



JOINT TECHNICAL PROGRAM 2007

Electrical and Electronic Engineering

A program of general interest talks and visits, and a chance to network with people in your industry

- 14 February
Host TSA
Adaptive Business Intelligence
Prof. Zbigniew Michalewicz, School of Computer Science, Adelaide University.
In the modern information era, managers must recognize the competitive opportunities represented by decision support tools. Adaptive Business Intelligence systems combine prediction and optimization techniques to assist decision makers in complex, rapidly changing environments. These systems address the fundamental questions: What is likely to happen in the future? And what is the best course of action? Adaptive Business Intelligence includes elements of data mining, predictive modeling, forecasting, optimization, and adaptability. The talk introduces the concepts behind Adaptive Business Intelligence, which aims at providing significant cost savings & revenue increases for businesses. A few real-world examples will be shown. Current trends in commercial software, as well as the growing importance of adaptability, will also be discussed. For more information, see www.adaptivebusinessintelligence.com.au.
- 14 March
Host Engineers Australia
Australian Synchrotron Project
Richard Farnsworth, Led Control Systems Engineer
The Australian Synchrotron, located near Monash University, provides essential information in the materials and chemical sciences, the life sciences as well as molecular and environmental science. This talk will cover the technical aspects of operation of the Synchrotron and its applications
- 11 April
Host TSA
CHANGE: Square Kilometre Array (SKA) – Status, Technology and Australia’s role in this international mega-science project
Dr Carole Jackson, Australia Telescope National Facility (ATNF), CSIRO Sydney
Radio astronomers worldwide are planning to construct a continental sized distributed radio telescope. Australia has submitted its bid to host this SKA. The decision where the telescope will be placed is expected in 2010. Wherever placed, the construction of the SKA presents some massive electronic engineering challenges for science and industry.
- 9 May
Host IET
CHANGE: Tenix’s Radar Technologies
Mr Andrew Vlassopoulos, Tenix Defence Pty Ltd
For a long time, Australia has been maintaining a very strong capability in a broad range of radar technologies, including DSTO and Defence industry here in Adelaide. This talk will provide a technical overview of the current and planned developments in the radar technology embedded in the local industry.
- 19 June
Host IEEE
The Quest for Hypersonic Flight (Joint Meeting with the Mechanical JTP)
Dr Colin Coleman, DSTO
Australia has recently entered into a joint agreement with the US Air Force to undertake basic research into phenomena associated with hypersonic flight. This will involve a series of 10 flight tests at Woomera leading to a demonstration of sustained hypersonic flight for a period of up to a minute. The flights will aim to achieve speeds of Mach 7 or 8. This talk will review the basics of hypersonic flight, discuss the objectives of the flight program, and reflect upon the motivations for Australia to become engaged in this challenging but inspiring initiative.
- 11 July
Host Engineers Australia
****VISIT (FROM 5:30PM) Renewable Energy: Training and Technology - Regency TAFE College South Australia**
Mr Ashbjorn ‘Aussie’ Kanck, lecturer in renewable energy, and Ms Christine Haydon, lecturer in electronics
The visit will showcase the College’s dedicated teaching area, workshop and roof top equipment platform with two photo-voltaic arrays, a small wind turbine and student work areas. There will also be a side visit to see ‘Kelly’ the solar electric car being prepared to compete again in the Darwin-to-Adelaide World Solar challenge in September 2007. Meet at the Regency TAFE Admin. building at 5.30 pm for 6.15 pm start. Register by email to Lisa, lcuculowskyj@engineersaustralia.org.au
- 8 August
Host Engineers Australia
Ceramic Fuel Cells
Brendan Dow, Chief Executive Officer, Ceramic Fuel Cells Limited
Ceramic Fuel Cells Limited has developed solid oxide fuel cell (SOFC) technology to provide reliable and energy efficient electricity from natural gas and renewable fuels. This talk will cover the latest SOFC developments for small-scale on-site micro combined heat and power and distributed generation units that co-generate electricity and heat for domestic use.
- 12 September
Host IEEE
Graph theory methods for computer-aided analysis of screening mammograms
Dr Mariusz Bajger, Computer Science, Flinders University
Image segmentation and image registration tasks form the basis for numerous important Image Analysis and Pattern Recognition techniques. Successful performing of these tasks is also crucial for many cancer detection algorithms used in digital mammography. In this talk we will discuss some of the recent developments towards better segmentation and registration methods in digital mammography based on graph-theoretical methods such as finding a Minimum Spanning Tree or using the Adaptive Pyramid algorithm. The ultimate goal which underpins this research is to obtain a robust algorithm for automatic registration of mammograms and, as a consequence, improve early detection of breast cancer.
- 10 October
Host IEEE
Nuclear Power in Australia
Clarence Hardy, Secretary Australian Nuclear Association
This presentation covers the history of the nuclear industry in Australia, global trends in the nuclear power industry and the factors under consideration for the future development of a nuclear power industry in Australia. The presentation will refer to two recent reports, the first by the government’s “Uranium Mining, Processing and Nuclear Energy Review” and the second, the 700 page Report of the House of Representatives Standing Committee on Industry and Resources on Australia’s Uranium
- 24 October
Host IET
STUDENT PAPERS NIGHT
Students from our three universities present their final year projects whilst competing in the IET Australia Technical Papers Presentation Prize Competition. IEEE Student Subject prizes will also be presented at this meeting.
- 14 November
Host IET
****VISIT (FROM 5.30PM) Motion Analysis Service - Gait Laboratory Clinic at the Repatriation General Hospital**
Visit the newly acquired, purpose built and state-of-the-art RGH Gait Analysis Laboratory in SA. Major equipment includes VICON MX system with eight MX3-cameras, four AMTI force plates, EMG system, and VICON workstation with real-time software. The service allows the measurement, analysis, documentation and understanding of human gait disorders providing technical expertise to medical, research and allied health professionals. Register by email to Olivia, ojpallotta@theiet.org

CPD Points : It is recommended that attendance at each of these presentations be counted as one CPD point under Engineers Australia guidelines

Please watch the host’s website for changes to the above. (Website details are overleaf.)

Venue: Chapman Hall, Engineering House, 11 Bagot Street, North Adelaide (except visits).

Dates: Meetings are generally held on the second Wednesday of each month.

Time: Light refreshments commence at 5:30 PM and the meeting at 6:15PM (except site visits).

Bookings for site visits must be made by emailing to the address and contact included in the above description of the visit. Numbers for visits are normally limited so book early - preference will be given to, EA, IEEE, IET and TSA members. Confirmation and visit details will be emailed to those attending prior to the event.

ALL VISITORS ARE WELCOME!



ENGINEERS AUSTRALIA is the national professional body for engineers, technologists and associates and with over 80,000 members is the country's largest and most diverse engineering association. Engineers Australia promotes the science and practice of engineering and represents public policy in engineering. Engineers Australia assists members to achieve their personal and professional goals by providing an extensive range of benefits, facilities and services at all stages of their careers, through graduate development programs, publications, presentations, workshops, site visits, technical presentations and career services. Engineers Australia defines the critical competencies required by professional engineers and engineering technologists in Australia, determines whether individual practitioners have demonstrated their capacity to deliver engineering services at these levels and administers the national engineering registers. Engineers Australia also accredits the courses of study offered by tertiary education providers and facilitates reciprocal membership of overseas institutions. For further information contact: Lisa Cuculowskyj, Technical Program Co-ordinator, Engineers Australia, South Australia Division 11 Bagot St, North Adelaide SA 5006.

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The **INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)** has over 360,000 members in about 175 countries worldwide, with nearly 40% of the membership outside the USA. IEEE's technical activity is managed under the TAB (Technical Advisory Board) by 37 Societies and 4 Technical Councils, all of which have world coverage, and geographically under the RAB (Regional Activities Board) in 10 regions. Region 10, which includes Australia, is the last region formed, covers the Asia-Pacific, about half of the world's population, and has been the fastest growing IEEE region in recent years. All Australian states except Tasmania and the Northern Territory have at least one section (Queensland has two), and these sections form the IEEE Australia Council. The IEEE South Australia Section has about 450 active members, with 5 technical society chapters, a GOLD affinity group and 3 Student Branches. The Section has staged a number of major international conferences in Adelaide and elsewhere including ICASSP 94, APMC 2000, RADAR 2003 and ASCC 2004. For further information contact: The Secretary, IEEE SA Section, PO Box 53, Elizabeth SA 5112.

Website: http://ewh.ieee.org/r10/s_australia/



THE INSTITUTION OF ENGINEERING AND TECHNOLOGY (The IET) is an international organisation with over 130,000 members throughout the world who have joined together to promote the advancement of electrical and electronic science and engineering. It concerns itself with management, design, science, education and the many fields of technology related to the profession. Following the merger with the Institution of Manufacturing Engineers, the IET is particularly well placed to serve the manufacturing industry and the professional engineers who work in it. One of the functions of the IET is that of a learned society and as such it publishes material on a wide range of related fields. The IET hosts a suite of virtual Professional Networks that link engineers and scientists with a common interest and circumvent many of the issues involved with time and distance. The SA & NT Branch hosts an active Younger Members section. All members 30 years of age and under are encouraged to be actively involved. Additional details are available on the IET's local web page home page (see below). Local contact details: Mr Tom Bammann, Honorary Secretary, The IET SA & NT Branch, PO Box 27, Highgate, SA 5063

Email: tbammann@theiet.org

Website: <http://sant.theiet.org.au/>



The **TELECOMMUNICATION SOCIETY OF AUSTRALIA (TSA)** is Australia's national society for the people and organisations involved or interested in telecommunications and related industries. The Society's objective is to advance the level of knowledge and understanding in the Australian telecommunications industry of the issues, trends, developments and new directions in telecommunications and related areas. The TSA presents free lectures/briefings to members and publishes the Telecommunication Journal of Australia (issued free to members). The Society also plays a major role in collecting, preserving and exhibiting artefacts from Australia's telecommunications history. Individuals and organisations involved or interested in telecommunications and related industries are welcome to join the TSA.

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