Foto: Sokoloff

EMCSR Award Winner Gabriela Goldschmidt, Israel

Foto: Sokoloff
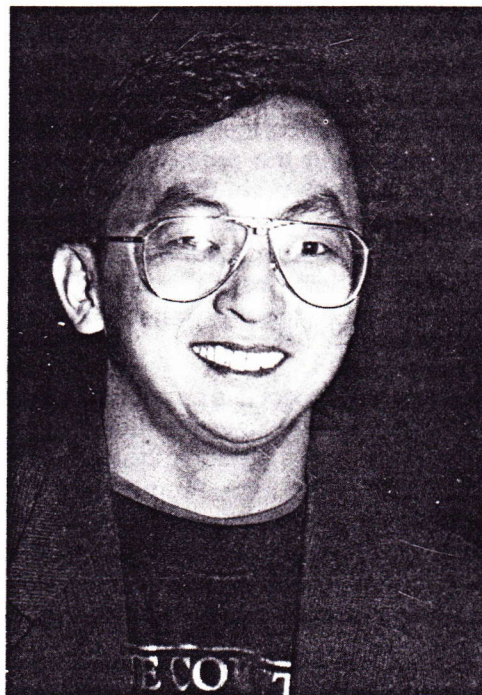
EMCSR Award Winner W. K. Yeap, New Zealand

European Meeting on Cybernetics and Systems Research 1990 — Best Paper Awards

189 draft papers were submitted for evaluation; of these, 150 were selected for presentation at the conference. The 208 authors stem from 30 countries on 4 continents: 146 from Europe (only 19 from Austria), 34 from the Americas, 26 from Asia and 2 from Australia. 138 of the 150 manuscripts have been printed in **Cybernetics and Systems '90** (ed. Robert Trappl). Excerpts of the award winning studies are presented below.

The Best Paper Award of the Whole Conference

(It was split between the two following contributions:)

**Planning a Route from a Cognitive Map.
W. K. Yeap, C. J. Robertson, University of Otago, Dunedin, New Zealand**

The acquisition and representation of some knowledge of the environment is a process central to any autonomous mobile system. In humans, this process is referred to as "cognitive mapping", whereby the term "cognitive map"

refers to the acquired representation. This paper discusses the use of that map in route planning, i. e. finding a route from a start to a goal.

Many Researchers in robotics plan a route using only a representation of the physical layout of the environment (a "raw" cognitive map) and a brute force search mechanism. In this paper, a different procedure is utilized; initial movement through the environment results in the creation of a "raw" cognitive map, and from this a "full" cognitive map (a conceptual representation of the environment) is abstracted. This is a hierarchical representation, in which points that can be reached directly from one-another, such as adjacent rooms with a door between them, are connected by straight lines (i. e. 1 - 2; if one must go through 2 to get from 1 to 3, then 1 - 2- 3). Evaluations are made of how far a given route deviates from the direct connection between the start and the goal in terms of some measure of angular information. Planning by direction to multiple goals is also discussed. One aim of this research is to understand what heuristics (i. e. discovery methods, algorithms) might be used in humans' route planning and how they are developed.

Linkography: Assessing Design Productivity. Gabriela Goldschmidt, Faculty of Architecture and Town Planning, Technion - Israel Institute of Technology, Haifa, Israel.

The process of intuitive designing in architecture is seen as a series of acts of reasoning which we shall call "design moves". The purpose of making design moves is to arrive at visual representations of the entity to be constructed. Ultimately a complete simulation of all the features of the entity is desired, but at the "front edge" of the process of designing, with which we will concern ourselves, representations are mostly partial and tentative. Our goal is to assess the productivity of design processes based on the notation and analysis of the front edge design performance. A move is defined as a coherent proposition pertaining to the designed entity, directly or indirectly. Design moves are seen as the basic building blocks of design reasoning. The present work is based on the premise that the structure of reasoning is independent of the content of its components. In order to understand the process of designing, it is mandatory to first establish the overriding structural patterns typical of design reasoning. Therefore we do not attempt to classify moves; instead, we look at links among them in order to gain insight into their topological relationships which, we believe, stand for the structure of the design reasoning.

In the analysis of a protocol it is possible to determine for each move, which previous move or moves (if any) it was linked to. The linkograph is a graphic system we developed for the notation of these links. Productive designing (in analogy to Wertheimer's "Productive Thinking") is defined as the production of comprehensive representations of the design entity. It was concluded that design productivity is related to the generation of a high proportion of design moves rich with links.

Howard Gruber, who has written extensively about creativity, remarked, "Interesting creative processes almost never result from single steps, but rather from concatenations and articulation of a complex set of interrelated moves" (Gruber, 1980). Originally directed at the macro scale, Gruber's comment applies equally cogently to the micro scale we have been investigating. Productive design is creative, and we are now able to disjoint the process into its smallest components and show how the structured networking of individual design moves accounts for design productivity. Significant correlations have been found between design productivity and a number of structural patterns which, for the most part, are made accessible uniquely through the use of linkography.

Best Papers of the Individual Symposia

I. Symposium on General Systems Methodology

A Model of Self-Organizing Network Using Informational Entropy of Deterministic Functions.

G. Jumarie, University of Quebec, Montreal, Canada.

A possible application of this work is the development of a connectionist system (computer with "brainlike" network connections) which evolves in such a manner that its organizational energy is minimized.

II. Symposium on Fuzzy Sets, Approximate Reasoning and Knowledge-Based Systems

Foundations and Consequences of Operational Fuzzy Set Theory:

An Overview.
H. Toth, Vienna, Austria

This paper presents first results on fuzzy set theory interpreted from an operational viewpoint. As a preliminary conclusion, we conjecture that the concept of the fuzzy set has two essentially different semantical dimensions, which have not been sufficiently separated in traditional theory; a fuzzy set may be considered either as an evaluation over a universe (i.e. as a connotation) or as a collection of evaluated objects (i.e. as a denotation).

III. Symposium on Designing and Systems - see Goldschmidt paper, described above in the section on the best papers of the whole conference.

IV. Symposium on Humanity, Architecture and Conceptualization

On the Simulation of Depth Psychological Processes

P. R. Medina-Martins, J. M. Vera, Instituto Superior Tecnico, Lisbon, Portugal.

Despite the great importance it has for humanity, science and cybernetics, the world of human (ir)rationality has been, so far, a practically unexplored kingdom in terms of modeling and computer simulation. This paper examines some of the reasons for this situation and proposes theoretical and concrete implementing techniques to overcome it.

Not only words expressing emotions but also their time-variable relationships (beliefs included) can be subjected to formal treatment. In order to materialize this theoretical approach, J. Vera is developing a real, interactive, parallel processing system (BABY I) in which, among other things, "feelings" can be effectively simulated.

The Self and the Other: the Purpose of Distinction

R. Glanville, Portsmouth Polytechnic, United Kingdom

A distinction which must draw its self also requires an other and a transfer distinction, both within a particular distinction and for that distinction to be a part of; these can generate the purpose of the distinction as becoming of, by and for itself.

V. Symposium on Cybernetics in Biology and Medicine.

A Cybernetic Approach to the Hebb Rule Implementation in a McCulloch and Pitts Network

Francesco E. Lauria, Dipartimento di Scienze Fisiche dell Università di Napoli, Italy

This kind of network is a neural network composed of linear units with thresholds.

VI. Symposium on Cybernetics of Socio-Economic Systems

Systems-Evolutionary Analysis for the Process of Technical Progress

Xue Teng and Whongtou Wang, Institute of Systems Engineering, Dalian University of Technology, Dalian, China.

There are quite a few socio-economic processes which have some features in common with biological evolutionary processes. In this paper, the general theory of evolution has been applied to the description and analysis of the technical progressive process.

VII. Symposium on Systems Engineering and Artificial Intelligence for Peace Research

Global Modeling - Questions and Challenges for the 1990s

F. O. Kile, Aid Association for Lutherans, Appleton, Wis. USA

Why progress on global modeling has slowed down and how models can become tools for international stability.

VIII. Symposium on Communication and Computers

A Framework for the description of Structural Relationships Between Software Components

R. Motsching-Pitrik, University of Vienna, Austria

The study is situated at the confluence of Software-, database-, and knowledge based systems. It addresses the description of system component interfaces to capture all the structural interconnections between these components.

IX. Symposium on Software Development for Systems Theory

Systems Factories and CAST

C. Rattray, University of Stirling, Scotland

A Computer-Aided Systems Theory (CAST) environment for supporting the application of systems theory methods to engineering design is discussed in this paper.

X. Symposium on Artificial Intelligence

See paper by Yeap and Robertson described at the beginning of this article - it was selected as one of the two best papers of the whole conference.

XI. Symposium on Parallel Distributed Processing in Humans and Machines

Parallel Data Assimilation in Knowledge Networks

A. Parodi, S. Khouas, Infodyne, Paris, France.

Computer perception is a difficult problem. Low level (mostly numerical) information has to be transformed into high level schematic representations. In this paper we present an algorithm for data assimilation in which high level description is built up in parallel from data and existing descriptors (relations and concepts) through local graph metamorphosis and optimization of numeric evaluation functions. This approach merges connectionist and symbolic schemes and is designed to be implemented on MIMD machines.

Almost as good as being there:

The Proceedings of EMCSR '90, "CYBERNETICS AND SYSTEMS '90" editor Robert Trappl.

All the 150 papers presented at the conference are included. 1107 pages. Published by World Scientific, Singapore, New Jersey, London, Hong Kong.
Price: about 78 U.S. Dollars

New Developments in the IFSR

A summary of the IFSR Board Meeting in Vienna

April 16, 1990

1. Election of the **Executive Committee** and officers for the next two years:

   President .... Prof. Gerrit Broekstra
   Vice-President .... Prof. Franz Pichler
   Secretary-Treasurer .... Prof. Bela Banathy
   WISINET, Systems Research . Prof. Gerard de Zeeuw
   IFSR Book Series .... Prof. George Klir

2. The entire Association Française pour la Cybernetique et Economique Technique (AFCET) is now an affiliate member of the IFSR. (Previously only one section of AFCET, the Collège de Systémique, belonged to the IFSR).

3. The Editorship of "Systems Research" has been taken over by Prof. Gerard de Zeeuw. Beginning 1991 the IFSR Newsletter will be a part of that journal. A new publisher is being sought. Prof. George Klir, the Editor of the IFSR Book Series, is also looking for a new publisher.

4. As there is no good textbook in systems research at the undergraduate level, Prof. George Klir has now undertaken to prepare a work of this kind. It is to appear in two volumes — the second will offer reading material from this book for the development of an interactive PC program.
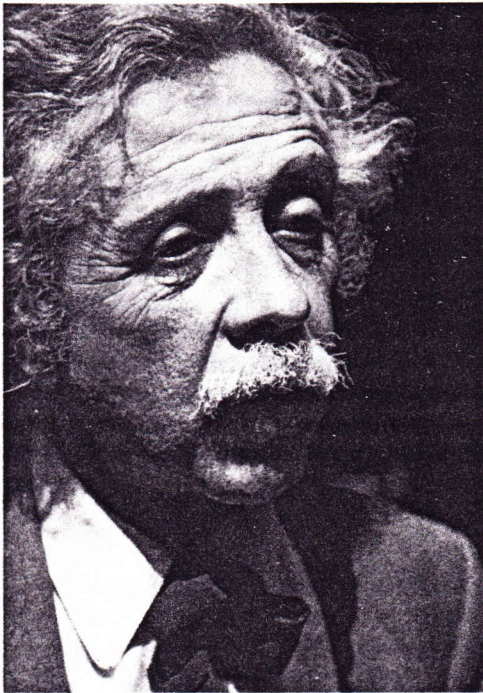

Foto: Sokoloff

Prof. J. L. Elohim

Asociación Mexicana de Sistemas y Cibernética

Board Members

J. L. Elohim
Sergio Cisneros
Elvira Avalos
Salvador Gòmez
Salvador Gutiérrez
Eduardo Oliva

AIM OF ORGANIZATION

The aim of our organization is to promote systems thinking. We feel that this will enable a better understanding of real phenomena and an improved integration of theoretical and practical factors concerning the transformation of certain aspects of reality. More and more we have to realize that if one wants to develop systems approaches it is necessary to apply them to various specific fields.
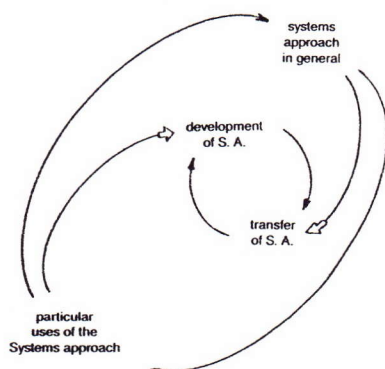
We have been offering lectures on:

> systems theory
> systems engineering
> systems methodology
> global issues
> the history of the systems movement

We have thought a great deal about what role we might play in the Mexican environment. Our resources are very limited; therefore, we have decided to reduce the number of areas of our involvement in order to attain greater depth. We would like to especially devote ourselves to:

I. Permanent workshops (perhaps correlated with synthesis seminars) on:

> higher education
> energy production
> water supply
> industrial engineering
> interdisciplinary work methodology

II. Organization of self-advisory meetings conceived on the basis of Prof. John N. Warfield's interactive management ideas.

NOW A PART OF THE IFSR:

The International Systems Institute

This organization designs and develops systems education programs

The International Systems Institute carries out research and provides technical assistance to encourage the application of systems thinking and inquiry to the designing, development and management of systems education programs. The aim of the institute is to promote human betterment and the improvement of the quality of life by means of education. The work of the institute is accomplished through cooperative arrangements with several systems science and education organizations and centers, in collaboration with core staff at those centers and with scientists from the international systems science community.

Institute Programs and Projects

Past and current research and development programs carried out by the Institute include:

Organizational Analysis and Systems Design

Work involves research on organizational communication and information flow, the application of living systems process analysis to the assessment of organizational effectiveness, and the development of systems design models and methods for business and government organizations. Typical projects include:

• A comparative analysis of approaches to the assessment of organizational effectiveness.

- The assessment of research and training programs for organizational effectiveness.
- Concept and feasibility analysis of emergency management systems.
- The design of regional learning systems for managing environmental issues.
- The application of living systems process analysis in school effectiveness.
- Research on models and methods of design.
- Long range planning and systems design for the program of the U.S. Fire Academy.
- Institutional design of a R&D agency.
- The development of systems models for the delivery and institutionalization of change.
- The design of linkage systems for interorganizational coordination.
- Systems approaches to organizational renewal in schools.

Community Systems Development

Work focuses on systems design and planning for the development and improvement of community systems and community leadership. Recent projects include:

- The design of linkage programs for the coordination of community agencies.
- Youth leadership for community development in Costa Rica.
- The development of an information system and a centralized data base for arts and humanities organizations.
- The development of community-based emergency management delivery systems.
- The design of a community based educational model.

Global Issues

Work explores the contributions that systems inquiry can make in addressing global issues and world problems and in designing approaches and means for introducing systems thinking and learning as educational initiatives throught the entire world. Typical projects include:

- The coordination of research and development programs of the international systems science community concerning long range global issues.
- Research on integrated regional development in several countries.
- Research and development on conflict management and peace development education in coordination with the University for Peace, Costa Rica.
- The design of pathways to peace development.
- International Education R&D.

Systems Education

Work includes research and development on systems learning in schools and non-formal educational settings, and on the design of delivery systems for systems learning.

- The development of an International Directory of Systems Education Programs.
- The coordination of an international network of over 30 systems education institutions on four continents.

Rationale

Over the last several decades, traditional methods and tools of disciplined inquiry have proven themselve of limited value as they have been applied to ever more complex and interconnected human systems operating in rapidly changing environments. As a response to necessity, **Systems Inquiry** has emerged as a new way of thinking — a new approach to understanding and working with human systems. In systems inquiry, emphasis is shifted from examining parts and elements to examining wholes and patterns of relationships. Systems inquiry provides a way to integrate the efforts of various physical and social science disciplines towards the analysis and management as well as the designing, development and improvement of complex human systems. It is this type of integrative, disciplined inquiry that the Institute pursues in its programs and projects. The staff of the Institute recognizes that the application of systems inquiry to societal problems is dependent on the availability of **learning programs for developing competence in systems thinking and methodologies.** Thus, a major goal of the institute is to design and develop programs, resources and institutional arrangements for systems learning.

Regional Centers

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Today's world is a complicated system. To work well, it must be stable and able to change in an orderly way.

SWIIS
Supplemental Ways for Improving International Stability and the SWIIS FOUNDATION, INC.

The objective is to increase the likelihood of the people of the world living at peace by improving stability among nations.

WHAT IS SWIIS ?

SWIIS is an acronym for Supplemental Ways for Improving International Stability, a concept based on the conviction that nonmilitary approaches to conflict resolution are necessary, desirable, and possible. International stability refers to conditions in which nations, in an interdependent fashion, interact with one another in ways which permit gradual, mutually acceptable changes. SWIIS refers to the use of peaceful ways for nations to obtain national security through such activities as peacekeeping, peacemaking and peacebuilding in addition to, or in place of, military measures.

There are activities of a non-military nature that could and should be done in time of peace to reduce the likelihood of wars. Through systematic, technological, economic, social, political and other acceptable means, people in many countries could be seeking and developing effective ways of improving international stability.

WHAT IS THE SWIIS FOUNDATION, INC. ?

The SWIIS Foundation, Inc. (SFI) is a non-profit, tax exempt, educational, scientific and research organization. SFI engages in scientific and educational activities such as conducting conferences, preparing and publishing articles, funding other organizations to perform such activities and carrying out related tasks directed toward the advancement of the cause of peace. SFI also promotes a better understanding and a more friendly relationship between different races, nations and classes of people.
Many of the people supporting the SWIIS idea with their time, thought and efforts have had experience in the conception, designing, manufacturing, testing, servicing and maintenance of military equipment and systems intended to provide the means for national security. These same people, however, are convinced that significant long-term improvements in national security are possible through non-military methods. They are willing to devote their technical talents in systems engineering to the stabilization of the world's system of sovereign nations. It is the goal of the SWIIS Foundation to seek help from all concerned people in the search for stabilizing methods and to encourage the identification and implementation of promising means for increasing the likelihood of peace among nations.

WHAT ARE THE PRESENT ACTIVITIES OF SWIIS ?

The present emphasis of SWIIS is on the development of committees in on-going organizations and on writing papers, presenting talks and developing new ideas of how to improve international stability. Examples of these committees and their activities include:

INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL (IFAC) SWIIS WORKING GROUP

This committee is trying to promote techniques which could be useful for enhancing international security.

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) COMMITTEE ON INTERNATIONAL STABILITY

of the Systems, Man, and Cybernetics Society (SMC). Members of the IEEE SMC Society interested in extending a systems understanding of ways for improving international stability make up this committee.
The ISSS has established a Commission for the Advancement of Peace Development (CAPD). CAPD engages in and encourages Research and Development relevant to the application of systems thinking to peace development.

SPECIAL PROJECTS OF INTEREST INCLUDE

— Simulation of a Cooperative Security System (CSS)
— Work on national objectives, decision-making and control architecture
— Hardware and software of a CSS
— CSS concepts as viewed by different nations and organizations.

Universities and institutes at which individuals are working with SWIIS:

Case Western Reserve University
George Mason University
Global Educations Associates
International Peace Academy
Kent State University
Massachusetts Institute of Technology
Northwestern University
State University of New York at Stony Brook
The City University, London
University of Pittsburgh
University of Southern California
University of Virginia
Wayne State University

EXAMPLES OF WAYS FOR IMPROVING INTERNATIONAL STABILITY

— **ESTABLISH MORE EFFECTIVE MEANS OF CONFLICT RESOLUTION** for settling international disputes. Fact finding, arbitration, negotiating and facilitating are examples of techniques that could be used more effectively.

- **ENCOURAGE AND ENHANCE THE SYNERGISM** of international and interdisciplinary efforts to strengthen international stability. A set of goals and objectives for such activities should be developed with a time-table for achieving them and information feedback to monitor the progress taking place.
- **DEVELOP A COOPERATIVE SECURITY SYSTEM (CSS)** as an experimental prototype for improving the stability among nations. Initial efforts will be directed at defining the system including its inputs, outputs and method of operation.
- **STUDY THE PEACE PROCESS** from an international and interdisciplinary point of view. Compare from various national viewpoints the relationships between nations, and how they lead toward or away from peace.
- **EDUCATE PEOPLE AT ALL AGE LEVELS** in the nature of peace, national interdependence and the underlying causes of war. Strengthen peace education programs and make them a part of the on-going education process.
- **DEVELOP STRONGER INTERNATIONAL FUNCTIONAL TIES** in such areas of human needs as food, water, energy, housing, education, etc. Experts from different countries should work together to prepare descriptions of existing and projected or planned systems in these areas.
- **DEVELOP STRONGER INTERNATIONAL REGIONAL TIES** to meet human needs. Use existing and new organizations to deal with natural emergencies as well as international disputes. Regional needs should thereby be emphasized, and international stability enhanced.

CYBSYS-L: A MAILING LIST FOR SYSTEMS AND CYBERNETICS

An electronic mailing list dedicated to Systems Science and Cybernetics is currently in operation on the SUNY-Binghamton computer system. The list is committed to providing a general understanding of the evolution of complex, multilevel systems, like organisms, minds and societies, as informational entities containing possibly circular processes. The purposes of the mailing list and file server include:

- facilitating discussion among those working in or just interested in the general fields of Systems and Cybernetics;
- providing a means of communication to the general research community about the work that Systems Scientists and Cyberneticians do;
- housing a repository of electronic files for general distribution concerning Systems and Cybernetics;
- providing a central, public directory of working Systems Scientists and Cyberneticians.

The list is coordinated by members of the Systems Science Department of the Watson School at SUNY-Binghamton, and is affiliated with the International Society for the Systems Sciences (ISSS) and the American Society for Cybernetics (ASC). The list is open to everyone, and we currently have 200 members from America, Canada, and Europe. Our subscribers are from both academia and industry, and while many are active researchers, others are just "listening in". Different levels and kinds of knowledge and experience are represented.

What is CYBSYS-L ?

CYBSYS-L is a computer-based electronic mailing list for people with a professional interest in Systems Science and Cybernetics. We engage in multi-way, ongoing discussions about all aspects of the field by sending text files back and forth from computer to computer to all the list subscribers. Messages, computer programs and pictures can all be transferred in this way. Soon, subscribers will be able to permanently store files in a central location for others to retrieve at their leisure, making true "electronic publication" of research possible.

Who can use CYBSYS-L ?

Almost anyone who has use of the resources of a university or corporate computer system can subscribe at no cost to himself. With a bit more difficulty, unaffiliated individuals can also subscribe.

What is CYBSYS-L used for !

• Conference announcements • Postings of bibliographies • Looking for like-minded researchers in a certain location • Summaries of journal articles • Information about university departments, corporate environments • Questions • Argument • Discussion

Some of the subjects discussed just since April, 1989:

• Human input devices • Software for chaotic dynamics • Artificial consciousness • Biological semiotics • Consciousness and ethics • Ethics in science • Cellular automata and neural networks • Fractal networks • Fractals in biology • Efficiency vs. power of grammars • Management cybernetics • Entropy minimax concepts • Statistical mechanics of biology • Tokens and signs • The theory of logical types • Data compression and redundancy • The work of Odum, von Neuman, and Brooks and Wiley • What is Cybernetics? • What is Information? • Closed/open systems in Rosen's Anticipatory Systems • Jumarie's use of Renyi entropies • Shaw's descriptions of chaotic dynamics • Cybernetics and philosophy • Life and chaos • Machine learning •

How can I subscribe to CYBSYS-L ?

First, talk to your local university or corporate computer people to get an account and learn how to send e-mail. Then, send a file containing only the line:
SUB CYBSYS-L your full name (e.g. SUB CYBSY -L John A. Smith) to the address of the list server:
LISTSERV@BINGVMB.BITNET
Once subscribed, send a "hello" message describing your work to the address of the list itself: CYBSYS-L@BINGVMB.BITNET. In the message, please include your name, affiliation, and a brief description of your work and/or interest in the fields of Systems and Cybernetics. This will serve to introduce us to each other and get discussions started.

All kinds of postings are welcome, including discussions, arguments, suggestions for improving the list/file server, calls for papers, conference announcements, computer programs and requests for references and literature. On all postings please include a brief signature including your name, e-mail address(es) and affiliations. This is very important for the ongoing task of compiling a good e-mail directory of Systems and Cybernetics workers. You may leave the list at any time by sending a "SIGNOFF CYBSYS-L" command to LISTSERV@BINGVMB.

How do I find out more about CYBSYS-L ?

Contact the list moderator (Cliff Joslyn) by email at the address:
cybsys@bingvaxu.cc.binghamton.edu, or by post:
Cliff Joslyn, Systems Science, SUNY Binghamton, Binghamton NY 13901, USA, Tel. (607) 729-5348

MEETINGS and COURSES

Title	Date	Place	Deadlines	Further Information
ISINI International Society for Intercommunication of New Ideas	27. - 29. August 1990	Paris France		Prof. Anghel N. Rugina President ISINI 145 Moss Hill Road Jamaica Plain, Mass. 02130 Tel. (617) 524-4580
Operations Research 1990	28. - 31. August 1990	Vienna Austria	EXPIRED	Prof. G. Feichtinger Institut für Ökonometrie Technische Universität Wien Argentinierstraße 8 A-1040 Wien, Austria
DEXA '90 International Conference on Data Base and Expert Systems Applications	29. - 31. August 1990	Vienna Austria	EXPIRED	Prof. Dr. A Min Tjoa University of Vienna Department of Statistics and Computer Sciences Liebiggasse 4 A-1010 Wien, Phone: + 43(0222) 4367 12
PARCELLA '90 Fifth International Workshop on Parallel Processing by Cellular Automata and Arrays	17. - 21. September 1990	Berlin B. D. R.	EXPIRED	Zentralinstitut für Kybernetik und Informationsprozesse Kurstr. 33, P.O.B. 1298 Berlin 1086, G.D.R. Phone: (Berlin) 20 37 23 13
International Conference on Signal Processing '90	22. - 26. October 1990	Beijing (Peking) China	EXPIRED	Professor Yuan Baozong Research Institute of Information Science Northern Jaotong University Beijing 100044, China
1990 IFIP - IEEE International Workshop on Defect and Fault Tolerance in VLSI Systems	5. - 7. November 1990	Grenoble France	EXPIRED	Prof. Gabriele Saucier Institut National Polytechnique de Grenoble / CSI 46, avenue Félix-Viallet 38031 Grenoble Cedex, France Tel. 3376574687
EWSL - 91 European Working Session on Learning	**Date 1991** 6. - 8. March 1991	Porto Portugal	FULL PAPER 15 Oct. 1990	Pavel Brazdil Univ. Porto Rua Dr. R. Frias 4200 Porto, Portugal
IEEE - COMP - EURO - 91 Advanced Computer Technology, Reliable Systems and Applications	6. - 10. May 1991	Bologna Italy	500 Word Abstracts 15. August 1990	Prof. Vito A. Monaco Dipartimento di Elettronica, Informatica e Sistemistica, Facoltà di Ingegneria Via Risorgimento 2 40136 Bologna, Italy
IFIP Working Conference Dependability of Artificial Intelligence Systems Oasy - 91	27. - 29. May 1991	Vienna Austria	FULL PAPER 30. Nov. 1990	Icos Congress Organization Service Schleifmühlgasse 1/14 A-1040 Vienna, Austria Phone: + 43/222/587 60 44 Fax: + 43/222/587 60 59 Telex: 133 869 blaw à
MIE-European Federation for Medical Informatics Medical Informatics 10th International Congress	19. - 22. August 1991	Vienna Austria		MIE 91 Interconvention A-1450 Vienna, Austria Tel. +43-1-23692641
United Kingdom Systems Society Conference: Systems Thinking in Europe	10. - 13. September 1991	Huddersfield West Yorkshire England, U. K.	31. Oct. 1990	Barry Blackhorn School of Computing and Mathematics The Polytechnic, Queensgate Huddersfield HD 1 3DH, England, U. K. Tel. 0484 - 42 22 88 ext 22 04 / 24 75