



**The
Institution
of Engineers,
Australia**

Electrical College

Chairman
Clive Cooper

**ACI
NEWSLETTER**

National Committee on
Automation, Control & Instrumentation

11 National Circuit, Barton ACT 2600
Phone (06) 270 6555
Fax (06) 273 1488

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NCACI Committee Membership

A change in the Committee membership has recently been made. Members with six or more years service with the Committee have been asked to consider their future status on the Committee, and for members wishing to retire a suitable replacement was made. The following are nominated to serve on the Committee from 1996:

Mr Peter Stone (Chairman)	(03) 9545 4793
Mr Steve Lieblich (Deputy Chair)	(09) 322 1812
Prof Eric Betz	(049) 217 127
Dr Sam Crissafulli	(049) 216 020
Dr Michael Evans	(08) 259 6916
Dr Nigel Hancock	(076) 312 552
Dr John Lear	(02) 352 2815
Dr Ian Milroy	(08) 361 8333
Dr Ljubo Vlacic	(07) 3875 5024
Ms Trish Grice (Committee Administrator)	(06) 270 6548

Corresponding Members

Dr Bob Bitmead	(06) 249 2849
Prof Mike Brisk	(03) 9905 3400
Dr Chris Guy	(03) 9626 7262
Prof David Hill	(02) 351 4647
Ms May Ngui	(02) 690 7070
Dr Brian Speedy	(049) 217 072
Prof Peter Sydenham	(08) 302 3303
Mr Don Wilcox	(03) 9816 3333

The Committee agreed to work towards strengthening cooperation with PCS and IICA and proposed that the area of cross-membership of the governing bodies of the three groups should be further explored. PCS is represented on the Committee by Dr John Lear of ICI Engineering and IICA by Mr Don Wilcox.

Thanks to Immediate Past Chairman — Dr Brian Speedy

It was Dr Brian Speedy who successfully chaired the NCACI since 1989. Under his leadership the Committee did many things which were of great benefit to automation, control and instrumentation engineers across Australia. One example is the creation of the NCACI Projects Scheme which currently includes; Modern Industrial Control Course, Undergraduate Thesis Prize, National Project Excellence Awards, IFAC Congress Travel Award and a Compendium of Control Courses.

Dr Brian Speedy was the former Chairman of the NCACI and served in this role from 1989 to 1995. Brian's engineering career spans over 45 years and a large part of this time was devoted to Control Engineering. Brian obtained his Bachelor of Engineering (Electrical with Honours) degree from the University of New Zealand in 1949 and Ph.D degree from Sydney University in 1953 where he earned the honour of becoming first Electrical Engineering Ph.D graduate in Australia.

Dr Speedy has held a number of positions in Australia and the UK working in both small and large companies. He was Professor of Control from 1962 to 1971 at the University of NSW. Brian was one of the early pioneers of advanced control and wrote a book on the subject with his then Ph.D student, Professor Graham Goodwin. One of his more recent posts was as Superintendent for Control and Technical

Computing with Nabalco in the Northern Territory. Brian retired from Nabalco in 1992 and moved to Coffs Harbour, NSW where he worked as a Consultant.

In 1995 he commenced his current position as Business Manager for CICS Automation, a recent spin-off company from Newcastle University's Centre for Industrial Control Science. Brian's technical and business experience in both small and large companies has been instrumental in seeing the company through its formative stages. One of Brian's motivations for entering academia was to evaluate the efficacy of Modern Control methods in industry. He and his team at the University of NSW were able to demonstrate the usefulness of these techniques in practice. Optimal control methods were applied to a pilot scale steam boiler and this was possibly one of the world's first demonstrations of an industrial application of Modern Control. His immovable belief in the benefits of Modern Control is evident from his passion for the field which continues today in his role with CICS Automation.

Brian is a Fellow in the Institution of Engineers, Australia and has been an active member for many years. He currently serves in two capacities, Newcastle Division's representative on the Electrical College Board and member of the Newcastle Division's Electrical Branch. While Brian had to retire as Chairman of the National Committee on Automation, Control and Instrumentation due to ill health, he was persuaded to stay on the committee as a corresponding member, and now enjoys good health. The NCACI would like to thank Brian for the time and effort he has devoted to the committee and wish him the best for the future. *Sam Crisafulli*

Welcome to new Chairman — Mr Peter Stone

Mr Peter Stone who has assumed the Chairmanship of the National Committee on Automation, Control & Instrumentation is the Senior Research Engineer at BHP Melbourne Laboratories. He is the leader of research and development projects involving the application of advanced process control technologies in BHP Division and has continuing hands-on research involvement. His professional affiliations have included:

- * Committee member, IEAust Victorian Control and Computer Systems Branch
- * Executive committee member, Cooperative Centre for Robust and Adaptive Systems
- * Member, IFAC Applications Committee
- * Member, The Institute of Electrical and Electronics Engineers - Computer and Control Societies
- * Member, IEAust - Process Control Society
- * Member, IICA Australia

Peter has been the recipient of numerous prizes, scholarships and awards and is a prolific writer of Journal papers, conference papers and technical reports. The Committee welcomes Peter as the incoming Chairman and looks forward to an inspiring term under his leadership.

NATIONAL PROJECT EXCELLENCE AWARDS in Automation, Control & Instrumentation

The research and development of automation, control and instrumentation (ACI) theory in Australia is proceeding faster than its absorption into practice in Australian Industry. This is despite the fact that ACI can improve quality and efficiency while simultaneously utilising poorer raw materials and reducing energy usage and pollution. Thus there is a need to encourage the effective implementation of ACI research and development in Australia.

The National Project Excellence Awards in Automation, Control and Instrumentation are designed to encourage the application of ACI techniques by rewarding excellence and achievement in the use of ACI methods to achieve greater productivity and improved performance. The inaugural awards will be presented at *Control '97*, the biennial Australian conference, which is scheduled for Sydney next year, or at another formal occasion of the Institution of Engineers, Australia during 1997.

Person(s), Group(s), or Organisation(s) are eligible to submit entries in each of two categories: a) major projects; or b) smaller projects (individuals or organisations of 10 or fewer personnel). Each entry will be judged principally on criteria which will include innovation, ingenuity, originality, demonstrated cost effectiveness and community benefit, but technical merit, use of sound engineering practice, environmental aspects and involvement of other disciplines and professions may also be considered. The closing date for entries is 31 January 1997.

The award will consist of a medal or plaque and in pursuance of the purpose of the awards to recognise and encourage excellence, publicity will be given to all the entries by means of media coverage and articles in *Engineers, Australia*.

Further information on the conditions of entry and entry forms are available from the Institution of Engineers National Office by contacting Ms Trish Grice on (06) 270 6548. *Mike Evans*

Undergraduate Thesis Prize - Annual Announcement

The NCACI will consider applications for the award of an annual Undergraduate Thesis Prize for project work in the fields of automation, control and instrumentation.

The prize will comprise a Medal, a Certificate and a cheque for \$1,000. It will be awarded on a national basis and any final year student undertaking projectwork in these disciplines will be eligible. In addition to the encouragement and recognition of individual excellence achieved, the National Committee is keen to encourage high quality technical communication: hence the prizewinner will be determined principally on the basis of the thesis or report presented.

Applications are now invited and close on the 13th December. For further details please contact Ms Trish Grice on (06) 270 6548 or Email: trish_grice@ieaust.org.au

The 1995 Undergraduate Thesis Prize

The inaugural Undergraduate Thesis Prize in Automation, Control and Instrumentation, 1995 comprising a Medal, a Certificate and a cheque for \$1000 was awarded to Mr Patrick Fordyce for his thesis titles: Self-Tuning Controllers.



Mike Sargent presenting Patrick Fordyce with his certificate, cheque and medal, with Nigel Hancock in centre.

Mr Fordyce submitted his thesis towards his Bachelor of Electrical and Electronic Engineering at the Department of Electrical Engineering, University of Queensland.

The Assessment Panel, a subcommittee of the NCACI, judged the project reported in this thesis to be of immense importance to the process industries. The level and type of work undertaken was amongst the current best practice in Australian Process Industries.

The core of Mr Fordyce's project was the definition and implementation of control solutions to improve the performance of a given process plant. His project involved data acquisition and implementation on a "real" industrial plant, which added greatly to the difficulty as well as the realism of the project, particularly when undertaken by an undergraduate student.

The student reviewed a great deal of literature, understood and utilised it well. The thesis was very well written and of a standard more appropriate to the award of a Master's Degree.

Overall a strong field of high quality applications were received. Of these no less than seven (7) were judged to be of prizewinning quality, both in standard of the engineering undertaken and also the quality of the thesis presentation.

Hence a further six (6) applicants will receive Certificates of Commendation from the NCACI.

- * Fiona Kluyt - "Heat Exchange Temperature Control at CSR's Kalamia Mill" - Queensland University of Technology
- * Heng-Mao Chiu - "Automated EMI Measurement System" - Queensland University of Technology
- * Steven Edwards - "Development of a Computer Based Simulation For a Real Time Pressure Controlled Air Handling System" - Victoria University of Technology
- * Michael Stuckings - "A Study in Nonlinear Control: The Duffing's and Van Der Pol Equations" - The University of Newcastle
- * Alan Watters - "Active Suspension Systems for Vehicles" - The University of Queensland
- * James Cleary - "The Design and Construction of a Reconfigurable, Scalable and Low-Cost Flight Simulator" - The University of Sydney



L-R: Peter Stone (Chairman NCACI); Patrick Fordyce — winner; Michael Stuckings, Steven Edwards, Heng-Mao Chiu — received Certificates of Commendation; Nigel Hancock (Chair of Judging Sub Committee)

The Prize and the Certificates of Commendation were awarded by Dr Nigel Hancock, Chair of the judging subcommittee, on Friday 21 June at a luncheon at Victoria Division. *Nigel Hancock*

The 1996 IFAC Congress Travel Award

As the winner of the IFAC Congress Travel Award, Ali Safavi received a cheque for \$3000 to enable him to travel to the IFAC World Congress being held in San Francisco, USA.

Ali will be presenting his paper "Application of wavelets to density estimation for process monitoring" at the IFAC World Congress. Ali is currently working in the Department of Chemical Engineering at the University of Sydney, continuing his research into this important area of Neural Networks.

The presentation was made at the University by Dr John Lear, Chairman of the Process Control Society and a member of the National Committee on Automation, Control and Instrumentation.

The award is made triennially to provide assistance to a young postgraduate student, to enable them to attend the IFAC World Congress, a unique opportunity to absorb information and broaden their perspective. *John Lear*

About the NCACI

For those who are reading the NCACI Newsletter for the first time, some facts about the Committee.

The National Committee on Automation, Control & Instrumentation (NCACI) is one of three national committees established by the Electrical College. Its mission is to:

- * identify the "NCACI Constituency" and its views and needs with respect to continuing education, technical support and other services in the field of ACI Engineering;
- * facilitate improvements in the availability and delivery of continuing education and other support services from the ACI Support Infrastructure of the NCACI Constituency;
- * promote improvements in educational curricula so that the content and delivery of ACI-related engineering courses in Australia, and prerequisite education, are relevant to the anticipated working environment of their graduates;
- * promote Government and industry policies which ensure that ACI Engineering is practiced in Australia by suitably trained engineers using appropriate engineering quality management procedures;
- * promote research and development in the field of ACI; and
- * promote the use of ACI where it can be effectively and ethically applied to improve economic performance, protect the natural environment and/or improve the quality of life in Australia.

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.
- * From now on, the newsletter is edited by:

* Dr Ljubo Vlacic (ph: 07 3875 5024, email: L.Vlacic@mc.gu.edu.au) and

* Ms Trish Grice (ph: 06 270 6548, email: trish_grice@ieaust.org.au).

Your calls are always welcome.

ACI Newsletter Editors:

Dr Ljubo Vlacic
Ph: (07) 3875 5024
Ms Trish Grice
Ph: (06) 270 6548

The Institution of Engineers,
Australia
11 National Circuit
BARTON ACT 2600

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