Australian Capital Territory Section Report on 2013

PART A - SECTION SUMMARY

A.1 Executive Summary –

- Section Executive Committee Member List

Chair	Dr Sharon Lim
Vice Chair	Martin Leaver/ Dr Fouad karouta
Secretary	Sakari Mattila
Treasurer	Fouad karouta
Webmaster	Joey Jiang and Alex Couts Worthington
Antennas and Propagation Society Chapter Chair	Rainer Ignetik
Computer Society Chapter Chair	Cong Phuoc Huynh
Photonics Society Chapter Chair	Professor Hoe Tan
Signal Processing and Communications Societies Chapter Chair	Sean Zhou
Educational Activities Chair	Liam Waldron
Electronic Communications Chair	Professor Hoe Tan
Membership Development Chair	Ross Summerfield
GRSS Chapter Chair	Xiuping Jia
Nanotechnology Council Chapter Chair	Lan Fu
Graduates of the Last Decade Chair	Elias Lopez
Student Activities Chair	Liam Waldron

- Student Branches:
- Australian National University — Joey Jiang (**u5020932@anu.edu.au**)
- Australian Defence Force Academy — Mohammad Ali Hossain (**M.Hossain5@adfa.edu.au**)
- Canberra University — Professor Zu Huang and Dr Dat Tran

AC Oceanic Engineering Coordinator — Glenn Alcock

- Section Highlights in 2013

  - Technical and Distinguished lecturers talks and seminars. The section had active participation of a record number of Chapters' sponsored talks were held in 2013. See list 1 attached.
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  - 25th Anniversary celebrations and talks were held under the 25th Anniversary banner to encourage attendance by managers, technologists and engineers working in government, industry and academic sectors. The talks were widely advertised and non-members were warmly welcomed for membership development activities. See list 2 attached.

  - GOLD and WIE developments in the ACT had a kickstart. The GOLD Chair received a grant and a Clean-up event of Lake Burley Griffith, the major lake in Canberra attracted members to come and participate in removal of rubbish in the area by kayaking. As this is also the 25th Anniversary year of Questacon, the National Science Centre in this National Capital of Australia, a GOLD event was held there.

- Major Events (International, National)

  - International participation in R10 Student/ GOLD/WIE Congress by IEEE ACT. Sponsored student member Lauren Hassall also gave a talk on Robogals at the Congress and on enhancing networks through the IEEE student activities.
  - International participation of Xtreme programming competition by local student groups.
  - Participation in Engineers Australia and co-sponsorship of activities.
  - Development of an MOU with Engineers Australia regarding member activities.

- Major Chapter Activities

  See attached list 1 for the complete list of 2013 Activities.

- The ACT Section held 5 activities under its 25th Anniversary and thirteen technical activities (seminars) by its Chapters:
  - Six organized by the photonics and EDS chapter
  - Two organized by the computing society
  - Three organized by the geoscience and remote sensing (GRS)
  - Two organized by the antennas and propagation society (APS)

- The Section sponsored the participation of an ACT representative to the R10 students meeting in Hyderabad (India).
- The GOLD section organized a students-activity along the theme "Clean Australia" contributing to removal of several garbage bags from the shores of the Black Mountain peninsula.
- Another student activity was a visit to the Australian Federal Police Forensics Labs.
- Moreover and for the first time the Section offered prizes for a student contest at the Engineering faculty (University Canberra). Further details are in the next section under "Major Student and Affinity Group Activities.
- With Martin Lever as the IEEE ACT and Engineers Australia coordinator, strong coordination and cooperation in the delivery of common theme activities between the two organisations.
- Other activities were three meetings of the ExCom in addition to the AGM held in November.

- Major Student and Affinity Group Activities

  The annual prize giving event of 2013 involved all student and affinity groups (Gold and WIE student groups) from all three student branches and provided a networking event for students.

  The visit to the Australian Federal Police Forensics Labs attracted the attendance of professional IEEE ACT members and members of Engineers Australia, our largest professional engineering association in Australia.

- Awards

  1) Sharma Islam, PhD student member of ACT IEEE was awarded the Australia Council WIE prize for her submission to the Australia Council Paper Contest.

  2) Final Year Engineering Student awards at Canberra University. A new Engineering Department has opened in Canberra University. A number of IEEE ACT student awards were provided to the Canberra University for winners of the Canberra final year student presentations in the Engineering Department. This lead to 100% participation in the student presentations and all students joining the IEEE as student members in order to participate. Judges for the competition included industry and academic IEEE members.

  3) Under TISP (Teachers in training), members have contributed their time to attend a training session in Sydney and held an event which involved some 18 students in conjunction with a professional teacher from the *Data and Technology Teachers Association* and a member from Questacon. This was the first time such a TISP session was held in Canberra.

  4) The Australian National University led a winning team at the Extreme Competitions.

A.2 Financial Report –

- **Summary** (as per submitted L50)
- In year 2013 total expenditures of the ACT section amounted AUD 8,412.17 while total income was AUD 7,343.65 (IEEE rebate: 5,225.40; R10 reimbursement R10 meeting travel: 1,716.00 and 401.32 total accounts interests). Hence the expenditures were 1,068.52 superior to the income which is compensated by the built up buffer of the Section.

  Per 31-12-2014 the Section assets were: 4,182.93 (cheque account) and 11122.20 in term deposit account) totalling 15,305.13. For detailed figures refer to the attached excel file (Attachment 1).

- Any other financial activities

  Sponsorships of the Clean-up Event by Kayaking were sought from the ACT government. Work went into getting submissions into the ACT government. Due to the elections held in Australia, it was not possible due to the change in government's policies regarding additional funding of such a project. The event was scaled back and went ahead and we had assisted in the cleaning up of one of the major waterways of ACT.

  Planning of fund raising events in 2014 was underway in 2013 and involved the Student GOLD and WIE groups. Submissions were placed with major sponsors, companies and firms and local industry seeking financial support for the 2014 activities which will generate additional funds for local student/GOLD WIE activities and forthcoming community activities with the Australian Capital Territory. One such fund-raising event will be the forthcoming March 2014 sausage sizzle at the major Australian hardware store, Bunnings.

  Also see attachment 1 for details of section's 2013 financial reporting and balance sheet.

PART B - ORGANIZATIONAL ACTIVITIES

B.1 Membership Development Activities

- Total number of active members in the past 3 years.
- Summary and evidence of work done to improve the value of membership, which leads to retention and growth of members
  2010-440 members
  2011- 450 members
  2012 – 473 members
  2013- 500 members.

- There are government and military members coming and going throughout the years. Recruitment is focused on students in three universities of the ACT, the Australian National University, Canberra University and the Australian Defence Force Academy, University of New South Wales..

B.2 Chapter Activities

- Total number of Chapters in the Section is growing. It has already grown since 2010 to include the Geoscience and Remote Sensing.
- Number of Chapters formed in the current year. 2 have been proposed by other sections for joint chapters and for 2015, a new chapter called Computational Intelligence.
- Number of Active Chapters (Chapters are reporting the required number of meetings and more during the year). Particularly worth mentioning is our Photonics and Electronics Devices Chapter and our Nanotechnology Council in 2013.
- Summary of Chapter activities chapter wise is at attached lists 1 and 2.

B.3 Professional and Continuing Education Activities

Summary of continuing Educational activities including conferences, technical activities, training courses, and distinguished lecture programs with attachment table / information

B.4 Students Activities

- Total number of Student branches in the Section
- Number of Student branches formed in the current year
- Section level student activities (student congress, paper and other contests, awards etc)
- Number of Active Student branches (Student branches who have reported required number of meetings during the year)
- Summary of Student branch activities

IEEE ACT ExCommittee Key 2013 Decisions re student activities

1. **Sending one delegate to the IEEE Student WIE and Gold Congress Hyderabad India.**

Sponsorship by SAC of this delegate through the Student Stream for meeting registration and accommodation expenses during 11-14 July 2013. Return Airfare reimbursed for one attendee. **Outcome: 2** ACT representatives (one other attending, accompanying the successful delegate) will be at this meeting.

2. **The allocation of $300 to Canberra University for student poster and presentation activities to assist Professor Huang and Dr Dat Tran towards the start up of the new UC Engineering Department.**

These activities will raise the profile of the IEEE among students who would all need to be student members before they are considered for prizes from IEEE ACT. Consequently 100% joined up.

B.5 Affinity Group Activities See lists 1 and 2 for 2013.

- GOLD, WIE, Life Member Activities have been held.

B.6 Awards & Recognition Activities

- Award constituted by the section
- Award(s) received from R10
- Award(s) received from IEEE HQ

B.7 Communication Activities (Newsletter, Home Page, E-mail etc.)

- Newsletter (highlights have been published in R10 about the AC student competition and about the GOLD kayaking event).
- Home Page of the section (URL is ieeeact.org and it is updated whenever there is a new talk)
- Other means of contacts with section members (emails, phone, face to face, IEEE electronic communications and links, Gmail, LinkedIn, Video Conferencing, Skype)

B.8 Industry Relations

- Membership growth and retention – We have a membership development officer who works closely with the local section secretary on this matter.
- Activities for/with industrial members – DL and technical talks in all three universities and professional talks held in conjunction with Engineers Australia with which we have an Memorandum of Understanding (MOU) regarding the way we would input into the activities being jointly organized.
- MILCIS – Participation and Sponsorship of the National Conference on Military Communications and Information Systems.

- IT&E Meets

B.9 Humanitarian Technology Activities
- is through membership of the Australian Council which there is active participation in quarterly meetings.

B.10 Community Activities

- IEEE Social activities (Family day, IEEE day, Engineers Week)
- 25th Anniversary of IEEE ACT talks and seminars

• PART C - OTHERS

• C.1 Relationship with National Societies – as outlined above

• Also see the presentation at

• C.2 Special Events – as outlined in List 2

• C.4 Best Practices of your section – *Better membership development through student links upstream and with professional graduates in the section has lead to an increase amount of participation and new members signing up.*

• PART D - GOALS AND PLANS

• D.1 Continuation of Project/Activity in Progress and Their Implementation Plans

2014 and beyond – Better collaboration with sponsors the organization of talks and the effective use of resources.

Plans are underway to:
- Incorporate Life member activities into the Technical Talks and Social Events in 2014.
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- Continue with the efforts with the Clean Up Australia Community and Professionals Gold Event in view of the new arrangements formalised with the new government injecting some 85 million (AUD) towards cleaning up the ACT waterways.

List One – Chapters Technical and Professional Talks

ACT IEEE Events - January – May 2013, we have a total of 8 events during this period, details as follows:

1) Engineering Complex Radar Systems

When 21-May-2013 at - 5.30pm for a 6.00pm start
Venue: Engineers Australia 11 National Circuit, Barton, ACT

Engineering Complex Radar Systems will be by Ian Croser of CEA Technologies.

2) "Towards a Generalized Visual Tracking System", NICTA 20-May-13

By Dr Dr Sebastien Wong

Abstract:

Building a computer that can 'see' and perceive the world has been an ambitious (and ambiguous) goal of computer vision. One
step towards this goal would be a generalized visual tracking system. This talk presents CACTuS-FL, an innovative visual tracking system that combines feature- and shape-learning capabilities with multi-object detection and tracking. CACTuS-FL is capable of probabilistically learning the feature responses, shape and motion parameters for multiple objects of interest simultaneously. The system converges towards regions of temporally consistent and spatially correlated local saliency, allowing for the automatic detection and tracking of interesting objects with (almost) no user input. This capability is demonstrated against a range of video sequences (without prior training or parameter tuning), resulting in successful tracks for several diverse objects of interest.

Biography
Sebastien Wong joined the DSTO from industry in 1999 and he currently leads Australia's research effort into algorithms and architectures for Electro Optic Threat Warning systems. In 2008 Sebastien was awarded the Chief of Air Force Gold Commendation for his work on improving missile approach warning algorithms. Sebastien holds a bachelor's degree in Computer Systems Engineering (with honours)
from Curtin University, as well as a master's degree in Electronic Systems Engineering
and a PhD in Computer Science, both from the University of South Australia, where he
is an adjunct Senior Lecturer. His research interests include algorithms and parallel processing architectures for autonomous visual tracking systems. He is the current SA
Chapter Chair of the IEEE Computer Society. Please RSVP to: ieeeact@gmail.com

3) IEEE Nanotechnology Council ACT Chapter & EME Seminar ANU Research School of Physics and Engineering presents
" Nanowire Thermoelectrics"

Professor Heiner Linke
Nanometer Structure Consortium at Lund University, Sweden
Tuesday, 7th May 2013 at 11:00am
RSPE Link Seminar Room, Building 58D, ANU

Abstract:
I will begin the talk with an overview of the activities of the Nanometer Structure Consortium at Lund University, engaging about 200 scientists with a focus on the materials science and the applications of semiconductor nanowires for energy conversion, electronics, photonics and the life sciences. The focus of my talk will then be the use of nanowires for thermoelectric (direct thermal to electric) energy conversion, an area of immense interest for conservation of energy resources, and waste heat recovery. Efficient thermoelectric energy conversion requires materials with a high thermo-power and high conductivity (a high power factor) , but very low thermal conductivity – a combination that has proven challenging to achieve in bulk materials. Nanomaterials offer the opportunity to tailor the electronic properties of a material by use of low-dimensional (quantum confinement) effects, while suppressing heat flow carried by phonons due to scattering effects. Nanowires in particular have been predicted to have highly advantageous properties. I will review the work done in this area, specifically the successful suppression of heat flow in nanowires, and will discuss our own work on demonstrating – for the first time – a high power factor in InAs nanowires, due to quantum-dot like states.
Bio:
Heiner Linke is a Professor of Nanophysics at Lund University in Sweden, has a masters degree (Dipl. Phys) from the Technical University Munich (1992), and a PhD from Lund University in Sweden (1997). 1998 - 2001 he was a research fellow at the University of New South Wales in Sydney/Australia, before joining the physics department at the University of Oregon in 2001 where he received indefinite tenure in 2005 and remained until 2009. Since 2013, he is the Director of the Nanometer Structure Consortium at Lund University (nmC@LU). A recipient of an U.S. NSF CAREER Award, his research in experimental physics is concerned with non-equilibrium transport mechanisms, spanning projects in nanoelectronics, fluid mechanics and biological physics. In particular, he is interested in how thermal non-equilibrium can be harvested to produce useful work, for example in thermoelectrics and in molecular motors. He chaired interdisciplinary Nobel Symposia in 2005 and 2012 and is a co-editor of European Journal of Physics B
ALL WELCOME
Please read also the second attachment, invitation to seminar "Towards a Generalized Visual Tracking System" (NICTA, 20 May 2013 at 4 pm)

4) Confessions of a Serial Entrepreneur: 30 Years of Photonic Start-ups in Academia and Industry

When: Monday 15th April, 2013, 2pm

Where: Huxley Lecture Theatre, Leonard Huxley, Building 56, Mills Road, ANU

By: Dr. Simon Poole

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5) Nanotechnology work health and safety seminar

In conjunction with *INational Committee of Nano-Engineering (NCNE)*

Presents:

"Nanotechnology work health and safety seminar"

6:00 pm Thursday 21th March 2013

Engineers Australia 11 National Circuit, Barton,

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6) Nanoparticles for energy conversion/storage and biolabelling

IEEE ACT Chapter & ANU Department of Engineering

Presents:

"Nanoparticles for energy conversion/storage and biolabelling"

A Seminar by Prof. Thomas Nann

10:00 am Tuesday 26th February 2013

The Australian National University (ANU)

Seminar Room, RSPE Link , ANU

Abstract: Nanomaterials offer a range of interesting, mesoscopic properties that cannot be found in molecular or solid materials. These mesoscopic properties include (but are not limited to) improved catalytic efficiency, tuneable optical properties and altogether new effects that can be exploited for a whole range of applications. We will discuss different synthesis methods for a range of nanoparticles and their application in the fields of energy conversion and biolabelling. A special emphasis of the presentation will be on nanomaterials in the context of artificial photosynthesis.

Short biography: Professor Thomas Nann is Associate Director of the Ian Wark Research Institute and Director of the South Australian node of the Australian National Fabrication Facility. A chemist by training, Thomas' career began at the University of Freiburg, Germany, where he completed his PhD in electrochemistry. He then commenced his independent work on the synthesis, characterisation and functionalisation of nanomaterials in Freiburg, where he was awarded his habilitation in 2004. In 2006 he accepted an appointment to the Chair of Nanosciences at the University of East Anglia (UEA), UK which he held for almost four years. Since June 2010, Thomas has been a Research Professor at the Ian Wark Research Institute at UniSA. In 2011 he was awarded one of the prestigious ARC Future Fellowships. Thomas' current research interests are focussed on the synthesis, characterisation and application of functional nanomaterials and their application in the areas of energy, health and catalysis. He has a track record of fundamental research on these topics which is

documented by numerous publications in high ranking journals. Furthermore, he has successfully supervised PhD and Post Doctoral students, concluded many industrial collaborative projects, holds several patents and is a member on editorial boards of scientific journals.

IEEE ACT Section web pages are at http://www.ieeeact.org/

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7) ICA and IVA: Theory, Connections and Applications to fMRI Analysis

IEEE ACT Chapter Electron Devices and Photonics Societies & ANU Department of Electronic Materials Engineering

Presents:

"UICA and IVA: Theory, Connections and Applications to fMRl Analysis"

A Lecture by Pro. Tulay Adali, PhD

11:00 am to 12:00 pm Friday 25th January 2013

The Australian National University (ANU)

Seminar Room, A-105, ANU RSISE (Research School of Information and Engineering)

RSVP by email to IEEEACT@gmail.com by 20 January 2013

Lecture Content:

Data-driven methods are based on a simple generative model and hence can minimize the assumptions on the nature of data. They have emerged as promising alternatives to the traditional model-based approaches in many applications where the underlying dynamics are hard to characterize. Independent component analysis (ICA), in particular, has been a popular data-driven approach and an active area of research. Starting from a simple linear mixing model and imposing the constraint of statistical independence on the underlying components, ICA can recover the linearly mixed components subject to only a scaling and permutation ambiguity. It has been successfully applied to numerous data analysis problems in areas as diverse as biomedicine, communications, finance, geophysics, and remote sensing.

This talk reviews the fundamentals and properties of ICA, and provides a unified view of two main approaches for achieving ICA, those that make use of non-Gaussianity and second-order statistics. Then, the generalization of ICA for analysis of multiple datasets, independent vector analysis (IVA), is introduced and the connections between ICA and IVA are highlighted, in particular in the way both approaches make use of signal diversity. Several key problems for achieving a successful decomposition, such as matrix optimization and density matching are discussed as well, along with examples of their application to medical image analysis.

Speaker Biography:

Tulay Adali received the Ph.D. degree in electrical engineering from North Carolina State University, Raleigh, in 1992 and joined the faculty at the University of Maryland Baltimore County (UMBC), Baltimore, the same year where she currently is a Professor in the Department of Computer Science and Electrical Engineering. She has held visiting positions at rieure de Physique et de Chimie Industrielles, Paris, France, Technical University of Denmark, Lyngby, Denmark, Katholieke Universiteit, Leuven, Belgium, and University of Campinas, Brazil.

Prof. Adali assisted in the organization of a number of international conferences and workshops including the IEEE International Conference on
Acoustics, Speech, and Signal Processing (ICASSP), the IEEE International Workshop on Neural Networks for

Signal Processing (NNSP), and the IEEE
International Workshop on Machine Learning for Signal Processing (MLSP). She was the General Co-Chair, NNSP (2001--2003); Technical Chair, MLSP
(2004--2008); Program Co-Chair, MLSP (2008 and 2009), 2009 International Conference on Independent Component Analysis and Source Separation;
Publicity Chair, ICASSP (2000 and 2005); and Publications Co-Chair, ICASSP 2008.

Prof. Adali chaired the IEEE Signal Processing Society's MLSP Technical Committee (2003--2005, 2011--2013), served on the SPS Conference Board (1998--2006), and the Bio Imaging and Signal Processing Technical Committee (2004--2007). She was an Associate Editor, IEEE Transactions on Signal Processing (2003--2006), IEEE Transactions on Biomedical Engineering (2007--2013), IEEE Journal of Selected Areas in Signal Processing (2010-2013), and Elsevier Signal Processing Journal (2007--2010). She is currently serving on the MLSP and Signal Processing Theory and Methods Technical Committees, and the Editorial Boards of the IEEE Proceedings and Journal of Signal Processing Systems for Signal, Image, and Video Technology.

Prof. Adali is a Fellow of the IEEE and the AIMBE, and the recipient of a 2010 IEEE Signal Processing Society Best Paper Award and an NSF CAREER Award. She is an IEEE Signal Processing Society Distinguished Lecturer for 2012 and 2013. Her research interests are in the areas of statistical signal processing, machine learning for signal processing, and biomedical data analysis.

IEEE ACT Section web pages are at http://www.ieeeact.org/

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8) Ultra-High Capacity Optical Transmission Systems

IEEE ACT Chapter Electron Devices and Photonics Societies & ANU Department of Electronic Materials Engineering

Presents:

"Ultra-High Capacity Optical Transmission Systems"

A Lecture by LAndrew Ellis, PhD, Distinguished Lecturer of the IEEE Photonics Society

2:00 pm Friday 7th December 2012 with refreshments at 1:50 pm

The Australian National University (ANU)

Seminar Room, ANU Cockcroft/Oliphant Link Building 58d, Mills Road

RSVP by email to IEEEACT@gmail.com by 5 December 2012

Lecture Content:

With the remorseless growth in demand for telecommunication services, the capacity of optical fiber links first exceeded the capabilities of electronics, requiring the introduction of wavelength division multiplexing, and is now approaching a fundamental limit. This limit is due to a trade-off between the familiar Shannon limit at low signal powers, and nonlinear effects at high powers. Before considering the implications of the capacity crunch when demand finally hits this limit, this lecture will review the technological achievements which took the industry from its first commercial service with the Dorset (UK) police in 1975 through to the 10 Tbit/s systems of today.

Speaker Biography:

Dr. Andrew Ellis was born in Underwood, England in 1965 and gained a BSc in Physics with a minor inmathematics from the University of Sussex, Brighton, England in 1987. He was awarded his PhD in Electronic and Electrical Engineering from The University of Aston in Birmingham, Birmingham, England in 1997 for his study on All Optical Networking beyond 10 Gbit/s.

He previously worked for British Telecom Research Laboratories as a Senior Research Engineer investigating the use of optical amplifiers and advanced modulation formats in optical networks and the Corning Research Centre as a Senior Research Fellow where he led activities in high speed optical component characterization.

Currently, he heads the Transmission and Sensors Group at the Tyndall National Institute in Cork, Ireland, where he is also a member of the Department of Physics, University College Cork. He is also an adjunct Professor of Electronic Engineering at Dublin City University, and a founder of the Dublin based start-up Pilot Photonics. He research interests include all optical OFDM, optical and electrical signal processing, the mechanisms limiting capacity in optical communication systems, and the application of photonics to sensing.

Dr. Ellis is a member of the Institute of Physics and the Institute of Engineering Technology, and is a Chartered Physicist. He is an Associate Editor of Optics Express and acts as a reviewer for IEEE Journal of Lightwave Technology, Photonics Technology Letters and Journal of Selected Topics in Quantum Electronics. He has published over 150 journal papers and over 24 patents in the field of Photonics.

IEEE ACT Section web pages are at http://www.ieeeact.org/

Recent past Events

The National Missile Defence Lecture was held after the AGM so included for the year 2013.

9) National Missile Defence

IEEE Aerospace & Electronic Systems Society and IEEE Geoscience and Remote Sensing Society ACT&NSW Chapter

Presents: **"NATIONAL MISSILE DEFENSE"**

A Lecture by Larry Chasteen, PhD, Distinguished Lecturer of the AESS

3:30-4:30 pm Friday 23 November 2012 with refreshments at 3:00 pm

Australian Defence Force Academy (ADFA)

Lecture Theatre 10, Blue Block 32 Canberra

RSVP by email to IEEEACT@gmail.com by 20 November 2012

Lecture Content:

The Bush Administration made major changes to the National Missile Defense (NMD) system that had been developed earlier by the Clinton Administration and established a limited system

in Alaska to counter threats from North Korea. But even with the new emphasis on anti-terrorism and closer relations with Russia, NMD was still a very controversial topic as seen with the U.S.

proposal to install parts of the Missile Defense System in Europe for protection against Iran. The European proposal had negative impacts on the US/Russia relations during the later years of the Bush Administration. The

Obama administration is trying to mend relations with Russia by taking a new look at the system proposed for Europe.

The NMD program will continue to be a key technical and policy issue facing the U.S. and the rest of the world. The Bush Administration focused more on testing and developing new equipment for the NMD system and also investigated a wider variety of sensors (such as space-based and sea-based systems) to detect incoming missiles. The Obama Administration developed a phased adaptive approach to NMD – develop advanced capabilities but install the new equipment only when the threat required the new systems.

This talk will provide background information on the policy issues facing NMD. It will also provide technical information on the major systems developed by the Bush Administration. The talk will also provide system engineering details on the proposed elements of the system that have been developed by the Obama Administration and are being installed in Europe. Several videos will be used to explain these topics.

Speaker Biography:

Dr. Larry Chasteen was the 1998 Dallas IEEE Section Chair and received the IEEE 3rd Millennium Medal for his service to the IEEE. He was also a 2000 IEEE Congressional Fellow and worked on the National Missile Defense Program for the US Congress. He had previously worked 25 years in the defense industry for Texas Instruments and Raytheon specializing in radar and smart weapons. He also served in the Viet Nam War as a USAF B-52 pilot and retired from the USAF Reserves in 2000 with the rank of Colonel. He now teaches Strategy and Entrepreneurship at the University of TX at Dallas. His research concerns evolving technical communities and their clustering. He was also a Fulbright Professor to Germany in 2006 and a science advisor at the State Department in 2007.

List Two – Section Sponsored Technical and Professional Talks under the 25th Anniversary Banner of the IEEE ACT "Networking with Techheads and Industry Leaders" Series

Besides a further 3 technical presentations by the Nanotechnology Council during the second half of 2013, the following events were advertised in the local paper "The Canberra Times" for the latter part of the year.

IEEE Celebrates 25 years in Canberra

Network with employers, local businesses, industry and professionals!

Computational Framework and Statistical Shape Analysis, Prof Anuj Srivastava, Department of Statistics, Florida State University, *4 pm, 19/9/13, NICTA, GF, 7 London Cct*

At the UNSW Canberra (Northcott Drive):

Aircraft Navigation and Safety, Ed Williams, Airservices, *4pm, 2/10/2013, LT1, Bldg30*

Aircraft Surveillance, Greg Dunstone, Airservices, *4 pm, 29/10/2013, LT6, Bldg32*

Charting Forage Quality for Koala Conservation, with geoscience and remote sensing, Dr. Kara Youngentob, Queensland University/ CSIRO AusCover, *4:30 pm, 12/11/ 2013, LT1, Bldg30*

Any enquiries: ieeeact@gmail.com. Talks are free. More programs: www.ieeeact.org

CleanUp Australia Community Event

The IEEE Act Section is holding a Cleanup Australia Event that covers Lake Burley Griffith by kayaking. Date 12 October 2013. Meet at Black Mountain Peninsula. Starts from 11:30 am. Sausage sizzle, Kayaking, exhibits by sports sponsors.

Graduates of the Last Decade (GOLD)

The Clean Up Australia event is being organised by the Graduates of the Last Decade (GOLD) IEEE ACT members. It is being assisted by the student branch and other sections of the ACT IEEE to bring it into the community as a public event.

The GOLD Chair Elias Lopez has received a US initiative grant to begining the project in early 2013.

Sponsors

IEEE Geoscience and Remote Sensing Society ACT&NSW Chapter Presentation

School of Engineering and Information Technology, UNSW@ADFA

Presentation Topic: Recent Advances in Spectral Unmixing of Hyperspectral Data

Speaker: Antonio Plaza

Date: 29 July 2013
Time: 4:00 – 5:00 pm with refreshments at 3:30 pm
Venue: Lecture Theatre 6, Building 32, Australian Defence Force Academy (ADFA)
Northcott Dr, Canberra

Abstract: Spectral unmixing is an important task for remotely sensed hyperspectral data exploitation. It amounts at finding the spectrally pure constituents in the scene (called endmembers in hyperspectral imaging terminology) and their fractional abundances on a sub-pixel level. Spectral unmixing allows for a detailed analysis of hyperspectral images with sub-pixel precision. Research in spectral unmixing has evolved significantly in the last few years, from the first efforts focused on linear spectral unmixing (assuming linear interactions between the endmembers) in which techniques assumed the presence of pure spectral endmembers in the data, to a current scenario in which most unmixing techniques assume that pure spectral signatures may not be present in the image scene due to spatial resolution and other phenomena.

Biography: Antonio Plaza received the M.S. and Ph.D. degrees in computer engineering from the University of Extremadura, Spain. His research interests include remotely sensed hyperspectral imaging, pattern recognition, signal and image processing, and efficient implementation of large-scale scientific problems on parallel and distributed computer architectures. He has been a Visiting Researcher with the Remote Sensing Signal and Image Processing Laboratory (RSSIPL), University of Maryland Baltimore County; with the Applied Information Sciences Branch, NASA Goddard Space Flight Center, Greenbelt, MD; with the Airborne Visible Infrared Imaging Spectrometer Data Facility, NASA Jet Propulsion Laboratory, Pasadena, CA; with the Telecommunications and Remote Sensing Laboratory, University of Pavia, Italy; and with the GIPSA-lab, Grenoble Images Parole Signal Automatique, France. He is currently an Associate Professor (with accreditation for Full Professor) with the Department of Technology of Computers and Communications, University of Extremadura, where he is the Head of the Hyperspectral Computing Laboratory. He is the author/coauthor of more than 350 publications on hyperspectral imaging, including more than 90 journal citation report papers, around 20 book chapters, and over 230 conference proceeding papers. He served as the Director of Education Activities for the IEEE Geoscience and Remote Sensing Society (GRSS) in 2011-2012, and is currently serving as President of the Spanish Chapter of IEEE GRSS. From January 2013, he has been the Editor of the IEEE Transactions on Geoscience and Remote Sensing journal. Additional information is available at: http://www.umbc.edu/rssipl/people/aplaza.

Forthcoming events:

October 2013

ACT IEEE Antennas and Propagation Chapter will be presenting a talk by Greg Dunstone

September 2013

ACT IEEE Antennas and Propagation Chapter will present a talk by Ed Williams.

Presentation Topic : GPS Navigation and operational benefits

Speaker: Ed Williams

Date: 29 September 2013

Time: 3:30--5pm with refreshments at 3:30pm

Venue: Lecture Theatre 6, Building 32, Australian Defence Force Academy (ADFA)
Northcott Dr, Canberra

ACT IEEE Antennas and Propagation Chapter will be presenting a talk by Greg Dunstone

Presentation Topic: Aircraft surveillance using Automatic Dependent Surveillance Broadcast (ADS-B) Automatic Position reporting

Speaker: Greg Dunstone

Date: 6 November 2013

Time: 4 pm

Venue: Lecture Theatre 1, Building 30, Australian Defence Force Academy (ADFA), UNSW Canberra, Northcott Dr, Canberra

Biography

Greg Dunstone has more than forty years experience as a specialist engineer on radar and air traffic control systems with Airservices Australia. He leads the development of surveillance strategy inAustralia including ADS-B, radar, surface movement radar, wide area multilateration and Precision Runway Monitoring. He is chairman of ICAO's Asia Pacific ADS-B Task Force and the Australian Strategic Planning Group's Surveillance Technology Working group (STWG). In 2011 he was awarded the Royal Aeronautical Society's Lawrence Hardgrave Award for his leadership of the Australian ADS-B Program, and also the Royal Aeronautical Society's 2011 Silver Specialist award.

Abstract

The talk will give both a historical and technical background on the ADS-B program inAustralia and its relevance in Asia Pacific. There are some features that make the Australian program different from theUSA notably the timing and the choice of a simpler variant that will allow more than a decade of full operational use before theUS program, whilst at the same time co-ordinated and consistent with the programs in Europe andUSA. The near and medium term CASA mandates require all IFR aircraft to be equipped with ADS-B in the next few years.

Attachment 1
Financial Matters

IEEE ACT Section : Financial report on 31-12-2013

ABN 86788136454

Statement Date	***INCOME*** Item	*Amount*
1-Jan-13	Balance (carried over from 2012)	**$5,652.77**
1-Jan-13	Interest 1-1-13	$0.07
1-Feb-13	Interest 1-2-13	$0.05
1-Mar-13	Interest 1-3-13	$0.02
1-Apr-13	Interest 1-4-13	$0.02
1-May-13	Interest 1-5-13	$0.01
13-May-13	IEEE Rebate	$4,727.30
13-May-13	IEEE R10 Travel Reimbursement (SL)	$1,716.00
1-Jun-13	Interest	$0.08
1-Jul-13	Interest	$0.13
11-Jul-13	IEEE Bonus Rebate	$498.10
1-Aug-13	Interest	$0.13
1-Sep-13	Interest	$0.15
1-Oct-13	Interest	$0.13
1-Nov-13	Interest	$0.10
1-Dec-13	Interest	$0.04
	Total Credit Mutations	**$12,595.10**

Statement Date	***EXPENSES*** Item	Amount
15-Jan-13	AGM 2012 Children Activity	$400.00
7-Feb-13	Hoe Tan / Dinner with DL	$51.30
11-Feb-13	Sharon / advance R10 meeting	$1,726.00
18-Feb-13	Saffron restaurant (ExCom Annual Meeting)	$680.90
20-Mar-13	Renewal PO Box	$292.00
2-Apr-13	Sharon Reimbursement R10 Meeting	$147.05
29-Apr-13	R10 Students Meeting (Hyderabad) / Lauren Hassall	$1,553.16
10-May-13	LEOS DL Simon Poole (Hoe Tan)	$54.00
21-May-13	ExCom meeting Nibbles May 8, 2013 (Sharon Lim)	$47.72
16-Jul-13	Cheque Mark Kelly UC award 1st prize	$75.00
23-Jul-13	Cheque Dylan Cohen UC award 1st prize	$75.00
9-Aug-13	Cheque Eugene Chong UC award 3rd prize	$20.00
20-Aug-13	Cheque Cong Phuoc Huynh - Gifts for 2 speakers Comp soc	$50.00
9-Sep-13	cheque Sean McKinnon UC award 3rd prize	$20.00
13-Sep-13	cheque Sharon Lim ExCom 23-08-2013	$76.85
19-Sep-13	cheque Xiuping Jia DL Geoscience	$98.91
11-Oct-13	cheque Andrew Winroe UC award 3rd prize	$20.00
14-Oct-13	Cheque Martin Leaver (12-10-13 Boats hire at Activity Clean Australia)	$150.00
29-Oct-13	Cheque Fouad Karouta for invoice Fairfax Media (publicity in Canberra Times)	$546.54
1-Nov-13	Cheque Sharon Lim various receipts	$117.92
22-Nov-13	Cheque Rainer Ignetik two seminars	$98.90
27-Nov-13	Cheque Yarralumla Turkish Pidehouse (AGM dinner)	$1,312.50
29-Nov-13	cheque Xiuping Jia two seminars	$99.40
3-Dec-13	Cheque Elias Lopez, Clean Australia IEEE Participation	$258.17
4-Dec-13	Cheque Fouad Karouta Fruits + disposable cutlery AGM dinner	$158.13
12-Dec-13	Cheque Sharon Lim various receipts children activities at AGM	$282.72
	Total Expenses	**$8,412.17**