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Second IFAC Symposium on System Sensitivity and Adaptivity

At Yugoslavia's Adriatic resort Dubrovnic is being held IFAC's second symposium on System Sensitivity and Adaptivity. Occupying six days from August 26 - 31, this symposium is being organised by the Yugoslav Committee for Electronics and Automation in conjunction with the IFAC Committee on Theory, the American Automatic Control Council and the USSR National Committee for Automatic Control. In all, ten sessions are being held covering such topics as:

- General Problems of Sensitivity, Controlability and Stability
- Analytical and Computational Methods of Sensitivity Analysis
- Synthesis of Optimal Systems
- Sensitivity of Discrete Systems
- Design of Low - Sensitivity Systems
- Adaptive Systems and Identification Methods
- Application of Sensitivity in Optimization Techniques.

Details of the accepted papers, in all some 63, reveal the international character and interest in the subject. Among the new advances in analytical methods of sensitivity analysis will be presented from the USA details on a computer analysis program to obtain first order sensitivity of time invariant networks. Other papers from Canada and the USSR measure the dynamic sensitivity in the case of step perturbations of linear system parameters.

A variety of methods are presented on optimal system synthesis. These include use of switch time sensitivities (USA) , control of dynamic systems containing a small parameter by aggregation (USA) , orthogonal expansion of non-linear operations in the control theory of stochastic plants (USSR) while two Japanese contributors apply sensitivity analysis to the optimum design of a chemical plant.

By far the largest session is the one concentrating on adaptive systems and identification methods. Typical of some of the contributions are:

- A multi-level adaptive control system employing learning strategies (UK)
- Using Liapunov-like techniques to provide model reference adaptive control (USA)
- A new inverse describing function method for the synthesis of non-linear adaptive systems. (Netherlands)
- Identifying parametric non-linear systems by the linear time invariant system (France).

Registrations can still be accepted. Contact:

ETAN
P.O. Box 356
Belgrade
Yugoslavia

IFAC Symposium on Multivariable Control Systems

Details are now available on the IFAC Symposium on Multivariable Control Systems to be held at Düsseldorf on October 7th and 8th, 1968 just prior to the INTERKAMA Congress with Exhibition October 9 - 15th. In all some 110 papers will be discussed in the two days. The papers are divided into 7 basic areas covering:

- Linear and non-linear system theory
- Discrete and relais system theory
- Optimisation theory for continuous and discrete systems
- Computer procedures belonging to optimisation
- Signal and Filter Theory
- Applications in process industries, power plants and aerospace
- Computer procedures.

Largest complement of papers will be in the theoretical field with the most emphasis being placed on linear system theory. Here papers from the USSR deal with adaptive system design, compromise control in multi-level system. French contributions too are heavy in this area dealing with the use of flow-graphs for the construction of minimal state variable models and the theory of multidimensional systems. Another technique increasingly used for multivariable system design is the root locus approach, here a German contribution discusses higher power parameter root locus operations to establish system's dynamic properties.

In the non-linear system Liapunov's method of design launched first in the USSR is gaining ground. A Japanese paper studies the technique to check the stability of multivariable systems incorporating time lags, while a Russian paper looks at the same type of system but with pulse frequency modulation.

Optimisation theory will be well discussed at the meeting with numerous contributions from Germany, Japan, and the USA covering system synthesis, parameter coupled system design, the control of systems with time delays. But possibly even more vital are the papers on computer procedures for optimisation. Here a UK paper presents a computer learning procedure for optimising non-linear multivariable interacting processes while French and German papers deal with quadratic optimisation and suboptimal system approaches.

The 50 or so application papers deal right across the whole of industry from cement kilns through to aerospace. In the main, the papers discuss one of two basic approaches, multivariable control problems or optimisation.

Among the multivariable control applications presented are examples on an oxygen furnace (Germany), nuclear power plants (UAR), steam generators (Germany), power station control (Bulgaria), aerospace station keeping (USA), VTOL aircraft stability (USA), and a reversing mill (Germany).

Covering an equally wide field are the optimisation applications. From Hungary comes news of work on optimisation of a non-linear chemical plant. Optimisation applications on an ammonia and a naphta reforming plant are described by authors from the USA and Czechoslovakia. In the nuclear field many countries are applying optimal control to reactors and boilers; one unusual application is the optimisation of a Soviet Betatron.

A Discussion Meeting

To cope with the number of presentations within the two day session, the meeting will be purely devoted to discussions, without oral presentation of the papers by the authors or rapporteurs. Preprints of the papers will be circulated by the midst of August.
For more details and registration contact:-

VDI/VDE-Fachgruppe Regelungstechnik,
P.O.Box 1139,
D-4000 Duesseldorf 1,
Germany

Australia to get new Control Journal

Started last February was a new control engineering journal published in Australia. Designated 'Control Systems' , the new journal comes out bimonthly and will circulate to some 3,000 engineers and technical managers in the Southern Hemisphere. Heading up its Editorial Board is Professor C.B. Speedy, Head of the Control Engineering Department of the University of New South Wales. Other editorial executives include C.H.P. Brookes of the Australian Iron and Steel Pty, I.G. McWilliam, Head of Instrument Development at Imperial Chemical Industries of Australia and New Zealand, and A.F. Smith, Head of the Automated Process Control Section of the Australian General Electric Pty, Ltd. For further details check with:-
James Conran Pty,
63, Dixon Street,
Sydney NSW 2000 / Australia

IFAC Symposium on Technical and Biological Problems of Control

As announced in IFAC Information Bulletin No. 45, the Symposium will be held in Yerevan, Armenia, USSR, from September 24 to 28, 1968. A draft programme is now available with the full titles of the adopted papers, classified according to the following fields:

(1) General Problems of Physiological Mechanisms (27 papers)
(2) Models of Neuronal Structures (32 papers)
(3) Movements Control (16 papers)
(4) Bioelectric Control and Artificial Organs (7 papers)
(5) Computer Use for Information Processing (7 papers)
(6) Man-Machine Interaction in Control Systems (7 papers)
(7) Pattern Recognition (19 papers)
(8) Adaptive Systems (1o papers)

Further information may be obtained from the

Organizing Committee of
the Yerevan Symposium,
c/o Dr. M.A. Boyarchenkov,
National Committee of Automatic Control of the USSR,
Profsojuznaja 81,
M o s c o w V-485 /USSR.