



ARC Communications Research Network

# Newsletter September 2008

## Convenors Report

In the previous newsletter, I announced the nomination of four ACoRN members for the Tall Poppy Award, administered through the The Tall Poppy Campaign. The Tall Poppy Campaign is a great initiative from the [Australian Institute of Policy & Science](#) to recognise and celebrate Australian scientific and intellectual excellence and to encourage younger Australians to follow in the footsteps of our outstanding achievers. The award is given in recognition of excellence in research, and is aimed at young researchers within 10 years of Ph.D. graduation. As an outcome of the selection process in South Australia, I am very pleased to announce that in South Australia, Dr. Mark McDonnell (UniSA) has won a Tall Poppy Award, while Dr. David Haley (Cohda Wireless) was a finalist among the highest number of nominations ever in the history of the Tall Poppy Campaign. The evaluation process in New South Wales and Victoria is still to be completed.

In Melbourne on July 14-17, ACoRN held its 2008 showcase event on wireless networks, bringing together more than 70 researchers and research

students. Over the four days, the event embraced a wide scope of research topics in wireless networks, spanning both academia and industry. The event featured two established workshops, an industry day, and an international tutorial. The *Multi-Hop Wireless Networking Workshop* ran for the third time, and had A/Prof. Arek Dadej (UniSA) giving a keynote presentation on current trends in multi-hopping. Focusing on similar topics but from a physical-layer perspective, the *Cooperative Wireless Communications Workshop* ran for the second time, and had Prof. Xiang-Gen Xia (Uni. Delaware, USA) as a plenary speaker. Furthermore, Dr. Mischa Dohler (CCTC, Spain) presented a full-day tutorial on recent advances in cooperative communications, which attracted a majority of ACoRN students in this area.

As a new adventure for ACoRN, the first joint industry-academia day brought together a wide range of researchers across disciplines and academia/industry. A few international visitors as well as prominent Australian research leaders gave exciting presentations for the delegates coming

from all over Australia. The topic areas covered an impressive array of current wireless technologies, all of which are of particular interest to Australia and current Australian research activities.

The big July showcase was a big success, and great thanks go to Dr. Aruna Jayasuriya (UniSA), Dr. Lavy Libman (NICTA), A/Prof. Jinhong Yuan (UNSW), Dr. Yonghui Li (Uni Sydney), Dr. Jason Gao (Victoria Uni), Phillip Conder (Victoria Uni), Mike Faulkner (Victoria Uni), and Christine Thursby (UniSA) for organising all the activities.

In the immediate future, we have two exciting events planned. First up, Dr. Brian Krongold (Uni Melbourne) is organising a 2-day ACoRN Workshop on OFDM systems scheduled on 13-14 November in Melbourne, featuring several Australian and International experts in the area. This event provides an excellent opportunity for students and researchers alike to get on the cutting-edge of OFDM, which plays a strong role in 4G technologies. Further towards the end of the year, one of the inventors of network coding, Prof. Raymond Yeung (Chinese University of Hong Kong), will give a 2-day ACoRN School on Network Coding and Security together with Dr. Terence Chan (UniSA). The school will be held on December 1-2 in Adelaide. Check the ACoRN website for more details.

In connection with the ACoRN School, we plan to hold the first ACoRN-NEWCOM++ workshop in Australia. We have confirmation from a handful of NEWCOM++ researchers attending the International Symposium on Information Theory and Applications (ISITA) in New Zealand that they also want to attend a joint workshop in Australia. We are therefore aiming for an event on December 3-4 in Adelaide. The workshop will be open for all to

attend. We will in particular invite ACoRN members with research activities aligned with our NEWCOM++ visitors. Keep an eye on the ACoRN website for further details.

Further to the collaboration with NEWCOM++, it is now official that the general NEWCOM++ workshop, 30th March to the 1st April in Barcelona, will be a joint NEWCOM-ACoRN event. The three-day event will start with four half-day tutorials. The second day is an industry day where NEWCOM and ACoRN researchers get the opportunity to present their recent results to specifically invited European industry representatives, while the third day features scientific presentations and posters of accepted papers. ACoRN is taking an active part in co-organising the technical program and we are grateful to Dr. Iain Collings (CSIRO), Dr. Vaughan Clarkson (Uni Queensland) and Dr. Jinhong Yuan (UNSW) for representing ACoRN on the joint technical program committee. The TPC is chaired by Prof. Andreas Polydoros (Uni. Athens, Greece), and further members are Prof. Sergio Palazzo (Uni. Catania, Italy), Prof. Pierre Duhamel (Supelec, France), and Prof. Ralf Koetter (Tech. Uni. Munich, Germany). I am convinced this will be another memorable joint NEWCOM-ACoRN event.

The last thing I want to bring up is a bit sad for me personally. I will be stepping down as the ACoRN Network Convenor in November, as I am leaving Australia to take on a position as professor in communications theory at the Royal Institute of Technology, Stockholm, Sweden. I am sad to be leaving ITR, ACoRN, and Australia, but for personal reasons I have to get closer to my native country of Denmark and my family. Although I am leaving, it doesn't mean that I will not stay involved in the Australian research community. In

the spirit of ACoRN, I look forward to strong collaboration with a lot of ACoRN members and ACoRN organisation. I have thoroughly enjoyed my time with ACoRN, and I think we have come a long way in networking our community, and establishing strong links across the nation and across the globe. The achievements are not due to any single individual, but due to our joint efforts. Prof. Alex Grant (UniSA) will take over the responsibilities as the Network Convenor, and as Alex has been a strong member of the Executive Board from the very beginning of ACoRN, he is in a perfect position to lead ACoRN to further great achievements.

Thank you all for a great time.

Lars K. Rasmussen  
ACoRN Network Convenor

## ACoRN Workshops

### **Network Coding, Error Correction & Security School** **Adelaide – December 1st – 2nd**

Network coding is a fairly new but intensely investigated research area, pioneered by Prof Raymond Yeung. ACoRN has been privileged to engage Prof Yeung as one of the speakers at the school. This school event will impart in-depth knowledge and understanding to this exciting area to all attendees.

Places are limited so make sure you secure your place by registering early.

### **OFDM Workshop** **Melbourne - November 13<sup>th</sup> - 14<sup>th</sup>**

The next ACoRN workshop will be held in Melbourne. The workshop will include around 12 presentations covering topics such as Channel Estimation & Equalization, Power & Rate allocation, Incoherent & Coherent Optical OFDM. The workshop will be aimed at students and will be a good way to enhance research in OFDM.

Further information will be available soon.

### **NEWCOM/ACoRN workshop** **Barcelona – 30th March – 1st April**

NEWCOM and ACoRN are again combining their resources to present a three day workshop. The first day will include 4 HD tutorials. The second day will be Dissemination day in which NEWCOM and ACoRN researchers present to European Industry their results close to industrial application in the form of posters/presentations. The third day will include scientific presentations and posters of accepted papers.

In order to ensure a strong ACoRN presence at the NEWCOM-ACoRN workshop in Barcelona, ACoRN will make additional central funds available for supporting attendance at the event. These funds are unfortunately only available for ARC-eligible organisations, ie, the university ACoRN partners.

All ACoRN partner organisations are strongly encouraged to support (additional) members attending the event. Please ask your Local ACoRN representative for further information regarding funding.

## ACoRN Workshop Reports

### ACoRN 3 day workshop plus tutorial.

#### Victoria University 14<sup>th</sup> – 17<sup>th</sup> July 2008

In July, the joint ACoRN workshops on multi-hop wireless networking and cooperative communications and tutorial were held in conjunction with the first ACoRN Industry Day and hosted at Victoria University. The workshops and tutorial were well attended by both ACoRN members and non-ACoRN members from a number of major Australian organizations such as CSIRO, NEC, ACMA, and Telstra, over 70 people attended these events. During the events, many meaningful and interesting discussions took place with the exchange of ideas and exploration of possibilities for future collaborations among universities and potential industry partners.

Thanks to the many staff at Victoria University who worked behind the scenes to ensure the successful presentation of these events.

#### Multi-Hop Wireless Networking

This year it was decided to hold the Multi-Hop Wireless Workshop together with the ACoRN Corporative Communication Workshop and Industry day. The objective was to expand the target audience of the workshop and to provide a different view to some problems that fall into the multi-hop networking domain. This was a success as the number of attendees has increased for the workshops and the topics presented included the industry and the physical layer perspective of some multi-hop network problems.

The workshop began with a one hour keynote presentation by Associate Professor Arek Dadej (UniSA) which questioned certain popular beliefs among multi-hop networking researchers. This talk was well received and Arek showed evidence contrary to some of the widely accepted results in this research area. A robust discuss followed this talk.

The first technical session of the workshop contained two presentations, starting with an analysis of QoS issue in cognitive networks followed by a novel approach to medium access control in distributed wireless networks.

The second technical presentation started with a presentation on a comprehensive analysis of different link quality measure for wireless ad hoc networks. This was followed by a proposal to provide geographical aided routing for ad hoc, mesh and cognitive networks. The presentation of the workshop was on enhancing relay mechanisms in cooperative networks.

The last session of the day accommodated poster presentations.

Organisers:

Lavy Libman, Aruna Jayasuriya



Wasqas Ahmed (VU) Aruna Jayasuriya (UniSA), Arek Dadej (UniSA), Lavy Libman (NICTA)

## Industry Day

This was the first time ACoRN that has incorporated an academia workshop with an industrial forum where guest speakers external to universities present the latest developments and challenges in the telecommunication industry. A broad range of topics were presented. The first talk was given by Dr. Thomas Haustein from Nokia Siemens Networks GmbH & Co. KG. The talk had two parts: the first part was on Long Term Evolution (LTE) outdoor experiments, the second part on multi-user scheduling and radio resource allocation for OFDM based mobile communication systems. This was followed by a talk on 3GPP to chipset from NEC. The next talk was given by Dr. Aaron Reid of Nanoradio AB on 802.11n – MIMO-OFDM Wireless LAN. Mr. Thanh Bui also from NEC Australia gave an overview on LTE-Advance. Prof. Stan Skafidas from NICTA gave an interesting talk on 60GHz Wireless. The next talk was given by Mr. Dean Van Gerrevink from Dantree Networks on the ZigBee standards and emerging applications. The final presenter is Mr. Del Smith from NEC Australia on IP Multimedia Subsystem.

In addition to technical sessions and talks, the venue also provides many opportunities for VU researchers to discuss collaborations both during the session breaks and at the BBQ. Dr.-Ing. Thomas Haustein and Prof. Mike Faulkner took the opportunity to visit Telstra; Dr. Jason Gao and Dr. Hong Zhou from Southern Queensland University visited Dantree Networks after the ACoRN event.

To summarize, the ACoRN workshop has offered a number of tangible benefits to VU staff and students in terms of enhancing and broadening their research through the technical sessions and

tutorial. The Industry Day forum had a rare gathering of a broad range of industry experts each of which gave a unique insight on the latest development in their respective areas. The venue also provided opportunities for establishing research connections and collaboration discussions. It will be remembered by many as the starting point which leads to a successful grant application or publication.

Organisers:

Jason Gao, Phillip Conder, Mike Faulkner,



Mike Faulkner (VU) Phillip Conder(VU), Jason Gao (VU)

## Co-Operative Communications

The Second ACoRN Workshop on Cooperative Communications was held the Victoria University, Melbourne, on 16-17 July 2008. The workshop consisted of presentations by researchers and students, as well as a plenary presentation by the invited speaker, Prof Xiang-Gen Xia from the University of Delaware, USA. It was then followed by a full day tutorial on recent advances in cooperative communications, presented by Dr Mischa Dohler, from the CCTC, Spain.

The workshop brought together researchers in Cooperative Wireless Communications in Australia to provide a comprehensive overview of current research interests. One of its goals was to provide a forum for Australian researchers and students to present and discuss recent research developments in the area of cooperative communications, provide an opportunity for them to share information, inspire new ideas, and facilitate future research collaborations.

The workshop had a single track of technique presentations, including two invited presentations and nine technical talks. The invited talks were one-hour each and each technical presentation was 25 min including questions and discussions. The topics presented at the workshop mainly covering various interesting topics of cooperative communications, such as the fundamental principles, analysis and design of cooperative communications, distributed coding, cognitive radios. The range of topics showed the importance of the area of research.

The workshop was a great success with over 50 researchers and students who are working in this new merging area. The delegates came from the University of New South Wales, the University of Sydney, Australian National University, CSIRO, Monash University, National ICT Australia, the University of Melbourne, Victoria University, etc.

The feedback from the delegates is very positive. The delegates found good quality of the talks, well focused topics, and detail discussions. They also found this workshop gave a good opportunity to link with each other and establish future collaborations.

**Organizers:**

Jinhong Yuan, UNSW, Yonghui Li, University of Sydney



Yonghui Li (Uni Syd) Jinhong Yuan (UniNSW),

## ACoRN Member Profile

### Abdul K Mustafa



Abdul K Mustafa passed his high school from Dhaka, Bangladesh at 2001. He finished his BSc. in 2005 from North South University. He did his major in Computer Science and Engineering along with a minor in Electrical and Telecommunication Engineering. A few publications on OFDM and physical layer simulation during the undergraduate study allowed him to get into the PhD program at the Centre for Telecommunication and Micro-electronics (CTME) of Victoria University. His supervisor is Prof. Mike Faulkner.

His PhD research topic is "Signal conditioning for high efficiency wireless transmission". The research investigates the design of a drive signal to achieve low bandwidth expansion at the power amplifier which will reduce the air-conditioning load and running cost of cellular base stations. His research interests are Signal Processing, Wireless Access and Wireless Data Communications. Abdul K Mustafa likes to play basketball and computer games in his leisure time.

## ACoRN News

### News from NICTA

*Ahmad Ali Iqbal* was a research intern in the Digital Enterprise Research Institute (DERI), Ireland, between February and July 2008. During this time, he had a paper accepted in the International Semantic Web Conference (ISWC 2008, a majortier-1 conference).

*Fawad Nazir* is about to depart to the Knowledge Media Institute, London, UK for a period of 3 months under the supervision of Professor Enrico Motta on XMedia project. XMedia is funded under European Commission's 6th Framework Programme. He will subsequently go to the National Institute of Informatics (NII), Tokyo, Japan for a period of 4 months under the supervision of Prof. Helmut Prendinger (a competitive internship). His research focuses in on social software visualisation and integration into virtual reality.

The NICTA ATP lab (including all members from NICTA Sydney) are completing its long-awaited move to a new building over the next two weeks. Our new physical address is 13 Garden St., Eveleigh, NSW 1430. In particular, please note that all our phone numbers are changed.

### News from IEEE

The IEEE South Australia Section has been selected by the IEEE Member and Geographic Activities Board (MGA) as a recipient of the MGA

Board Outstanding Small Section Award for the activities in the 2007 calendar year.

The award has been approved by the MGA Board during its 21 June 2008 meeting, and will be presented during the Section Congress in Quebec City, Quebec Canada, 19-22 September 2008.

The award recognises that the IEEE SA Section was in 2007 the best small IEEE section in the world. It is a celebration of the IEEE SA Section members and volunteers contributions prior to and throughout the year 2007.

### Tall Poppy Awards

Dr Mark McDonnell, has won a 2008 Young Tall Poppy Award. This is an outstanding achievement, and is a significant recognition of his work in Mathematical Neuroscience.



This year's awards attracted the largest number of nominations ever. To achieve success in such an intensely competitive field of nominations makes this award truly prestigious.

The Tall Poppy Award ceremony was held at Ayers House, with the Governor of South Australia, His Excellency Rear Admiral Kevin Scarce and the Hon. Paul Caica, Minister for Science and Information Economy in attendance.

## Staff Changes



Associate Professor Linda Davis, has accepted a position at ITR.

Linda is very well-known in the Australian telecommunications community. She

has an impressive track record of academic and industrial research success. Linda has held key senior positions at Bell Laboratories (subsequently Agere Systems), and as Head of Department (Electronic Engineering) at Macquarie University. Linda was a key member of the Bell Labs team that developed the world's first 3GPP High Speed Downlink Packet Access MIMO demonstrator. Linda's current research includes a significant ARC discovery project "Broadband to the bush: polarization as a new resource in cross-layer design", in collaboration with researchers at Melbourne University, DSTO and Princeton University.



## OPPORTUNITIES

### Awards and Competitions

#### IREE Neville Thiele Award

The IREE Neville Thiele Award is the College's most prestigious award. It is named in honor of A.N. (Neville) Thiele OAM, an outstanding Australian Electronics Engineer, former President of the IREE and a world-renowned expert on audio engineering standards and the design of loudspeakers.

The award also recognizes the Institution of Radio and Electronic Engineers (IREE), which represented the profession of radio and electronic engineering in Australia for many years.

The winner of the IREE Neville Thiele award receives a cash award of \$10,000, a framed certificate, and an engraved bronze medal.

#### 2008 Nominations

Nominations for the 2008 IREE Neville Thiele Award are open from 1 August until 30 September 2008.

- Download the [Neville Thiele Award Regulations](#) 
- [Complete an online nomination](#)



## Coming Events

Event Date	Event
14– 18 Sept 08	PIMRC 08 – France <a href="http://www.pimrc2008.org">http://www.pimrc2008.org</a>
12-14 Oct 08	Wireless Communications, Networking and Mobile Computing – China <a href="http://www.wicom-meeting.org/wicom2008Submission/website/wicom/">http://www.wicom-meeting.org/wicom2008Submission/website/wicom/</a>
13-14 Nov 08	ACoRN OFDM Workshop – Melbourne
1-2 Dec 08	ACoRN Network Coding School – Mawson Lakes, Adelaide
30 Nov–4 Dec 08	Globecom 2008 – New Orleans <a href="http://ieee-globecom.org/">http://ieee-globecom.org/</a>
7–10 Dec 08	International Symposium on Information Theory and its Applications (ISITA2008) <a href="http://www.cs.auckland.ac.nz/research/conferences/isita2008/">http://www.cs.auckland.ac.nz/research/conferences/isita2008/</a>
15-17 Dec 08	ICSPCS – Gold Coast <a href="http://www.dspsc-witsp.com/icspcs_2008/">http://www.dspsc-witsp.com/icspcs_2008/</a>
4-7 Jan 09	IEEE 2009 DSP & SPE Workshop- Marco Island Florida <a href="http://www.2009dsp.org/papers">http://www.2009dsp.org/papers</a>
6-8 Jan 09	2009 International Conference on Communications and Mobile Computing (CMC 2009) – China <a href="http://world-research-institutes.org/conferences/CSIE/2009">http://world-research-institutes.org/conferences/CSIE/2009</a>
30 Mar-2 Apr 09	NEWCOM+ +ACoRN workshop - Barcelona

For a complete list of coming events and call for papers, see the **event calendar**  
<http://www.acorn.net.au/events/>.

