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CHAPTER ACTIVITIES

A Summary of IEEE ComSoc Activities in New Zealand

By Nurul I Sarkar, IEEE Joint NZ North, South and Central ComSoc Chair

Last year (2016) was very productive for us as far as professional activities and community development programs are concerned. Being a ComSoc chapter chair, Associate Professor Nurul I Sarkar had nominated Professor Jalel Ben-Othman (University of Paris 13, France), for an IEEE ComSoc Distinguished Lecturer (DL) tour to NZ. Professor Ben-Othman delivered three public lectures in Auckland, Wellington, and Christchurch on June 7, 8 and 9, respectively. All three lectures went very well as far as professional development of the members of the society and the wider community was concerned. The first DL talk "DoS in VANETs: An Issue or a Fatality?" was given in Auckland (see below for more details). Next Professor Ben-Othman gave a lecture in Wellington on 8 June, organized by Dr. Ramesh Rayudu. The third lecture, delivered at the University of Canterbury, Christchurch on 9 June, was organized by Professor Harsha Sirisena.

IEEE DL-NSRG Workshop

AUT's School of Engineering, Computer and Mathematical Sciences hosted a day-long Network and Security Research Group (NSRG) workshop in conjunction with the IEEE DL program on Tuesday 7 June 2016. Associate Professor Jairo Gutierrez (Deputy Head of School) gave an opening talk and outlined the program for the day. The workshop had three keynote speakers: Professor Jalel Ben-Othman (University of Paris 13, France), Professor Peter Chong (Head of Electrical and Electronic Engineering, AUT), and Dr. María Elena Villapol (AUT). In addition to the keynote session, we had two regular sessions chaired by Dr. Sayan Ray (Manukau Institute of Technology) and Dr. Bobby Yang (AUT), respectively. In addition, we had a series of presentations given by the IEEE DL, invited speakers and research students.

Professor Ben-Othman gave an interesting talk on "DOS in VANETs: An Issue or a fatality?" that was focused on VANET security, availability, and possible solutions to VANET security problems. Some issues and open research problems were identified and discussed. Professor Chong talked about trust-based routing protocols against internal attack for MANETs. The integration of trust-based routing and DSR routing protocols was discussed. Finally, Dr. Villapol focused on modelling aspects of communication protocols using colored Petri Nets (CPN). The tutorial-style presentations helped the audience to understand the technical subjects very well. There was an opportunity for further question/answer after each keynote talk. Among the other seven presenters, Akbar Hossain (research associate) talked about "Rendezvous in Cognitive Radio Ad-hoc Networks." The remaining six Ph.D. students from NSRG gave mini presentations during the day. Despite of the busy time of year, about 26 people from within and outside AUT attended the keynote session. Having good opportunities for discussion, people enjoyed networking during the lunch break. The event was co-sponsored by IEEE ComSoc and AUT. Organizing chair A/Professor Nurul Sarkar received positive feedback from the participants, indicating that the event was successful.

2016 IEEE DL-NSRG workshop attendees in Auckland.

A session with Prof Victor Leung.

2016 IEEE NZ Wireless workshop.

Invited Speakers

We had a number of invited speakers throughout the year. First, Associate Professor Jianwei Huang (Chinese University of Hong Kong) visited AUT and gave an invited talk on Thursday 30 June 2016. The talk on "Crowdsourced Mobile Video Streaming" generated a lot of interest among the participants and we had good discussion after the talk. About 20 people attended the talk (mostly staff and students). This event was jointly supported by AUT and the IEEE NZ North Section.

We then had Associate Professor Jinsong Wu (Universidad de Chile) who gave an interesting talk on Friday 5 August 2016. The talk on "Global Green Challenges Meet Information and Communication Technologies as well as Big Data" generated a good discussion after the talk. About 22 people attended the talk. The event was also supported by the IEEE NZ north section and AUT.

(Continued on Newsletter page 4)

REGIONAL REPORT

Looking to the Digital Albania: Market Overview and Regulation in Albania

An interview with Piro Xhixho, Chairman of AKEP, the Albanian Telecommunications Authority

By Nicolae Oaca

Oaca: Could you introduce us to the Albanian telecom market?

Xhixho: The Albanian telecommunications market has four mobile operators, ALBtelecom, Plus Communication, Telekom Albania and Vodafone Albania, operating 2G, 3G, and 4G networks, as well as more than 100 fixed network operators covering most of our country. Our 3G/4G network covers 73/85 percent of our territory and over 90 percent of the population. By the end of 2016, Albania had 3.4 million active SIMs, out of which 92 percent were post-paid.

The number of active users of mobile broadband access services (3G/4G from mobile devices and USB/modem cards) increased 30 percent to 1.7 million in 2016 compared to 2015. The total number of phone calls generated by mobile users during 2016 decreased 8 percent compared to 2015, while the number of SMSs experienced a modest increase of 1 percent, mainly due to OTT applications on the mobile phone.

During 2016, a mobile user consumed 1.48 GB, a 68 percent increase compared to 2015. Meanwhile, in 2016, a mobile user (using the Internet at least once a year) averaged 954 MB per month compared to 541 MB in 2015.

The number of fixed telephony subscribers has been on a downward trend from 2012 to 2015, while 2016 saw an increase in the number of landline telephony lines to 248,000, an 8.8 percent penetration rate. Fixed telephony services in Albania are provided by more than 100 entrepreneurs who own their networks, including access or direct access networks to end-users. Fixed broadband access has grown steadily in recent years; the penetration rate for the population and households by the end of 2016 was 9.3 percent and 33.4 percent, respectively. By the end of 2016, the number of subscribers buying triple play packages (telephony, Internet and TV) increased about 25 percent to 187,000.

Despite the large drop in net profits, the total level of investment in mobile networks has not been significantly reduced. Even providers have made large investments in non-tangible assets such as frequency licenses of 900/1800 MHz to provide services on 3G/4G networks. The total value of investments in mobile networks was 4.78 billion leke (36 million €) in 2015.

Oaca: What about the use of mobile broadband?

Xhixho: Mobile broadband business services are improving in quality, in terms of both speed, 100Mb/s and coverage, including 73/85 percent of territory andover 90 percent of the population.

3G/4G mobile penetration in the population by the end of 2016 reached 60 percent compared to 46 percent at the end of 2015. In 2014, the annual growth of data traffic on mobile networks was 148 percent, and this trend continued in 2015 and 2016, with annual growth of 103 percent and 110 percent, respectively. In the period 2013-2016, the volume of Internet access data in mobile networks increased over 10 times.

Our periodic measurements show that average download speeds are improving:

- On the coast, 3G networks range from 4 to 7 Mbps, 4G networks from 8 Mbps to 20 Mbps.
- In cities, 3G ranges from 6 Mbps to 10 Mbps, 4G ranges from 8.5 to 20 Mbps.
- On the main roads, the average speed for 3G is 3.6 Mbps.

Oaca: Can you tell us about better use of the telecommunications infrastructure?

Xhixho: The law "On the development of high speed electronic communications networks to ensure the right of way," aims to facilitate and encourage the provision/construction of electronic communications networks for high speed, by promoting the joint use of existing infrastructure as well as a more efficient development of new infrastructure by reducing construction costs of high-speed networks.

Piro Xhixho.

To promote joint use of passive infrastructure in 2016, we approved the "Rules for the use of common facilities." Some of the regulatory measures for the joint use of infrastructure assets (bitstream, leased lines) and passive (pipes) of fixed networks have begun to have an effect in 2016, during which there was an increased use of shared infrastructures. During 2016, a major improvement of cable network infrastructures was achieved in the main Albanian cities where electronic communications cable networks were avoided from energy cable networks and most of the main roads and centers have already been completed or are about to be completed. With the investment and attention paid to this problem, we anticipate that in 2017 and 2018 this important problem will be solved.

AKEP has nominated zones with low population density to be covered with broadband services and zones for improving. Stakeholders have submitted to AKEP cooperation agreements for co-investing in low population density zones to cover them with broadband services and for improving QoS in other areas.

In the coming years we will have to focus on the coordination of the work of the local authorities, with the providers of electronic communications, in order to rationalize and increase the investments' effectiveness.

During 2017, with the assistance of ITU we are upgrading the existing digital platform of the networks to bring them to a higher level of information. In order to inform providers, AKEP created a page on our web site where all municipalities, as well as the Development Fund, have posted their investment plans.

Oaca: What are your challenges and medium-term plans?

Xhixho: In the medium term, we hope Albania will become a member of the European Union, and AKEP will play an important role: to put our telecommunications in line with the EU requirements, and our market to be part of the EU's unique market.

Stable and predictable rules are very important for market development, so we are thinking about a medium-term strategy to attract investments, to protect end-users, and to better use scarce resources. I strongly believe in the driving role of IT&C in accelerating Albania's economic growth, in its digital transformation, and we are looking to be an independent, proactive and market oriented regulator aiming at connecting our country to high-speed networks, to stimulate economic development and digital transformation.

We have to act on both sides for Internet adoption: on the supply side, by stimulating high-speed network deployment, and on the demand side, by increasing Internt usage for a digital Albania.

We have to look to the rural areas to reduce the gap and to increase coverage, competiton and adoption. This requires coordination with local authorities and investors, a clear and fast procedure, and a single coordinative system standard in collecting information for mapping infrastructures.

Balancing investments and competition is the key success factor in developing national broadband networks and providing modern and cheaper services to our citizens, businesses and administration, to reduce the digital divide. Effective spectrum management and the use of frequency bands that enable higher transmission capacity for 4G services and the provision of 5G services as quickly as possible (2020, for instance) could be a key factor in this process. Very soon spectrum auctioning for 5G technology could help us build high-speed mobile networks for a digital Albania.

In November 2017 Ilir Zela was appointed the new chairman of AKEP.

REGIONAL ACTIVITIES

Synergy of IEEE and ECTI Thailand Sister Society: Moving to the Second Phase of Collaboration

By Keattisak Sripimanwat, Thailand Chapter Chair

The IEEE ComSoc Thailand chapter organized a signing ceremony for the second term of collaboration between the 40 year old IEEE Thailand Section and the Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology Association of Thailand (ECTI Thailand). This sister society-MOU will continued for another five year (2017–2022) period in order to re-encourage the exchange and dissemination of technical information, and to promote understanding and cooperation among the members of both organizations.

ECTI (www.ecti.or.th), a 15 year old local association, was established with the aim to promote academic advancement in Thailand in the field of electrical engineering/electronics, computers, telecommunications and information technology, and serve as a source of knowledge for the various academic conferences. Organized in the country to easily find relevant articles in the field, it can be used in further research to be another force in the development of Thailand to make further progress.

Dr. Somsak Choomchuay (left, president of ECTI-Thailand) presents a signed sister society - MOU with Dr.Jitkasame Ngarmnil (right, president of IEEE Thailand section), Bangkok,18 July 2017.

From the previous five years of collaboration, many conferences were organized, co-organized, and technically sponsored. Joint technical activities, publications, mentoring programs, educational materials, awards, and many others activities provide value. From a communication engineering perspective, Thai Telecommunication Knowledge Management, a national free portal for this field (www.thaitelecomkm.org), was mentioned as the successful large project, resulting in the telco tome or the encyclopedia, amazing pictorial milestones, and with more than thousand words in a telecommunication glossary (English to Thai).

With the honor of being a single family, both sister societies achieved results with distinction, not only in Thailand alone but also expanding their above mentioned activities in the past few years to nearby countries where no IEEE section is established yet, including Myanmar, Laos, and Cambodia.

Group photo at signing ceremony.

Absolutely, this second phase of synergy is expected to again lead to greater benefits for the advancement of technology to their members and neighbours. We are in the same family, IEEE & ECTI.

CONFERENCE REPORT

From IEEE Lebanon Communications Research Day to 2018 IEEE Middle East and North Africa COMMunications Conference

By Dr. Sarah Abou-Chakra, COMSOC - Lebanon Chapter Chair

The IEEE ComSoc Lebanon Chapter launched the IEEE Lebanon Communications Research Day (IEEE LCRD) in 2013. On April 22, 2017, the Chapter organized the fifth Lebanon IEEE LCRD'17 in collaboration with the Communications Society of the Order of Engineers and Architects (OEA)–Tripoli, within the context of the MOU signed between the IEEE Lebanon Section and the OEA–Tripoli.

During IEEE LCRD'17, we were pleased and honored to have a plenary session with three keynote speakers:

•Dr. Ala' Khalifa, Chair of the IEEE ComSoc Jordan Chapter, who spoke about "Hybrid Wireless Sensor Networks and their Applications in Critical Events."

•Ms. Rita Saadeh, IT Engagement Director–Ericsson, Lebanon, presented the "Mobile Technology Update."

•Prof. Walid Kamali, Dean of MUT University, gave a talk about the radio-amateur entitled "A Look into HAM Radio Practices."

After the keynote presentations, 24 research papers were presented, distributed over six technical and parallel sessions: 5G Networks, Data and Energy, Optical Communications, E-Health, Resource Allocation, Antennas and Localization. More than 80 researchers and students attended the event. IEEE LCRD'17 was covered by the National News Agency.

The annual success of LCRD has motivated the chapter to enlarge it in order to cover the MENA region. Thus, IEEE LCRD will be upgraded to the 2018 IEEE Middle East and North Africa COMMunications Conference–MENACOMM'18 (www.menacomm-conference.com).

For the first time in the MENA Region, MENACOMM'18 is organized by the IEEE Communications Society Lebanon Chapter and Holy Spirit University of Kaslik (USEK), in collaboration with the IEEE Communications Society Chapters in Bahrain, Egypt, Jordan, Kuwait, Saudi Arabia and Tunisia. The conference will be held at USEK in Jounieh, Lebanon on April 18-20, 2018.

IEEE Lebanon Communications Research Day 2017.

The objective of MENACOMM is to bring together researchers from academic institutions and industry from all over the world. It is technically sponsored by the ICT–Federation of Arab Engineers, the University of Franche-Comté, France, and the University of Versailles, France, and financially sponsored by the IEEE Lebanon Section.

Activities in New Zealand/*Continued from page 1*

A Special Session with Professor Leung

We had a useful session with AUT visiting scholar Professor Victor Leung (University of British Columbia, Canada). The session began with a welcoming message by Associate Professor Nurul I Sarkar, and each person introduced themselves by giving their names and their research interests. Prof. Leung highlighted his research activities, especially in vehicular networks. He talked about an ongoing project for setting up a vehicular network testbed. The discussion generated a lot of interest among the members of the group to use the testbed and to collaborate on vehicular network security in addition to the core Vehicular networks.

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Dr Sudhir Singh Organizes IEEE NZ Wireless Workshop

The IEEE NZ ComSoc chapter organized a day-long IEEE NZ Wireless Workshop held at Callaghan Innovation Centre in Gracefield Campus (Lower Hutt, Wellington) on Friday 2 September 2016. This annual event brought together more than 100 engineers, researchers, industrialists and policy makers working in the field of wireless communications and network technologies. The Workshop featured excellent keynote speakers, including Chris Hartshorn (Callaghan Innovation), Hassan Naqvi (Huawei), Amy Oding (Vodafone NZ), and Richard Malley (Aviat Networks) among the most memorable ones. We had a series of presentations by speakers from industry, wireless research center, and academia, with opportunities for informal discussion and networking. The presentations covered various topics and provided a forum for experts in the wireless industry and academia to discuss innovative technologies and research currently undertaken. This event provided an excellent opportunity for professional development and networking for the members of the wider community. Thanks to Dr. Sudhir Singh (Callaghan Innovation) for organizing this successful event.

Conclusion

IEEE joint NZ North, South and Central ComSoc hosted an IEEE DL program, workshops, and seminars that were very effective for the professional development of the members of the wider university community. We had Professor Jalel Ben-Othman (IEEE ComSoc DL) who delivered three public lectures in three main cities of NZ. We also hosted five invited speakers, including Professor Jianwei Huang (Hong Kong), Professor Jinsong Wu (Chile), and Professor Victor Leung (Canada). We had excellent opportunities for discussion and international collaboration. The workshops were effective as far as networking, academy-industry link, and sharing ideas are concerned. Thanks to IEEE ComSoc and AUT for their financial support throughout.