CROWNCOM 2018 – FULL PROGRAMME

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CROWNCOM

13th EAI International Conference on Cognitive Radio Oriented Wireless Networks

September 18-20, 2018 | Ghent, Belgium

From	To	Tuesday (18/09)		Wednesday (19/09)		Thursday (20/09)	
08:00	09:00	Registration					
09:00	10:30	Welcome		**Keynote 3** Danijela Cabric (UCLA)		**Tutorial 1** (Part 1) *Unlicensed Spectrum Technologies: From Wi-Fi to 5G and beyond* (Giovanni Geraci - Nokia Bell Labs)	**Tutorial 2** (Part 1) *NOMA for Next Generation Wireless Networks: State of the Art, Research Challenges and Future Trends* (Zhiguo Ding, University of Manchester)
		Keynote 1 Jens Zander (KTH)					
		Keynote 2 Haris Gacanin (Nokia Bell Labs)		**Keynote 4** Domenico Giustiniano (IMDEA)			
10:30	11:00	Morning break					
11:00	12:30	Session 1: Experimental	**Workshop 1** (Part 1) Orchestration and reconfiguration of networked software defined radios	Session 3: PHY and Sensing	**Workshop 2** (Part 1) Open radio platforms for 5G research and beyond	**Tutorial 1** (Part 2)	**Tutorial 2** (Part 2)
12:30	13:30	Lunch					
13:30	15:00	Session 2: Licensed Shared Access and Dynamic Spectrum Access -1	**Workshop 1** (Part 2)	Session 4: Licensed Shared Access and Dynamic Spectrum Access -2	**Workshop 2** (Part 2)	**Tutorial 3** (Part 1) *Wireless Link Virtualisation and Network Function Virtualisation in Cognitive Radio Networks: theories, use-cases and hands-on experiments* (Yi Zhang & Jonathan van de Belt, TCD)	**Tutorial 4** (Part 1) *Transceiver Design for Spectrum Sharing Full Duplex Radio* (Tharmalingam Ratnarajah, Sudip Biswas, Ali Cagatay Cirik, Keshav Singh, University of Edinburgh)
15:00	15:30	Afternoon break					
15:30	17:00	**Panel 1** 5G and beyond		**Panel 2** The struggle for spectrum		**Tutorial 3** (Part 2)	**Tutorial 4** (Part 2)
17:00	17:15			Closing & awards			
19:00	…	Conference dinner					

Technical papers

Session – 1, Experimental, 18 Sep 2018, 11:00 – 12:30, Room name 'August Vermeylen', (20 mins/presentation)

Chair - Spilios Giannoulis, IDLab, imec - Ghent University, Belgium

1. **Experimental analysis of 5 GHz WiFi and UHF-TVWS hybrid Wireless Mesh Network back-haul links**
   Richard Maliwatu, Natasha Zlobinsky, Magdeline Lamola, Augustine Takyi, David Johnson, and Melissa Densmore (University of Cape Town, South Africa)
2. **High-level and Compact Design of Cross-channel LTE DownLink Channel Encoder**
   Jieming Xu and Miriam Leeser (Northeastern University, Boston MA 02115, USA)
3. **Detection of Different Wireless Protocols on an FPGA with the Same Analog/RF Front End**
   Suranga Handagala, Mohamed Mohamed, Jieming Xu, Marvin Onabajo, and Miriam Leeser (Northeastern University, Boston, USA)
4. **Demonstration of Shared Spectrum Access of Different User Groups**
   Topi Tuukkanen, Heikki Kokkinen, Seppo Yrjölä, Jaakko Ojaniemi, Arto Kivinen, and Tero Jokela (Finnish Defence Research Agency, Fairspectrum Oy, Nokia, Turku University of Applied Sciences, Finland)

Session – 2, Licensed Shared Access and Dynamic Spectrum Access 1, 18 Sep 2018, 13:30 – 15:00, Room name 'August Vermeylen', (20 mins/presentation)

Chair - Marquez-Barja Johann – IDLab, imec - University of Antwerp, Belgium

1. **Comparison of incumbent user privacy preserving technologies in database driven dynamic spectrum access systems**
   He Li, Yaling Yang, Yanzhi Dou, Chang Lu, and Doug Zabransky (Virginia Polytechnic Institute and State University, USA)
2. **Spectrum Leasing for Micro-Operators Using Blockchain Networks**
   Junho Kim and Seong-Lyun Kim (Yonsei University, South Korea)
3. **SZ-SAS: A Framework for Preserving Incumbent User Privacy in SAS-based DSA Systems**
   Douglas Zabransky, He Li, Chang Lu, and Yaling Yang (Virginia Polytechnic Institute and State University, USA)
4. **Secrecy Outage Probability of Cognitive Small-Cell Network with Unreliable Backhaul Connections**
   Jinghua Zhang, Chinmoy Kundu, and Emi Garcia-Palacios (Queen's University Belfast, United Kingdom)
5. **Polarization-Space Based Interference Alignment for Cognitive Heterogeneous Cellular Network**
   Xiaofang Gao, Caili Guo, and Shuo Chen (Beijing University of Posts and Telecommunications, China)

Session – 3, PHY and sensing, 19 Sep 2018, 11:00 – 12:30 - Room name 'August Vermeylen', (20 mins/presentation)

Chair - Adnan Shahid, IDLab, imec - Ghent University, Belgium

1. **Evaluating Deep Neural Networks to classify Modulated and Coded Radio Signals**
   Phui San Cheong, Miguel Camelo, and Steven Latr´e (University of Antwerp, Antwerp, Belgium)
2. **Improving Spectrum Efficiency in Heterogeneous Networks using Granular Identification**
   Rohit Singh and Douglas Sicker (Carnegie Mellon University, USA)
3. **Interference Rejection Combining for Black-space Cognitive Radio Communications**
   Sudharsan Srinivasan, Markku Renfors (Tampere University of Technology, Tampere, Finland)
4. **An Image Processing Approach to Wideband Spectrum Sensing of Heterogeneous Signals**
   Ha Q. Nguyen, Ha P. K. Nguyen, and Binh T. Nguyen (Viettel Research & Development Institute Hoa Lac High-tech Park, Hanoi, Vietnam)
5. **Cognitive Radio: Spectrum Sensing with Energy Operators in the Aeronautical L-band**
   Abdelkhalek BOUCHIKHI, Sébastien SALETZKI (Talaron Services, ALTRAN, SATCOM Design Office, France)

Session – 4, Licensed Shared Access and Dynamic Spectrum Access 2, 19 Sep 2018, 13:30 – 15:00 – Room name 'August Vermeylen', (20 mins/presentation)

Chair - Ingrid Moerman, IDLab, imec - Ghent University, Belgium

1. **The vision of 5G and the need for change in mobile spectrum access**
   Peter Anker (Technical University, Delft, the Netherlands)
2. **Coexistence of LTE Networks Under LSA Paradigm in 2.6 GHz**
   Jaakko Ojaniemi, Heikki Kokkinen, Arto Kivinen, Georgios Agapiou, Stamatis Perdikouris, August Hoxha, and Adrian Kliks (Fairspectrum, Finland, Aalto University, Finland, Hellenic Telecommunications Organization S.A. (OTE S.A.), Greece, Poznan University of Technology, Poland**)**
3. **Pricing Private LTE and 5G Radio Licenses on 3.5 GHz**
   Heikki Kokkinen, Seppo Yrjölä, Jan Engelberg, and Topias Kokkinen (Fairspectrum Oy, Nokia, Oulu, Finnish Communications Regulatory Authority, Finland)

4. **LSA System Development with Sensing for Rapidly Deployable LTE network**
   Kalle L¨ahetkangas1, Harri Posti, Harri Saarnisaari, and Ari Hulkkonen (University of Oulu, Finland)
5. **Maxmin Strategy for a Dual Radar and Communication OFDM Waveforms System facing Uncertainty about the Background Noise**
   Andrey Garnaev, Wade Trappe and Athina Petropulu (Rutgers University, USA)

Workshops

Workshop -1 : Orchestration and reconfiguration of networked software defined radios, 18 Sep, 2018, 11:00 – 12:30 and 13:30-15:00, Room name 'Oude Infirmerie', (30mins/presentation)

1. General overview of the ORCA project (Sofie Pollin, KU Leuven)
2. Multi-Layer Prototyping with Software Defined Radio (Ben Coffin, National Instruments)
3. Low latency communication in industry 4.0 (Seyed Ali Hassani, KU Leuven)
4. Using Deep Learning and Radio Virtualisation for Ecient Spectrum Sharing among Coexisting Networks (Wei Liu, imec – Ghent University & Joao Santos, CONNECT Centre for Future Networks, Trinity College Dublin)
5. Next Generation of Advanced Wireless Networking Testbeds – invited speaker (Ivan Seskar – Rutgers University)
6. Discussion

Workshop -2 : Open radio platforms for 5G research and beyond, 19 Sep, 2018, 11:00 – 12:30 and 13:30-15:00, Room name 'Oude Infirmerie', (30mins/presentation)

1. Embedded SDR platform: situation and challenge (Xianjun Jiao, imec - Ghent University)
2. The Proof of the Pudding is in the Eating: Using GNU Radio in Research (Bastian Bloessl, Trinity College Dublin)
3. The Role of FPGAs and GPUs in SDR Acceleration (Ivan Seskar, WINLAB, Rutgers University)
4. Reconfigurable Radio for 5G: At the edge and close to the metal (Miriam Leeser, Northeastern University)
5. Extending the ns-3 LTE module for SDR: a HW-SW function split paradigm (Nikolaos Bartzoudis, CTTC)
6. The srsLTE software radio framework (Justin Tallon, Software Radio Systems)

Panels

Panel-1 : A GLANCE AT 'BEYOND-5G', 18 Sep, 2018, 15:30 – 17:00, (1.5 hours)

Chair - Valerio Frascolla (Intel), Johann M. Marquez-Barja (imec - University of Antwerp)

1. Peter Stuckmann (EC DG CONNECT) – Opening talk
2. Sofie Polin (KU Leuven)
3. Jens Zander (KTH)
4. Claudio Paoloni (Lancaster University)
5. Ivan Seskar (Rutgers University)

Panel-2 : THE STRUGGLE FOR SPECTRUM: FROM EXCLUSIVE GLOBAL SPECTRUM ACCESS TO SMART LOCAL ON-DEMAND SPECTRUM SHARING, 19 Sep, 2018, 15:30 – 17:00, (1.5 hours)

Chair - Jorge Pereira, European Commission

1. Danijela Cabric, UCLA, USA

2. Jo De Waele, Astrid, Belgium
3. Robin Leblon, Citymesh, Belgium
4. Ruediger Martin, European Commission, Belgium

Tutorials

Tutorial -1 : Unlicensed Spectrum Technologies: From Wi-Fi to 5G and beyond, 20 Sep, 2018, 09:00 – 10:30 and 11:00-12:30, Room name 'August Vermeylen', (3 hours)

1. Adrian Garcia-Rodriguez (Member, IEEE), Nokia Bell Labs, Ireland
2. Giovanni Geraci (Member, IEEE)

Tutorial -2 : NOMA for Next Generation Wireless Networks: State of the Art, Research Challenges and Future Trends, 20 Sep, 2018, 09:00 – 10:30 and 11:00-12:30, Room name 'Oude Infirmerie', (3 hours)

1. Zhiguo Ding, University of Manchester, UK

Tutorial -3 : Wireless Link Virtualisation and Network Function Virtualisation in Cognitive Radio Networks: theories, use-cases and hands-on experiments, 20 Sep, 2018, 13:30 – 15:00 and 15:30-17:00, Room name 'August Vermeylen', (3 hours)

1. Yi Zhang, Trinity College Dublin, Ireland
2. Jonathan van de Belt, Trinity College Dublin, Ireland

Tutorial -4 : Transceiver Design for Spectrum Sharing Full Duplex Radio – (3 hours) – 20 Sep, 2018, 13:30 – 15:00 and 15:30-17:00, Room name 'Oude Infirmerie', (3 hours)

1. Tharmalingam Ratnarajah, The University of Edinburgh, UK
2. Sudip Biswas, The University of Edinburgh, UK
3. Ali Cagatay Cirik, The University of Edinburgh, UK
4. Keshav Singh, The University of Edinburgh, UK