

# A C I newsletter

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## GREETINGS TO ROB .....

It is our understanding that Professor Robert. R. Bitmead, formerly with the Australian National University, and currently with the University of California, San Diego, the Department of Mechanical and Aerospace Engineering, has succeeded Professor Frank L Lewis, the retiring editor of Automatica, the most prestigious journal of the International Federation of Automatic Control.

Congratulations Rob! We are all proud of your achievement. .

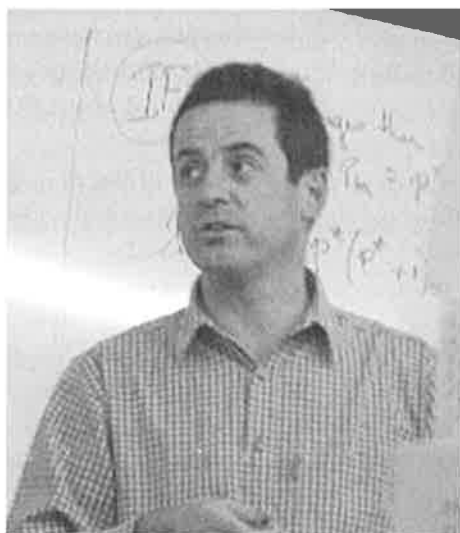
## .....IVEN ..... and

Professor Iven Mareels of the University of Melbourne's Department of Electrical and Electronic Engineering, has been elected to the Australian Research Council (ARC) Expert Advisory Committee for 2002. He will join a group of 12 scientists and academics in reviewing ARC grant applications in the area of Mathematics, Information and Communication Sciences. Iven, we salute your achievement.

## ..... GRAHAM

Professor Graham C Goodwin of University of Newcastle, together with Dr Stefan F Graebe of OMV Aktiengesellschaft and Professor Mario E Salgado of Universidad Technica Federico Santa Maria, Chile, has published a textbook on Control Systems Design. All three authors spent time together in the Centre for Industrial Control Science at the University of Newcastle, which provided them with a fertile breeding ground for many discussions on the principles of control. The market responded extremely quickly and gladly accepted this the most recent control title that lets the students enjoy studying a control course by using the Virtual Laboratories environment. Graham, Greetings for the extremely well done job.

## NCACI COMMITTEE MEMBER PROFILE



### **Richard (Rick) H Middleton**

I was born and raised in the Newcastle area on the East Coast of Australia. I studied for a combined degree in Physics and Electrical Engineering between 1979 and 1983. During this time, I was a cadet engineer with the Electricity Commission of NSW, and spent time at head office (Sydney), power stations (Vales Point and Eraring) and at the Waratah regional centre. After completing my undergraduate degrees, I was awarded a Commonwealth Scholarship to study for my Ph.D.

(Under Graham Goodwin's supervision) at Newcastle University. My Ph.D. studies dealt primarily with adaptive control (including adaptive control of robots with unknown link parameters, and robust adaptive control) and unifying continuous and discrete control theory through the use of the 'delta operator'. My PhD thesis was completed during a six-month visit to Imperial College of Science and technology in London in 1985.

Following my PhD studies, I returned to the University of Newcastle to take up a lecturer's position in 1986. During these early years, Graham Goodwin and I extended my thesis work on the delta operator into the text 'Digital Control and Estimation: A Unified Approach' which was published by Prentice-Hall in 1990. I continued research on adaptive control, but also developed an interest in performance limitations in feedback control systems. My interest in this latter field grew, and has been of lasting interest to me, particularly in collaboration with Jim Freudenberg (University of Michigan) and others.

In parallel with this more fundamental research work, I have undertaken a number of industrial research projects. I was particularly involved in a series of projects relating to satellite tracking, initiated originally with OTC and CSIRO, but later working with a range of companies including Optus, Defence, and others. Satellite tracking systems developed at The University of Newcastle Research Associates have been used in Australia, Antarctica, Pacific Ocean, Indian Ocean, African and Central European locations.

I have continued working at the University of Newcastle, having had 6 month sabbatical leaves at both the University of Illinois and the University of Michigan in the USA. I have worked on a wide range of control and signal processing projects including: electric machine control, adaptive control, robot control, digital control systems theory using delta operators, multirate and sampled-data systems, performance limitations in feedback control systems, metal rolling control problems, satellite tracking, applications of Kalman filtering, condition monitoring for high voltage electrical equipment, robotics, automotive engine control, earthing system testing and power electronics.

I have served in a variety of administrative positions including: associate editor of three journals (IEEE Transactions on Automatic Control, IEEE Transactions on Control Systems Technology, Automatica), Head of Department of Electrical and Computer Engineering at the University of Newcastle, panel member for the Australian Research Council, and am currently director of the Centre for Integrated Dynamics and Control (CIDAC) (A Commonwealth Special Research Centre).

On a more personal note, I have been happily married for over 20 years to Ruth, and have two children. In my spare time, I enjoy sports (particularly soccer and basketball), card games, reading, and am actively involved in a local church (Mayfield Baptist Church).

## **VALUE OF THE A-C-I UNDERGRADUATE THESIS PRIZE INCREASED**

The IEAust Undergraduate Thesis Prize in Automation, Control and Instrumentation was inaugurated in 1995 to recognise individual excellence achieved in undergraduate project work across the breadth of A, C & I. The quality of work presented has been such that the prize has been awarded each year since then: in addition a total of 21 Certificates of Commendation have been awarded for prize-worthy work of other applicants.

The NCACI is pleased to announce that from 2002 the monetary value of the prize will be increased to \$2000. This is in addition to the award of a medal and certificate. The Committee is keen that student interest continues to develop in automation, control and instrumentation. Although A, C and I are relatively 'mature' fields, development continues at a considerable and it is important that future ACI engineers - the present undergraduates - are encouraged by the profession.

In addition to the pursuit of cutting-edge technical work at the undergraduate level, and the general encouragement of student - and academic staff - interest in ACI, the prize seeks to encourage and recognise high quality reporting of the work. For this reason the prize is judged on the thesis and required supporting statements alone.

Assessment of theses submitted for the 2001 prize is currently nearing completion. The winner will be announced and the prize awarded at the M. A. Sargent Dinner of the Electrical College of the IEAust, to be held in the "Electrical Weekend" in June 2002. The winner and his or her work will also be outlined in the next edition of this newsletter.

Entries for the 2002 Undergraduate Thesis Prize will close in mid-December (as usual). Details, application forms, etc. may be obtained from Martine Bayly, Committee Administrator, ph. 02 6270 6530; email: [mbayly@ieaust.org.au](mailto:mbayly@ieaust.org.au).

Nigel Hancock,  
Chair, Thesis Prize Subcommittee, 2002,  
NCACI

# Information, Decision, and Control IDC 2002

Adelaide, Australia, 11<sup>th</sup> - 13<sup>th</sup> February 2002



The '2002 Information, Decision and Control' conference at the Festival Centre in Adelaide, attracted over 140 scientists, engineers and mathematicians working across the disciplines of signal processing and communications, decision and control, and data and information fusion. Following the success of IDC 99, IDC 2002 incorporated the third Australian Data Fusion Symposium.

The Conference emphasised the implementation of large interconnected and distributed systems such as military C4I systems, communication networks, distributed sensor networks, large scale distributed control systems, and multi-platform autonomous vehicle applications, with the central theme on this occasion being "Autonomous Vehicles".

Under the chairmanship of Professor Lang White, University of Adelaide, and the program committee Professor Iven Mareels (U.Melb.), Assoc. Professor Jim Schroeder (CSSIP), Dr K-C Wong (U.Syd.) and Dr Subash Challa (U.Melb.), a strong programme of five keynote and plenary addresses focused on three of the critical technologies needed for the design and analysis of modern distributed information and decision systems, and two addressed the autonomous vehicles theme.

There was strong international participation (30 registrants from 15 countries), and in all 75 papers were delivered. Three off-conference tutorials were also delivered, an encouraging result for an event of this size.

DSTO, CSSIP, CSIRO and the Sir Ross and Sir Keith Smith Fund were financial supporters of this event, which was sponsored by the IEEE South Australia Section.

Support for IDC 2002 has encouraged the organising committee to consider another meeting in the not too distant future.

Dr Michael Evans  
Chair, Organising Committee IDC 2002

## ACI Project Excellence Award

The Project Excellence Awards recognise outstanding applications of ACI, and are designed to encourage the application of 'best practice' ACI techniques to achieve greater productivity, more efficient use of resources including energy, and reduced emissions.

This award program was established in 1996 with the first awards being presented at the MA Sargent Medal Dinner in 1997. It is a biennial program and awards were presented in 1999 and 2001.

The inaugural awardees (1996) were *PCT*, Perth, for their work on Stage 1 of the ERA Ranger Uranium Mine plant upgrade, and *BHP Engineering* and *BHP Coated Steel*, jointly, for the SpringHill Coil Packaging and Handling Project, Port Kembla.

In 1998 *CAMMS Automation and Electrical Services* was awarded the prize for their work in designing, manufacturing, and installing, a state-of-the-art winery control and automation system for BRL Hardy's \$18M premium winery, Stonehaven Vineyards, at Padthaway, South Australia. The Stonehaven Winery is the largest single new winery to be built in Australia in the last twenty years.

The *Julius Kruttschnitt Mineral Research Centre*, at the University of Queensland, was awarded the 2000 award for their work in designing, and developing, a state-of-the-art Conductor Non-Conductor (CNC) gauge for use in the automated separation of two of the major raw materials, rutile (conductive) and zircon (non-conductive), which are found together in typical titanium mineral sand deposits.

**The committee is now seeking submissions for the 2002 Project Excellence Award in ACI. Information and application materials can be obtained from**

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Dr Michael Evans  
Chairman  
NCACI National Project Excellence Award Committee

## THE 1999 NATIONAL GENERIC COMPETENCY STANDARDS

The Committee has recently reviewed the "Indicative Range Statements for Engineering Disciplines", Appendix B, of the 1999 National Generic Competency Standards Document. It was found that there are several disciplines where the Committee genuinely believes that Control and Instrumentation should be better represented. This is particularly related to the current indicative range statements for Mechanical Engineering, Industrial Engineering and Electrical Power Engineering. The Committee has forwarded its recommendations to the IEAust for consideration.

### Editors' Post-script

- **Discussion Forum:** Letters to the editors in response to any article in the newsletter will have the responses published in subsequent editions.
- **News of interest** to the Australian community of control engineers are most welcome.
- **A special issue** of the newsletter may also be worthwhile. Please submit a proposal.
- **Contributions** will be reviewed against the Mission Statement of the Committee when editing received material. The editors reserve the right to make changes.
- **Your calls** are always welcome.
- **The Editors:** Dr Ljubo Vlacic (ph: 07 3875 5024; email: L.Vlacic@me.gu.edu.au) and Ms Martine Bayly (ph: 02 6270 6530; email: mbayly@ieaust.org.au).

The NCACI Newsletter is published twice per year, usually in April and November.