainable through a series of talks on advanced skills (to enhance research- and innovation-related skills of ECRs), and through our mentoring programme, where ECRs can interact with and get advice from a mentor. We accommodate a day to these activities. Last but not least, we aim at facilitating participants' interaction and exploration of new research links or significantly develop existing links, with the potential for longer-term sustainability. To this end, the workshop will allow interaction between researchers and facilitate both formal and informal networking. These networking sessions coupled with capacity building activities will further support in realising the potential of individuals and to provide the ECRs with new career perspectives within higher education in UK/Turkey and internationally, or industry sector.

Local Information

The workshop will be organised in **Mercury** meeting room at [Hilton Istanbul Bosphorus](#)



The Hilton Istanbul Bosphorus, being the first international 5 star hotel in the Turkey and the longest serving Hilton hotel outside the Americas, provides high quality service standards to all its guests. Hilton Istanbul Bosphorus continues to host its guests with its 500 rooms offering private balconies with breathtaking views of the Bosphorus or the gardens and the city. Awarded as 'The Best Meeting Hotel in Marmara Region' by the prestigious Ace of M.I.C.E 2013 organisation, offers the ideal venue alternatives including onsite Hilton Convention & Exhibition Center up to 3,000 guests and open air venues. You can experience Hilton quality with 27 purpose-based meeting rooms most of them offering daylight and a 24 hrs open Business Center.

Local Information (cont.)

All the guest will stay in the hotel, except the ones who are now living in Istanbul



Istanbul is one of the most visited places in the world, a central hub connecting East and West, blending the past and the future, bringing together cultures and people from all over the world. As it has been in many other civilizations in the past, Istanbul is today Turkey's cultural and economic capital. Attracting millions of visitors each year Istanbul has also become an attractive destination for international meetings with its world class accommodation and convention facilities. As 'World's Number 1 Congress Destination' for 500 and more participants in 2011 & 2012 Istanbul is an ideal city to hold congresses.

Program at a Glance

| Time | Sessions |
|------|----------|
|------|----------|

Tuesday, September 19

| | |
|-----------|---|
| Morning | <p>Opening</p> <p>Keynote: Mohammad Imran, University of Glasgow</p> <p>Session 1a: Funding Opportunity UK-Turkey: Newton and GCRF</p> <p>Session 1b: Capacity building – A shared experience</p> <p>Session 1c: Capacity building – How to become successful ECR</p> |
| Afternoon | <p>Session 2: Disaster communications 1 (5 papers)</p> <p>Session 3: Disaster communications 2 (4 papers)</p> |

Wednesday, September 20

| | |
|-----------|---|
| Morning | <p>Session 4a: An example of successful UK-Turkey collaboration - NCRP</p> <p>Session 4b 5G technology and beyond 1 (3 papers)</p> <p>Session 5a: Capacity building – How to become successful ECR</p> <p>Session 5b: 5G technology and beyond 2 (5 papers)</p> |
| Afternoon | <p>Session 6: Signal Processing (5 papers)</p> <p>Session 7a: How to write a successful research proposal</p> <p>Session 7b: How to successfully manage a collaborative project</p> |

Thursday, September 21

| | |
|-----------|---|
| Morning | <p>Session 8a: How to write a Newton Institutional Link research proposal</p> <p>Session 8b: Communications networks and management 1 (3 papers)</p> <p>Session 9: Communications networks and management 2 (5papers)</p> |
| Afternoon | <p>Session 10: Communications networks and management 1 (3 papers)</p> <p>Session 11: Communications networks and management 2 (5 papers)</p> |

Keynote Speaker

Professor Muhammad Ali Imran

University of Glasgow, UK



✦ Biography

Professor Muhammad Ali Imran (M'03, SM'12) received his M.Sc. (Distinction) and Ph.D. degrees from Imperial College London, UK, in 2002 and 2007, respectively. He is a Professor in Communication Systems in University of Glasgow, Vice Dean of Glasgow College UESTC and Program Director of Electrical and Electronics with Communications. He is an Affiliate Professor at the University of Oklahoma, USA and a visiting Professor at 5G Innovation centre, University of Surrey, UK, where he has worked previously from June 2007 to Aug 2016.

He has led a number of multimillion-funded international research projects encompassing the areas of energy efficiency, fundamental performance limits, sensor networks and self-organising cellular networks. In addition to significant funding from EPSRC, RCUK, Qatar NRF, EU FP7/H2020, he has received direct industrial funding from leading industries in Communications: Huawei, Sony, IBM, DSTL, British Telecom, He also lead the new physical layer work area for 5G innovation centre at Surrey. He has a global collaborative research network spanning both academia and key industrial players in the field of wireless communications. He has supervised 25+ successful PhD graduates and published over 300 peer-reviewed research papers. He secured first rank in his B.Sc. and a distinction in his M.Sc. degree along with an award of excellence in recognition of his academic achievements conferred by the President of Pakistan. He has been awarded IEEE Comsoc's Fred Ellersick award 2014, Sentinel of Science Award 2016, FEPS Learning and Teaching award 2014 and twice nominated for Tony Jean's Inspirational Teaching award. He is a shortlisted finalist for The Wharton-QS Stars Awards 2014, Reimagine Education Awards 2016 for innovative teaching and VC's learning and teaching award in University of Surrey. He is a senior member of IEEE and a Senior Fellow of Higher Education Academy (SFHEA), UK.

He has given an invited TEDx talk (2015) and more than 10 plenary talks, several tutorials and seminars in international conferences and other institutions. He has taught on international short courses in USA and China. He is the co-founder of IEEE Workshop BackNets 2015 and chaired several tracks/workshops of international conferences. He is an associate Editor for IEEE Communications Letters, IEEE Open Access and IET Communications Journals.

Conference Schedule Details

Day 1 (19/9)

MORNING (9-10.30)

Opening (45 minutes)

British Council representative

UK Coordinator: Dr. Trung Q. Duong, Queen's University Belfast, Belfast, UK

Partner Country Coordinator: Prof. Özgür B. Akan, Koç University, Istanbul, Turkey

Session 1a: Funding Opportunity UK-Turkey: Newton and GCRF (25 minutes)

Speaker: Dr. Trung Q. Duong, Queen's University Belfast UK

Session 1b: A Shared Experience (20 minutes)

Speaker: Associate Prof. Sinem Coleri Ergen, Koc University

Coffee Break (10.30 -11)

11 – 12.30

Keynote: Mohammad Imran, University of Glasgow (60 minutes)

Chair: Prof. Özgür B. Akan, Koç University, Istanbul, Turkey

Conference Schedule Details (cont.)

Day 1 (19/9)

AFTERNOON (2-3.30)

Session 2: Disaster communications 1 (Each paper has 18 minutes)

Chair: Assoc. Prof. Sinem Coleri Ergen, Koc University, Turkey

1. Next Generation Wireless Communication Technologies and Mobile Applications for Disaster Management (V. Çağrı Güngör, Abdullah Gul University)
2. Towards the Practical Design of Performance-Aware Resilient Wireless Network-on-Chip for Architectures for Disaster Management (Michael Opoku Agyeman, University of Northampton)
3. Efficient Disaster Communications Network Using D2D Communications Approach (Purav Shah, Middlesex University)
4. Wireless propagation channels in extreme scenarios (Serhan Yarkan, İstanbul Commerce University)
5. RESCUE: Passive Wireless Sensor Network Architecture for Earthquake Rescue Operations (Ozgur Ergul, Cankaya University)

Coffee Break (3.30 -4)

Conference Schedule Details (cont.)

Day 1 (19/9)

AFTERNOON (4.30 – 5)

Session 3: Disaster communications 2 (Each paper has 20 minutes)

Chair: Dr Syed Ali Raza Zaidi, University Academic Fellow, University of Leeds

1. Optical wireless communications in disaster management (Hoa Le Minh, Northumbria University)
2. FD-MIMO based THz Band 5G Indoor Internet of Things Networks for Disaster Management Centers (Naveed Ahmed Abbasi, Koç University)
3. Wireless Propagation Channels and Connectivity in the Case of Disaster Area Communication (Ali Riza Ekti, Balikesir University)
4. 5G meets Robotics and Autonomous System: Solutions for Disaster Recovery Networks (Syed Ali Raza Zaidi, University of Leeds)

Dinner (6.30 -8)

Conference Schedule Details (cont.)

Day 2 (20/9)

MORNING (9-10.30)

Session 1b: An example of successful UK-Turkey collaboration – NCRP (30 minutes)

Speaker: Associate Professor Berk Canberk, Istanbul Technical University (ITU), Turkey

Session 4: 5G technology and beyond 1 (Each paper has 20 minutes)

Chair

1. Vehicular Wireless Communication in 5G and Beyond (Sinem Coleri Ergen, Koç University)
2. Resilient End-to-end Connectivity for Software Defined Unmanned Aerial Vehicular Networks (Gökhan Seçinti, Istanbul Technical University)
3. Non-Orthogonal Multiple Access for 5G (Yuanwei Liu, Queen Mary University of London)

Coffee Break (10.30 -11)

Conference Schedule Details (cont.)

Day 2 (20/9)

MORNING (11 – 12.30)

Session 5a: Capacity building – How to become successful ECR

1. Speaker 1: Dr. Yuanwei Liu, Lecturer at Queen Mary University of London (20 minutes)

Session 5b: 5G technology and beyond 2 (Each paper has 18 minutes)

1. Reliable Communication in Industrial Wireless Sensor Networks: Research Challenges and Future Directives (Nauman Aslam, Northumbria University)
2. Adaptive Virtual Antenna Arrays within Wireless Networks-on-Chip doubles transmission rates within a chipset (Triantafyllos Kanakis, University of Northampton)
3. Body Area Network Technology for Workplace Safety Applications (Muzaffer Kanaan, Erciyes University)
4. Physical-layer wireless security from a microwave engineering perspective (Yuan Ding, Queen's University Belfast)

Lunch (12.30 -2)

Conference Schedule Details (cont.)

Day 2 (20/9)

AFTERNOON (2 – 3.30)

Session 6: Signal Processing (each paper has 18 minutes)

Chair:

1. Index Modulation Techniques for the New Radio (Ertugrul Basar, Istanbul Technical University)
2. CNNs are a breakthrough in image-based root phenotyping (Tuan T. Nguyen, University of Buckingham)
3. Short Block Length Code Design for Interference Channels (Ahmet Korhan Tanc, Biruni University)
4. Low-Complexity Detection of Faster-than-Nyquist (FTN) Signaling (Ebrahim Bedeer Mohamed, Ulster University)
5. Physical Layer Security Key Generation (Junqing Zhang, Queen's University Belfast)

Coffee Break (3.30 -4)

Conference Schedule Details (cont.)

Day 2 (20/9)

AFTERNOON (4 – 5.30)

Session 7a: How to write a successful research proposal (60 minutes)

Speaker: Prof. Özgür B. Akan, Koç University, Istanbul, Turkey

Session 7b: How to successfully manage a collaborative project (30 minutes)

Speaker: Associate Professor, V. Çağrı GÜNGÖR- Abdullah Gül University

Speaker: Dr. Trung Q. Duong, Queen's University Belfast

Dinner (6.30 -8)

Conference Schedule Details (cont.)

Day 3 (21/9)

MORNING (9 – 10.30)

Session 8a: How to write a successful Newton Institutional Link research proposal (35 minutes)

Speaker: Dr. Trung Q. Duong, Queen's University Belfast, UK

Session 8b: Communications networks and management 1 (Each paper has 18 minutes)

Chair:

1. Network Lifetime Maximization in Battery-Constrained Wireless Sensor Networks (Halil Yetgin, Bitlis Eren University)
2. Opportunistic Secure Cooperative Transmission for Regenerative Relay Networks with Network Coding (Quoc-Tuan Vien, Middlesex University)
3. CAP: A ContAct based Proximity Service via Opportunistic Device-to-Device Relay (Yue Cao, Northumbria University)

Coffee Break (10.30 -11)

Conference Schedule Details (cont.)

Day 3 (21/9)

MORNING (11 – 12.30)

Session 9: Communications networks and management 2

Chair:

1. Half-Duplex and Full-Duplex AF and DF Relaying with Energy-Harvesting in Log-Normal Fading (Khaled M Rabie, Manchester Metropolitan University)
2. Performance of Spatial Modulation Schemes Using Transmit Antenna Selection with Imperfect Feedback (Oğuz Kucur, Gebze Technical University)
3. Secrecy Outage of Proactive Relay Selection by Eavesdropper (Chinmoy Kundu, Queen's University Belfast)
4. IEEE 802 and some opportunities for researchers (Tunçer Baykaş, İstanbul Medipol University)
5. Community engaged innovative research computing platform for information Management (Md Mamunur Rashid, University of Oxford)

Lunch (12.30 -3)

Conference Schedule Details (cont.)

Day 3 (21/9)

AFTERNOON (2 – 5.30)

**Session 10: Group Discussion and Closing
AoB**

Dinner (6.30 -8)

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Notes

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