SCIENTIFIC EVENTS

SAFEPROCESS'94

IFAC Symposium on Fault Detection, Supervision and Safety for Technical Processes

Espoo, Finland, June 13 - 16, 1994

Theodor-Dan Popescu was born at Rest de Vede, Romania, in 1949. He received his M.Sc. degree and his Eng. Sc. D. (Ph D) degree, both in automatic control, from the Polytechnical Institute of Bucharest in 1972 and 1983, respectively. Since 1972 he has been with Computer Process Control Laboratory at the Research Institute for Informatics in Bucharest, where he is a senior research worker. Since 1975 he has been a lecturer at the Department of Automatic Control and Computers, the Polytechnical Institute of Bucharest. His main research interests are in the fields of system identification, adaptive control, time series analysis and digital signal processing. He has published technical papers on these topics and co-authored the books titled : " Modelling and Forecasting of Time Series" (in 1985, in Romanian), Academic Publishing House , Bucharest, "Computer-Aided Identification of Systems" (1987, in Romanian), Technical Publishing House, Bucharest, and "Adaptive and Flexible Control of Industrial Processes (1988, in Romanian), Technical Publishing House, Bucharest, "Practice of Time Series Modelling and Forecasting. Box-Jenkins Approach" (1991, in Romanian), Technical Publishing House, Bucharest.

SAFEPROCESS'94 IFAC Symposium marks the 2nd edition of a new series of Symposia on a subject related to reliability, availability and safety of technical processes. The first Symposium was held in Baden-Baden, Germany, September 10-13, 1991. On that occasion, a Steering Committee SAFEPROCESS was set up, to support the development of this field within IFAC.

The aim of the **SAFEPROCESS'94** Symposium was to present and discuss the latest developments in fault detection, supervision and safety, as essential parts of modern control engineering in different countries.

The final programme of the Symposium included 3 plenary sessions, 23 technical sessions, 2 special case sessions, one session dealing with a given benchmark problem, and a discussion session of which subject was modern maintenance.

About 200 persons from 25 countries, more than 150 of them coming from outside the host country, attended the Symposium. The attendees came from universities, R&D institutions, from industrial and engineering companies.

International Programme Committee was composed of 36 specialists from 13 countries, chaired by Professor Pentti Lautala, Finnish Society of Automation.

Reliability, availability and safety of technical processes are problems implying continuous monitoring, diagnosis and fault detection of processes, sensors, control equipment and actuators. The initial fault monitoring is followed by appropriate actions and management to cope with faults, failures and disturbances, to meet reliability and safety requirements. The monitoring procedure ends with the management of maintenance and repair. The human factors are also very important in this process.

All these aspects were dealt with by the two main session types: methods and applications.

During the plenary sessions, reputed scientists highlighted topics of this fast developing area in modern control engineering. The following plenary papers were presented:

1. Robust Model - Based Fault Diagnosis: The-State-of-the-Art, P.J. Patton (UK).

2. Safety of Nuclear Power: Who Learns from whom ?, B. Wahlström, P. Haapänen, K. Laakso, U. Pulkkinen (Finland).
3. Integration of Fault Detection and Diagnosis Methods, R. Isermann (Germany).

The Technical Sessions were dedicated to the following areas: model based diagnosis, reliability and safety analysis, robust methods, fuzzy & knowledge methods, comparison of diagnosis methods, neural networks, support systems, systems & instruments, applications (power plants, chemical plants, combustion engines, components, electric motors), case study: inverted pendulum.

Two special case studies have been arranged for covering the following topics: Model - Based Diagnosis of Automotive Engines - Case Study on a Physical Vehicle and Application of Fuzzy Logic to Process Supervision and Fault Diagnosis.

The Symposium gave an overview of the state-of-the-art in the field and showed new research results on the theoretical side and presented many applications for industrial processes and pilot plants.

The atmosphere at the symposium was very stimulating, with a very good attendance and with many discussions. The level of presentations was high, and the materials prepared by the presenters were of high quality.

Many of the participants concluded that there was a gap between theory and practice and that the model based methods had many more possibilities in the real practical problems than they had so far proved. The topics of fault detection, supervision and safety are of increasing practical importance and, therefore, theoretical as well as applied research is a challenge for the future.

The Symposium was held at Electrotechnical Faculty, Helsinki University of Technology, Espoo.

In general, and according to the statements of many participants, the Symposium can be considered a very successful event. The success of SAFEPROCESS'94 was due to the interesting technical programme, the IFAC support, and last but not least, to the collaboration of many people and local institutions in supporting the organisation. The National Organizing Committee, under the co-ordination of Professor Björn Wahlström, have done an excellent job.

The 3rd IFAC SAFEPROCESS Symposium is planned to be held in York, UK, in 1997.

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Theodor-Dan Popescu