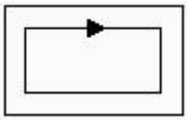
Fourth Circular

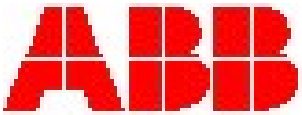
1st African Control Conference
AFCON 2003

3-5 December 2003
UNIVERSITY OF CAPE TOWN
CAPE TOWN
SOUTH AFRICA

Organised and sponsored by the South African Council for Automation and Computation (SACAC), with Additional Sponsorship by ABB

www.sacac.org.za





It is now just a few days until the start of our conference, and we would like to pass on some details which may help you to plan your stay and your conference attendance.

Conference Programme

A provisional conference programme is attached. We suggest you check the conference website for programme updates.

Venue and Transport

The conference is being held at the University's Breakwater Campus, which houses the Graduate School of Business (GSB). Attached to this circular is a map showing how to get to the GSB from the major highways, and also a description of how to get there from Cape Town International Airport. If you require to be picked up from the Airport, please contact Sandra Fairfax at bluebuyou@yebo.co.za or +27 83 293 6555. A minibus shuttle service will be available to take delegates between the GSB and the major conference hotels; however, this will only start running on the first day of the conference, and it may be more convenient for you to make your own way to the GSB for registration.

Parking

Free parking is available at the venue for delegates. On the first morning, an attendant will be situated at the gate to give you a parking voucher. You will be given further parking vouchers upon registration.

Facilities

The lecture halls are equipped with data projectors, into which a laptop may be plugged. They also have a fixed PC which runs Windows XP and has the corresponding version of Powerpoint. These PCs have CD and floppy drives, but the USB ports are unfortunately not accessible. If you require a PC with USB port, please make your need known to the organisers at registration. The lecture venues are also equipped with overhead projectors.

Video facilities are available but will need to be unlocked – please arrange beforehand with the organisers.

South African buildings are electrically wired for 220V, 50Hz, and with archaic three-pin (round pin) wall sockets. However, European-style two-pin socket adaptors are widely available; these adaptors will be available in the lecture venues. USA-style (flat pin) socket adaptors will not be available.

Presentations

All presentations will be of the standard lecture type (no poster sessions). Apart from the plenary presentations, all presentation slots will be 20 minutes in length. We suggest an allowance of 15 minutes for formal presentation, 3 minutes of question-and-answer time, and 2 minutes for changeovers. Each session will have a chairperson who will be encouraged to maintain accurate timekeeping, to facilitate attendees wishing to swap from one session to another. There will be two parallel sessions running at most times.

Registration

Registration will take place in the GSB foyer from 16h00 on Tuesday 2nd December, and from 08h00 on Wednesday 3rd December. The registration and help desk will be manned throughout the conference.

Conference Fees

The regular registration fee includes all plenary and technical sessions, one copy of the proceedings, tea and coffee, lunches, the cocktail party, and the banquet. Student registration fees exclude the banquet and the proceedings. The day registration fee includes one copy of the proceedings, plenary and technical sessions, refreshments and lunch on a specific day only. Attendance of social events is excluded from the day fee. Separate tickets for the social events can be obtained as indicated below. The registration fees are:

	FOREIGN DELEGATES	LOCAL DELEGATES
Registration after 3 Nov 2003	US$ 350	R 3000
Students‡ after 3 Nov 2003	US$ 125	R 1000
Day registration	US$ 200	R 1500
Cocktail Party: Extra ticket	US$ 25	R 200
Banquet: Extra ticket	US$ 50	R 400
Proceedings: Extra copy	US$ 30	R 250

Payment

Payment can be made by credit card, cheque, or bank transfer. Payment details are given on the fax-back section at the end of the circular.

Social Programme

3rd December	A cocktail function will be held in Cape Town's just-completed International Convention Centre, which we anticipate to be the venue for future SACAC and IFAC functions.
4th December	The conference banquet will be held at the Bay Hotel, on Cape Town's internationally famous Camp's Bay beach.
5th December	A technical visit to either a wine estate, or SABMiller's historical first brewery, the Ohlsson's brewery in Newlands, has been arranged.
6th December	The annual inter-university RoboSoccer competition, hosted by SACAC, will be held at the MTN Sciencenter, Canal Walk, Cape Town.

The conference fee includes lunch each day, and regular coffee breaks.

Climate

The days should be warm and sunny, with some wind. The evenings may be cool enough to justify a jacket or pullover, and delegates wishing to visit Table Mountain, the Cape of Good Hope, or Robben Island are advised to bring some warmer clothing. All of these locations are within an hour's travel of the venue.

Scientific and Technical Programme

The conference programme is attached.

Travel Agents

Our conference travel agents are called Blue Buyou and can be contacted at bluebuyou@yebo.co.za. They are able to organise your visit on all levels from travel and accommodation, to extra social events in and around Cape Town. They have a full range of tours and events to suit all itineraries.

Accommodation which can be provided by Blue Buyou

5 Star – 12 Apostles – This hotel is situated between Camps Bay and Llandudno with the most amazing sea views. Free transport is provided from the hotel to the Waterfront between 7am and 11pm daily. Afcon delegates have been offered a special rate of R 1280 per room per night and it is usually R3000 per room per night. This is subject to availability!

Radisson Hotel – In walking distance to GSB – wonderful mountain and sea views. Rates R1535 per room single, R1630 per room double for mountain facing. R1940 single & R2035 double sea facing. Both rates include breakfast but exclude a 1 % tourism levy.

4 Star - Cullinan Hotel – opposite Waterfront, approximately 1 km from GSB. R1040 BB single, R1220 BB double. Transport can be arranged for a nominal fee to the GSB.

Holiday Inn – Waterfront, 1 km from GSB – price to be arranged.

Portswood Hotel – easy walking distance from GSB and at entrance to Waterfront – R1325 per room, single, R1570 per room, double Bed only. Breakfast cost R85 for continental and R95 for full English breakfast.

3 Star - City Lodge – at entrance to Waterfront, 1 km from GSB, recently refurbished. R585 per room, single, R790 per room, double. Full English breakfast R48pp. Canal transport to waterfront may be available.

Mountain Manor Guest House/Serengeti Apartments/Hiddingh Mews – in the Gardens district – a 5 min. drive from the GSB. R600 per single per night and where apartments can accommodate two or more it will be an additional R260 per person. Transport can be arranged at R30pp from accommodation to GSB.

There are further options, depending on budget and which area you would like to be located. There are some super options for those who would be willing to hire a car (i.e. in Cape Town's Southern Suburbs)

Car Hire

Contact Sandra Fairfax at **bluebuyou@yebo.co.za** to book. All hotels have guest parking, and parking is available at the conference venue.

Contact details

NOC Chairperson:	Prof JC Tapson
Conference Secretariat:	Mrs K van Wyk
Mailing Address:	Department of Electrical Engineering University of Cape Town UCT Private Bag Rondebosch 7701 South Africa
Email:	jtapson@eng.uct.ac.za, or kvanwyk@eng.uct.ac.za
Phone:	Int + 27 21 650 2795
Fax:	Int + 27 21 650 3465

Registration and/or Payment Form

Please fax or email to us if you plan to attend the African Control Conference of 2003.

Fax to: Int + 27 21 650 3465 Email to: kvanwyk@eng.uct.ac.za

Personal Details

Surname ……..

First Name ……..

Title ……..

Company ……..

Address ……..

……..

……..

ZIP/ Post Code ……..

Telephone (…….)……..

Fax (…….)……..

Email ……

Payment Details

Amount (see table)

Registration	Student registration	Extra: Cocktail Party	Extra: Banquet	Extra: Proceedings

Method of payment (cheque, credit card, or bank transfer) ……..

Cheques should be made payable to *University of Cape Town*.

Bank transfers can be made to: Standard Bank
Rondebosch (branch code 25009)
Account: University of Cape Town No. 8
Account no: 07 148 2555
SWIFT: SBZA ZA JJ

Please refer to Fund 201758, EEE1017 on the deposit slip and **please fax the slip to us**.

Credit Card Payments:

Cardholder Name: …… Card Type:……

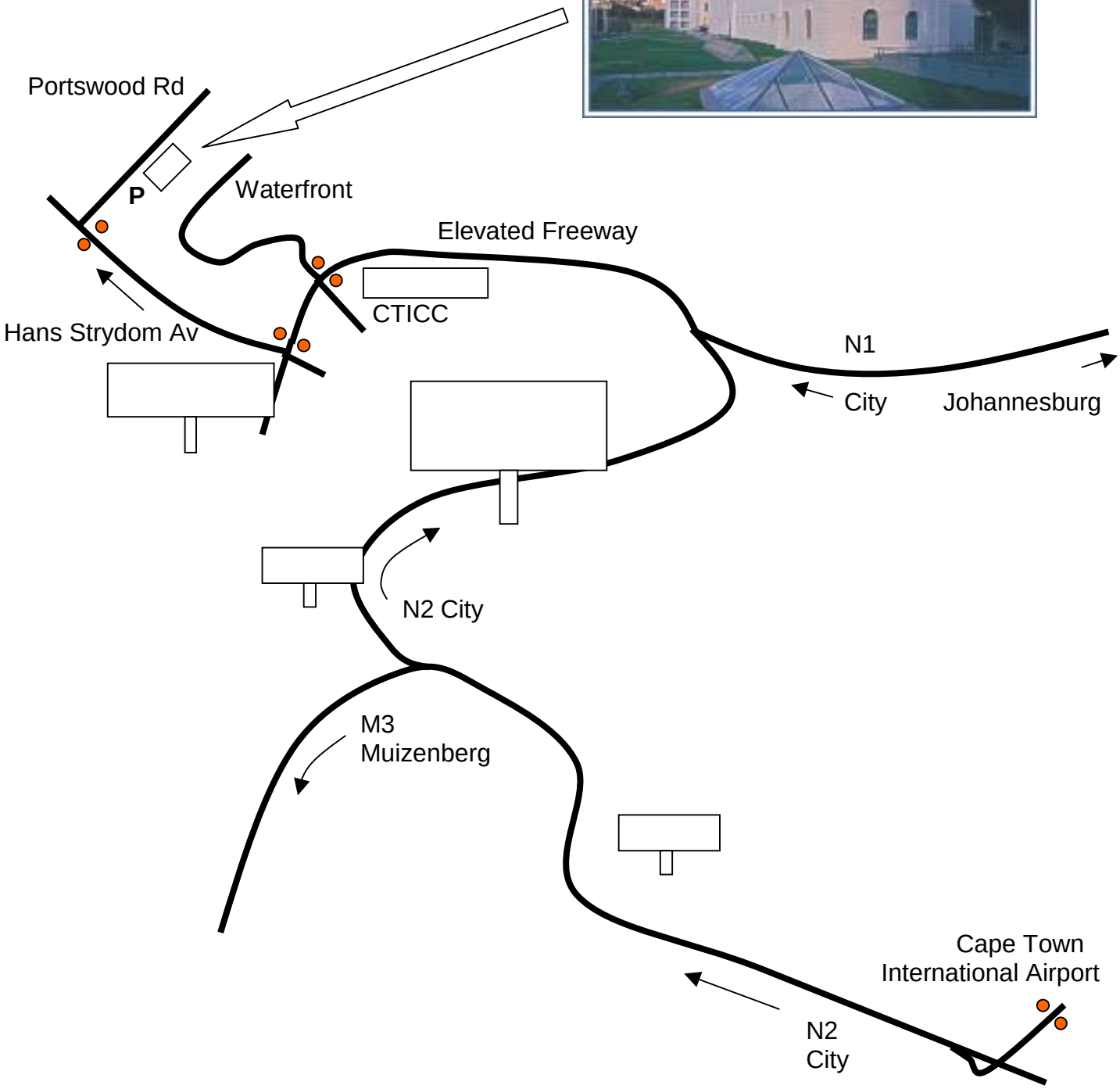
Card Number: …… Expiry Date: ……

Validation Number (last three digits of number on reverse side of card):……

Amount: …… Cardholder Signature:……..

Major Road Access to the GSB Breakwater Campus

The GSB – conference venue



How to get to the UCT Graduate School of Business Breakwater Campus from Cape Town International Airport

1. Leave the airport following the roads marked **Exit** and **(N2) Cape Town**. You should pass straight through one set of traffic lights when leaving the airport.

2. Follow the **(N2) Cape Town** signs for approximately 2 km, after which you will cross over and merge onto the N2 highway, heading in the direction of Cape Town. The N2 is also called Settlers Way.

3. Stay on the N2 for approximately 10 km. There will be several signs saying **N2 Cape Town** or **N2 Kaapstad**.

4. After 10 km, the highway forks; follow the right hand fork marked **N2 - M3 - City - Stad**. You are now on Eastern Boulevard.

5. Keep to the right; you will cross a spur of Devil's Peak, and then will have a downhill view of the city and harbour. You should still be following signs saying **N2 City**.

6. Toward the bottom of the hill you will start to see signs indicating **M6 Sea Point - CTICC - Waterfront**. Follow these signs (simply keep to the right).

7. You should progress on to an elevated highway that cuts between the city and harbour. Look for signs saying **M6 - Sea Point - Cableway** and follow them. This means staying in the centre-right lane of the highway.

8. Pass through one set of traffic lights. The cross street is Coen Steytler Avenue. If you are staying in the Cullinan or Holiday Inn hotels, they are across the intersection, on the left. The City Lodge is across, on the right.

9. Turn right at the second set of traffic lights, into Hans Strydom Avenue. You should follow a sign saying **Waterfront - Somerset Road**.

10. After 1km, there is another set of traffic lights, and a sign saying **Portswood Rd**. Turn right into Portswood Rd.

11. After 50m, there is a small sign on the right saying **Breakwater Lodge - Conference Parking - Graduate School of Business**. Turn into the indicated parking area – you are there. The GSB building is a large white castle-like building with crenellated battlements on top – somewhat like a Saharan fort!

First African Control Conference

3-5 December 2003

University of Cape Town, South Africa

Semi-Final Programme

Wednesday	3 December	Thursday	4 December	Friday	5 December
8h40-9h00	Opening (E Boje, P Albertos)				
9h00-10h00	Plenary: Prof. David Limebeer “Motorcycle Steering Oscillations Due to Road Profiling” (E Boje)	8h30-9h30	Plenary: Prof. Sigurd Skogestad “Control structure design: What should we control, measure and manipulate?” (P de Vaal)	8h30-9h50	4x2 parallel sessions Linear Systems (M Braae/ I Craig) Speech processing (J Greene / J Tapson)
10h00-10h15	Coffee	9h30-9h50	Coffee	9h50-10h10	Coffee
10h15-11h55	5x2 parallel sessions Industrial Systems 1 (L Lange / R Roberts) Artificial Neural Networks / Fuzzy Logic (C Aldrich)	9h50-11h50	6x2 parallel sessions Process Control 1 (C Aldrich/R. Tzoneva) Laboratory systems (P de Vaa / G Gibbon)	10h10-11h50	5x2 parallel sessions Instrumentation (J Tapson/M V Shuma-Iwisi) Learning systems (C Aldrich/ S-L Jämsä-Jounela)
12h00-12h40	Plenary: Prof. Roger Benson “From Single Loop to Cohesive Process Control: The Future” (J Engelbrecht)	12h00-12h40	Plenary: Prof. Guanrong Chen “Complex Dynamical Networks: Control and Synchronization” (X Xia)	12h00-12h40	Plenary: Prof. Pedro Albertos “Some Issues in Control Engineering Practice” (I Craig)
12h40-13h30	Lunch	12h40-13h30	Lunch	12h40-13h30	Lunch
13h30-15h10	5x2 parallel sessions Industrial Systems 2 (R van Schalkwyk / F Camisami) Non-linear Systems (X Xia / E Eitelberg)	13h30-15h10	5x2 parallel sessions Modelling and Control 1 (L Lange / F Camisami) QFT & Frequency Domain Methods 1 (M Garcia Sanz/ E Boje)	13h30	Modelling and Control 2 (M Jacobs / E Boje) Brewery Tour (limited numbers) (J Tapson)
15h10-15h30	Coffee	15h10-15h30	Coffee		
15h30-17h10	5x2 parallel sessions Adaptive and Non-linear Control Economics and Economic Evaluation of Control (S-L. Jämsä-Jounela/M Peterson)	15h30-17h10	5x2 parallel sessions Automation (FJE Laubscher/J Enslin) QFT & Frequency Domain Methods 2 (E Eitelberg/C Prichard)		
Evening	Reception		Conference Dinner The Bay Hotel – Camps Bay Guest Speaker: Mr Case Rijsdijk S.A.L.T. ‘n Pepper		Saturday 6 December SACAC Robo-soccer Competition

First African Control Conference

Preliminary Programme

Session	Author	Paper
Adaptive & Non linear 1.1	V Bobál, P Chalupa and P Dostál	Usage of self-tuning controllers Simulink library for real-time control
Adaptive & Non linear 1.2	A Khaki Sedigh and B Moaveni	Adaptive input-output pairing using on-line RGA identification
Adaptive & Non linear 1.3	M Jerouane, N Sepehri and F Lamnabhi-Lagarrigue	Dynamic analysis of variable structure force control of Hydraulic actuators via the reaching law approach
Adaptive & Non linear 1.4	B Behar, F Lamnabhi-Lagarrigue, T Ahmed-Ali	Robust nonlinear controls for two problems of rejecting disturbances
Adaptive & Non linear 1.5	M B Jacobs	Feedback Control in the Evolution of Lindenmayer Systems
ANN/Fuzzy 1.1	R Marumo and M O Tokhi	Modelling and control of a pneumatic motor using neural networks
ANN/Fuzzy 1.2	S M B Malaek, H Izadi and M Pakmehr	Intelligent auto landing controller based on neural networks
ANN/Fuzzy 1.3	J Zrida, A Benzaouia, J Ezzine, F Mesquine and S El Faiz	Rate-based flow fuzzy controller for communication systems
ANN/Fuzzy 1.4	H Ayad, S Doubabi and A Hamzaoui	An anti windup compensator for systems for saturation actuators using adaptive fuzzy logic
ANN/Fuzzy 1.5	A Benzaouia and M Nachidi	Regulation of the temperature inside a greenhouse: a fuzzy control approach
Automation 1.1	F J E Laubscher and A Grobbelaar	Establishment of a control philosophy for the pebble bed modular reactor
Automation 1.2	P A Gouws, T A Harrison and P C Pelser	Interfacing a Panelview 660 to a control Logix 5550 controller
Automation 1.3	G Procter	Configuration control on PLC applications at the SAFARI-1 Research Reactor
Automation 1.4	B J Dragt, I K Craig and F R Camisani-Calzolari	Navigation of autonomous underground mine vehicles
Automation 1.5	P Kulczycki and J Waglowski	Optimal base-stations locations in the LMDS wireless data transmission system
Economics & Economic Evaluation 1.1	W Coetzer	A Model of the Diffusion of Breakthrough Products
Economics & Economic Evaluation 1.2	M A Petersen, E Letsaolo, H Raubenheimer, N Sepadi, F van der Walt, H van Rooyen	On the Stochastic controllability of Ho-Lee Hull-White, black-Derman-Toy and Cox-Ingersoll-Ross interest rate models
Economics & Economic Evaluation 1.3	S-L Jämsä-Jounela, R Poikonen, N Vatanski, and A. Rantala	Evaluation of control performance in remote maintenance centres
Economics & Economic Evaluation 1.4	M A Petersen	On optimal control problems in funding systems
Economics & Economic Evaluation 1.5	Z M Smit and I K Craig	Optimising electricity real time pricing tariffs

First African Control Conference

Preliminary Programme

Session	Author	Paper
Industrial Systems 1.1	O Rubin and J Pritchard	Dynamic modelling for control of a new generation nuclear power station
Industrial systems 1.2	S-C Wang and X Xia	Mathematical modelling of heavy-ore load train equipped with electronically control pneumatic brake
Industrial systems 1.3	A C Roebl	A Multiple Particle Feed Control System
Industrial Systems 1.4	M-S Chou and X Xia	Train controller for heavy-ore train
Industrial systems 1.5	P Tshuma, E Nyakwende and M Collier	A model hybrid control synthesis approach using heterogeneous ball mill system
Industrial Systems 2.1	M Peens, I K Craig and P C Pistorius	On the modelling of an electric-arc furnace electrode-control system
Industrial systems 2.2	JO Pedro, OT Nyandoro, C G Bigg and J T Nelson	Design of an ABS controller
Industrial Systems 2.3	P L Rathaba, I K Craig, P C Pistorius	Identification of an electric arc furnace
Industrial systems 2.4	P Saayman, I K Craig and F R Camisani-Calzolari	Optimization of an autonomous vehicle despatch system in an underground mine
Industrial systems 2.5	S K Mathew and R Sahu	Performance Matrix Based Controller Tuning for Tire Vulcanization Process
Instrumentation 1.1	M V Shuma-Iwisi and G J Gibbon	Smart Transducers: A Reconstructed Definition and a Link to Microcontrollers
Instrumentation 1.2	A Kardec, D Barros and M de Oliveira Santos	Estimating the Heart Instantaneous Frequency using the EARM Algorithm
Instrumentation 1.3	D Stuart-Watson and J Tapson	A Simple Force-Balance Accelerometer/Seismometer Based on a Tuning Fork Displacement Sensor
Instrumentation 1.4	J Treurnicht and W H Steyn	A Robust Attitude Measuring System for Agile Satellites
Instrumentation 1.5		Discussion
Lab Systems 1.1	R Delport and P de Vaal	The unit operations toolbox:a dynamic simulation package in Simulink
Lab Systems 1.2	P D Pretorius	Development of graphical user interfaces in control systems for educational laboratory work in the Matlab environment
Lab Systems 1.3	P de Vaal and A Sandrock	Equipping a process control laboratory to reflect contemporary control technology
Lab Systems 1.4	C A Germond and G J Gibbon	The Development of a Test Bed for Performance Measurement of Ethernet Based Fieldbuses
Lab systems 1.5	T A Harrison, K Bodenstein and H P Ferreira	An expert system for the education of engineering students
Lab systems 1.6	Q Lin and S Zhu	NetLab : A Real Internet-based Laboratory
Learning Systems 1.1	T Marwala	Control of complex systems using Bayesian networks and genetic algorithms
Learning Systems 1.2	Puramanathan Naidoo	Intelligent Control & Tracking of a Solar Parabolic Trough
Learning Systems 1.3	G T Jemwa and C Aldrich	Development of on-line inductive systems by use of support vector machines
Learning Systems 1.4	E Namikka and G J Gibbon	Identification of Data Mining Techniques for Industrial Process Analysis and Control
Learning Systems 1.5	J Kämpe, M Vermasvuori, K Koskela and S-L Jämsä-Jounela1	Intelligent support system for Pressure Filter
Linear Systems 1.1	U Nurges and E Rustern	On Robust Stability and Robust Control via Reflection Coefficients
Linear Systems 1.2	K K Busawon	On Jordan controllable and observable canonical forms
Linear Systems 1.3	X Xia, G Chen and R Gai	On control Lyapunov modes of linear control systems
Linear Systems 1.4	M Machaba and M Braae	Explicit Damping Factor Specification in Symmetrical Optimum Tuning of PI controllers

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Preliminary Programme

Session	Author	Paper
Modelling and Control 1.1	J H Viljoen and I K Craig	Modelling and optimal control of a telecommunications market operator
Modelling and Control 1.2	R Filter and X Xia	Computer based HIV/AIDS parameter estimation for practitioners and patients
Modelling and Control 1.3	C M Matasane and M T E Kahn	Multi element optical fibre sensor telemetry and control using the internet
Modelling and Control 1.4	S Madolo	Inferentials in advanced process control
Modelling and Control 1.5	R H Roberts and M C Andrews	Three generations of coal loading control
Modelling and Control 2.1	M Adonis MTE Khan	PID control of infrared radiative power profile for ceramic emitters
Modelling and Control 2.2	Martin Braae	A Connection Theory for the Analysis of Large Scale Systems
Modelling and Control 2.3	A.S. Iorio, V.C. Smith, P.J. Brereton-Stiles, A.Singh	Mintek's advanced optimisation control strategies in milling, flotation and smelting
Non linear systems 1.1	A M Jeffrey, X Xia and I K Craig	On attaining maximal and durable suppression of the viral load
Non linear systems 1.2	E Eitelberg and E Boje	Quasi Steady State Modelling of an Evaporator
Non linear systems 1.3	J O Pedro, M Mthethwa and O T Nyandoro	Time-optimal control of robotic manipulators modelled with actuator dynamics
Non linear systems 1.4	R F Chidzonga and E Eitelberg	Controlling velocity and steering for bicycle stabilization
Non linear systems 1.5	R Goma, F A Okou, O Akhrif, H Nkwawo, F Lamnabhi-Lagarrigue and E Delaleau	Real-time implementation of a robust nonlinear control for rotor speed stability and voltage regulation of power systems
Processes Control 1.1	R Tsoneva	Robust control of continuous fermentation processes described by Monod-type model with delay
Processes Control 1.2	J Jansson , T Linberg and E Dahlquist	Process Optimization and Model Based Control in Pulp and Paper Industries
Processes Control 1.3	S Gardner, N J le Roux and C Aldrich	Visualization of process data with biplots
Processes Control 1.4	N M Dube and R Tzoneva	Automation of ion exchange process used for desalination of water
Processes Control 1.5	C Sandrock, P de Vaal	Sytematic control problem analysis applied to batch pulp digester control
Processes Control 1.6	C Aldrich and M Barkhuizen	Analysis of Process dynamics with Monte Carlo singular spectrum analysis
QFT 1.1	J Cervera, A Baños, I Horowitz	Non Plant Modifying Multiloop QFT Revisited
QFT 1.2	M García-Sanz, M Barreras, I Egaña and C H Houpis	External Disturbance Rejection in Uncertain Mimo Systems with QFT Non-Diagonal Controllers
QFT 1.3	E Boje	Quantitative feedback design approach for systems with probabilistic parameterisations
QFT 1.4	E Eitelberg	On multivariable tracking
QFT 1.5		Discussion on Ill Conditioned MIMO control 1.
QFT 2.1	M Barker and C Pritchard	Controlling a Class of Nonlinear Plants using Fuzzy Gain Scheduling and QFT
QFT 2.2	E Boje	Robust "linear time invariant equivalent" design for a non-linear magnetic levitator
QFT 2.3	V S Bokharaie, A Khaki-Sedigh	Automatic QFT Controller Design using LMI Theory
QFT 2.4	G Hongbo and L Hongren	Robust QFT-based Position Control of Electrohydraulic Servo System
QFT 2.5	V S Bokharaie, A Khaki-Sedigh	A Combined Method for Automatic QFT Loop-Shaping Using Linear Programming and Genetic Algorithm
Speech 1.1	A K Barros and E J Nascimento	Real time speech separation by lateral inhibition and masking
Speech 1.2	P H Carvalho and A K Barros,	Decomposition of speech signals into its modulated components for application to VOCODER
Speech 1.3	D J Mashao and J Greene	Evaluation of speaker recognition feature sets using the SVM classifier
Speech 1.4	A K Barros and N Abreu	Noise removal in a single speech channel through coding by independent component analysis