First African Control Conference

3-5 December 2003

University of Cape Town, South Africa

Final Programme

Wednesday	**3 December**	**Thursday**	**4 December**	**Friday**	**5 December**
8h40-9h00	Opening (E Boje, P Albertos, Tapson)				
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 / T Marwala)	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 Enslin)	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)		
18h30	Reception Cape Town International Convention Centre	18h30	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 Tour to winery

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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

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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	K. M. Yanev and A. Obok Opok	Improved Technique of Multi-stage Compensation (S-1 to 6)

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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
Modelling and Control 2.5	M Machaba and M Braae	Explicit Damping Factor Specification in Symmetrical Optimum Tuning of PI controllers (ex Linear Systems 1.4)
Modelling and Control 2.5	K Brooks	Real Time Control and Optimisation – Current Status, New Developments and Future Possibilities (S-7 to S-12)
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
Process Control 1.1	R Tsoneva	Robust control of continuous fermentation processes described by Monod-type model with delay
Process Control 1.2	J Jansson , T Linberg and E Dahlquist	Process Optimization and Model Based Control in Pulp and Paper Industries
Process Control 1.3	S Gardner, N J le Roux and C Aldrich	Visualization of process data with biplots
Process Control 1.4	C Sandrock, P de Vaal	Sytematic control problem analysis applied to batch pulp digester control
Process Control 1.5	N M Dube and R Tzoneva	Automation of ion exchange process used for desalination of water
Process 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 Processing 1.1	A K Barros and E J Nascimento	Real time speech separation by lateral inhibition and masking
Speech Processing 1.2	P H Carvalho and A K Barros,	Decomposition of speech signals into its modulated components for application to VOCODER
Speech Processing 1.3	D J Mashao and J Greene	Evaluation of speaker recognition feature sets using the SVM classifier
Speech Processing 1.4	A K Barros and N Abreu	Noise removal in a single speech channel through coding by independent component analysis