Linz in Winter   J.   Chroust

Dear Readers!
We enter proudly the 17th year of the existence of this Newsletter. But – please send more material ! It is YOUR Newsletter: Feel free to report on conferences, on events, on your projects.
But before doing this, enjoy your
Merry Christmas and a Happy New Year!

Yours Gerhard Chroust

Dear Members!
The Holiday Season--dedicated to Peace and Good will--and the approaching New Year offer an opportunity to reflect upon the contribution of the systems movement to the advancement of peace and good will among men. The founders of the systems movement defined as the overall goal the development and advancement of systems scholarship in the service of humanity.

Systems scholarship and systems service are our obligations. Reflecting upon this two-pronged obligation many of us find that often--only too often-- we retreat to the comfortable domain of scholarship saying that there is so much to do there and anyway, and we are not ready yet to engage in service. Let us reflect upon this and ask two questions: What is the value of systems scholarship without its use in systems service? and What is the value of systems service which is not grounded in systems scholarship? IFSR is dedicated to both systems scholarship and systems service. We suggest that our member organizations and IFSR as a whole take time the coming year to reflect upon the question of how can we use the insight gained from systems science for the betterment of the human condition? With these thoughts we wish you peaceful holidays and an enriching and satisfying new year.

Yours truly,

Bela H. Banathy

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INTERACTION IN ROBOTICS

MANFRED BENEDER
Kepler University Linz,
Systems Engineering and Automation
Mb@sea.uni-linz.ac.at

Intelligent machines supporting human workers are more than dreams of the future. Equipped with sensors modern robotic systems are highly adaptable to their environment. They can operate in unknown surroundings without human supervision. An interaction between robot and environment is necessary to improve the capabilities of autonomous robotic systems. One major research work deals with speech recognition and the interpretation of gestures for use in robot programming. Using these interfaces everybody will be able to control a robot without the need of special knowledge.

possible. The scientific support for this workshop was given by the Department of Systems Engineering and Automation of the Johannes Kepler University Linz.

Initially *robots@aec.at* was inspired by Ken Goldberg's project TeleGarden, which at the moment is located at the AEC [3]. This installation allows people all over the world to view, plant and water seedlings in a living garden. The connecting platform is the Internet and the gardener is a robot. Working together in a distant location gave the user of the TeleGarden a virtual presence in this garden.

Fig. 1:
The
Seven
Dwarfs

As the use of robots will influence working and private life as well as artistic work a workshop dealing with latest trends in tele-operation and robotics, took place at the Ars Electronica Center (AEC) in Linz this May. Due to the basic concept of the AEC the workshop *robots@aec.at* [1], [2] combined lectures of various domains. Besides technical facilities of modern robot systems it also dealt with socio-cultural aspects of this technologic revolution. The interaction between man and machine was discussed as well as the question if social behavior among machines is

John Canny presented another example of tele-robots. His PRoPs, for Personal Roving Presence, are an excellent platform for studying computer-mediated human interaction. A blimp controlled via Internet is operating in existing social spaces, and can interact with a group of humans [4].

Ian D. Kelly presented a reinforcement learning algorithm for mobile robots based on sets of fuzzy automata. The robots have to learn to reactively avoid obstacles in their environment.

The robot that receives the other robots experiences learns more quickly and robustly than the robot not receiving such information. For a demonstration of this algorithm a group of small autonomous robots, known as the seven dwarfs, was running at the AEC [Fig. 1].

Research work on speech recognition based control for robots was presented by W. Jacak. A teleconference via ISDN to the 40-km distant laboratory gave a live demonstration of controlling a real robot. A concept for a multi-sensor reactive robot arm developed by S. Dreiseitl showed how the computational requirements of an autonomous reactive manipulator can be satisfied by a combination of neural network-based processing modules. This research work is done within a co-operation of the University of Linz and the Polytechnic University Hagenberg.

Based on the combination of arts and science the organizers of the workshop wanted to encourage a fruitful discussion. In future results of this discussion will be presented in further workshops on this topic.

[1] Manfred Beneder (ed.): " robots@aec.at " Proc. of the 1st Workshop on Teleoperation and Robotics - Applications in Science and Arts; June 6th 1997, Ars Electronica Center Linz, Austria. Oldenbourg; ISBN 3-486-24317-9 (1997).
[2] robots@aec.at Pictures and Information: *http://www.sea.uni-linz.ac.at/systtechnik/conferences/robot_97.html*
[3] The TeleGarden at the AEC: *http://telegarden.aec.at/*
[4] PRoP: Personal Roving Presence: *http://www.prop.org*

CONFERENCE ANNOUNCEMENTS

For contacts and further information see Calendar of Events

1998 FRONTIERS IN EDUCATION
The Old-West Frontier
Hosts
the New Educational Frontiers
Moving from „Teacher-Centered" to „Learner-Centered" Education

Tempe Mission Palms Hotel,
Tempe, Arizona
November 4 – 7, 1998

The 1998 Frontiers in Education Conference (FIE 98) continues a twenty-seven year tradition of promoting the widespread dissemination of innovations in engineering education.

Abstracts are now being solicited for contributed, peer-reviewed papers, works-in-progress, and workshops, dealing with state-of-the-art implementations, creative pilot programs and nontraditional concepts in engineering education. Topics of interest include, but are not limited to:

Active/cooperative learning
Assessment issues
Capstone/multidisciplinary experiences
Creative design experiences
Creativity and innovation
Evaluation and outcomes assessment
Innovative degree programs
Integrated curricula
International initiatives and programs
Laboratory innovations
learning technologies
Minorities in engineering
New learning models
Non-traditional approaches to core curricula
Software engineering education
Undergraduate research experience
Virtual university
Women in engineering

Abstract(s) of 300 words or less must be electronically submitted via forms on the FIE 98 www.eas.asu.edu/~asufc/conference/fiehmpg,htm or e-mailed to fie98@asu.edu.

INTERNAT. ICSC SYMPOSIUM ON ENGINEERING OF INTELLIGENT SYSTEMS (EIS'98)
February 11 – 13,1998
University of la Laguna
http://.www:compusmart.ab.ca/icsc/eis.htm

In recent years, the applications of Artificial Intelligence have been extended thanks to the development of new field, such as Neural Networks, Fuzzy Logic and Genetic Algorithms. The possibility of accurate modeling of complex problems permitted by those new tools allow to approach new applications of artificial intelligence in control theory, robotics, signal processing and even business financial planning management, damage assessment, security, and so on.

The main aim of this conference is to bring together theorists from different field of artificial intelligence and people working in applicative areas, in order to state the current state of the research and applications of Intelligent systems and make the basis for rewarding cooperation in the area.

Contribution are sought in areas based on the list below, which is particularly only. Contributions from new application areas will be particularly welcome.

NEWS FROM THE BOOK MARKET

INSIGHTFUL NEW VOLUMES IN A DYNAMIC SERIES

IFSR International Series on Systems Science and Engineering • Series Editor: George J. Klir

Editorial Board: Gerrit Broekstra, John L. Casti, Brian Gaines, Ivan M. Havel, Manfred Peschel and Franz Pichler

Volume 11
FROM COMPLEXITY TO CREATIVITY
Explorations in Evolutionary, Autopoietic, and Cognitive Dynamics
by **Ben Goertzel**

This original text clearly describes the author's novel complex-systems theory — the psynet model — that integrates ideas from computer science, mathematics, neurobiology, philosophy, and cognitive and personality psychology. Ben Goertzel shows how this model provides a unified scientific explanation of all aspects of human creativity. In the process he proposes a way for extending mathematics to successfully deal with the mind's workings.

0-306-45518-8/408 pp./ill./1997/$95.00

Volume 10
THE FOUNDATIONS OF FUZZY CONTROL
by **Harold W. Lewis**

The volume applies a cross-disciplinary approach to present a highly accessible discussion of fuzzy control concepts. Harold Lewis describes basic principles and their applications in developing a fuzzy control device, and addresses the significance of dynamic compensation concepts in a typical fuzzy control design. Features include fifty-seven illustrations, a unique mathematical formalism to explain the workings of the fuzzy inference engine, and a description of a novel test plant used in the research.

0-306-45452-1/318 pp./ill./1997/$89.50

Book prices are 20% higher outside US & Canada.

Volume 9
CHAOTIC LOGIC
Language, Thought, and Reality from the Perspective of Complex Systems Science
by **Ben Goertzel**

"Very readable....recommend[ed]... to anyone interested in the mysteries of [the] human mind." — *International Journal of General Systems*

"Excellent source of inspirational ideas written in a language that is very close to mathematics." — *Mathematical Reviews*

"Provocative...will fascinate...theoretical psychologists and general systems theorists, [and] researchers in...applied mathematics, artificial intelligence, the social sciences, biology, and philosophy." — *Mathematics Abstracts*

0-306-44690-1/296 pp./ill./1994/$79.50

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e-mail: info@plenum.com • http://www.plenum.com • 212-620-8000/800-221-9369

JOURNALS

SYSTEMS RESEARCH AND BEHAVIORAL SCIENCE

MERGE!

I am delighted to announce the merger of the two journals *Systems Research* and *Behavioral Science. Behavioral Science* was founded 42 years ago by Jim Miller and has successfully championed, over the years, the cause of behavioral science and living systems theory as interdisciplinary approaches to the study of all levels of living and non-living systems, *Behavioral Science* is the journal of the International Society for the Systems Sciences (ISSS) and has a particularly strong presence in North America. *Systems Research* was founded as the official journal of the international Federation for Systems Research (IFSR – of which ISSS is a member) some 14 years ago. It has been edited by John Warfield, Gerard de Zeeuw and, recently, myself and has sought to publish papers which show an interdisciplinary perspective. IFSR has a membership of 27 national Systems societies. Systems Research, therefore, has an international readership with a particularly strong subscription base in Europe and Australasia. It is a natural development organizationally, and in terms of the respective strengths and interest of the two journal, that

they should merge to form an outstanding, world-class, systems journal support by the experience and resources of the respected publisher John Wiley & Sons.

Systems Research and Behavioral Science now has United States editors, Jim Miller and Albert Harrison, as well as the United Kingdom team of Amanda Gregory and myself.

The journal will be published six times a year and you can be sure that you will be reading in it the best work currently being produced in systems thinking and practice.

We are offering a strengthened product which can help take systems ideas into a future in which they will exercise the significant influence on research and practice which we all believe they should.

Professor M.C. Jackson (Editor-in-Chief)

HUMAN RELATIONS
towards the integration of the social sciences

From its base at The Tavistock Institute the journal „Human Relations" has become recognized by scholars throughout the worlds as a leading forum for social scientific debate and innovation. The journal features contributions that span the boundaries of social disciplines and that promote a new understanding of theoretical and policy-related problems.
It appears monthly; lists in all major social science abstracts and indices: circulates across six continents: practises blind reviewing: provides feedback from international panel of reviewers: emphasizes multi-disciplinary approaches: focuses on current issues in social theory and policy.

Editor: Professor Ray Loverridge, Aston Business School and The Tavistock Institute, London, England
Assistant Editors: Dr. Richard Holti, and Dr. Jean Neumann, The Tavistock Institute, London, England
Annual subscription: approx. 415$, personal rate: $ 125,--

Contact:
The Editor, Human Relations, The Tavistock Institute, 30 Tabernacle Street, London EC2A 4DD, England
Tel: +44 (0) 171 417 8310 extn 1247
Fax: 44 (0) 171 417 0566

JOURNAL OF COMPUTER SECURITY FREE COPIES!

This international journal presents research and development results of lasting significance in the theory, design, implementation, analysis, and application of secure computer systems. The journal will also provide a forum for ideas about the meaning and implications of security and privacy, particularly those with important consequences for the technical community.

'The Journal of Computer Security' provides an opportunity to publish articles of greater depth and length than possible in the proceedings of existing conferences. It welcomes contributions on all aspects of computer security: confidentiality, integrity, and assurance of service. Emphasis is laid on a precise understanding of security policies through modeling, as well as the design and analysis of mechanisms for enforcing them, and the architectural principles of software and hardware systems implementing them.

To increase the familiarity of the members of our society with the 'Journal of Computer Security', IOS Press likes to offer individual members of your society subscription to the four yearly issues of the 'Journal of Computer Security' at the very competitive price of US$ 62.- (shipping and handling included).

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INTERNET NEWS

Alan McCluskey (alan@connected.org) keeps a close watch on interesting web pages. Here are some of his findings (see also http://www.connected.org)

The wide-spread use of information and communication technologies represents a challenge to Trade Unions both in terms of the

nature of work and the way they work themselves. To what extent are unions using the Internet and how are they using it?

"Connecting the workers of the world - the use of the Internet by Trade Unions"
If you have comments or suggestions about this article or other aspects of "connected" don't hesitate to contact http://www.connected.org/telework/unions.html
"Building shared intelligence for networked decision-making" Connected magazine - http://www.connected.org

WHAT IS SYSTEM(S) ENGINEERING?

The European Software Institute in Bilbao, Spain, mailed a questionnaire about System Engineering. Here are the definitions they used.. Perhaps you would like to comment?

System Engineering
System engineering is concerned with the overall process of defining, developing, verifying, operating, maintaining, and disposing of systems in line with the needs of their different users and the expectations of their customers. It is an interdisciplinary approach to solving problems. Where other engineering disciplines concentrate on the details of individual aspects and technologies of a system (electronics, mechanics, software, human, etc.), system engineering integrates these disciplines in order to facilitate the production of a system that is coherent and effective. System engineering places emphasis on the consideration of the interaction of each part of the system (and the „whole system") with the environment within which it will be developed, operated and, ultimately, retired from use.

System engineering activities include concept and system definition, requirement definition and management, preliminary („architectural" and „high-level") design, risk management and life cycle cost analysis.

Process Model
A definition of a set of interrelated activities that combine together to transform inputs into outputs, achieving a particular objective. A process model usual includes activities that the process should be composed of, work products to be used and produced, and personnel roles required for performance of the process. Attributes are defined for these activities, work products, and roles. For example a process model for achieving the objective of specifying requirements for a new system would contain all the activities to be carried out, the input documents to be used, the output documents to be produced, and the people that need to be involved.

Generic Process Model
A Generic process model is a process model that is applicable to more than one organization. The definition of the model is abstract, so that it can be used by any organization that needs to achieve the objective addressed by the model. So a generic process model for specifying system requirements could be used by any organization that needs to specify system requirements.

WHAT'S NEW IN
"SYSTEMS RESEARCH
AND
BEHAVIORAL SCIENCE"?

Volume 14 No. 1 (January-February 1997)
Editorial - Mike C. Jackson
About the Merger - James G. Miller
The Rationality of Distinctions and the Emergence of Power: A Critical Systems Perspective of Power in Organizations – I. Tsivacou
Design of the Modern Inquiring System. XII. Interpreting the Cognitive and Evaluative Aspects of Immanuel Kant's Aesthetics: Implications for Systems Science - John P. van Gigch
Entropy, Social Entropy and Money: A Living Systems Theory Perspective - G.A. Swanson, Kenneth D. Bailey and James G. Miller
„Information System" as Intellectual Construct -Is Only Valid Form -

Volume 14 Number 2 (March-April 1997)

Editorial - Amanda Gregory

The Autopoiesis of Social Systems: Assessing Luhmann's Theory of Self-Reference - Kenneth D. Bailey

Working with Heterogeneity: A Pluralist Strategy for Evaluation - Ann Taket and Leroy White

The Kennedy assassination, Unidentified Flying Objects, and Other Conspiracies: Psychological and Organizational Factors in the Perception of „Cover-up" - Albert A. Harrison and James Moulton Thomas

Information Systems Strategic Planning: A Model for Implementation in Changing Organizations - Steve Clarke and Brian Lehaney

A Cybernetician before Cybernetics - Ernst von Glasersfeld

Volume 14 Number 3   May-June 1997

Editorial - Albert A. Harrison

Reflection on SSM: The Link Between Root Definitions and Conceptual Models - Peter Checkland and Costas Tsouvalis

Validity of Decision Support Systems: Towards a Validation Methodology - Paul N. Finlay and J. M. Wilson

Beyond Markets, Hierarchies and Ownership Mania in Transitional Countries - Miroslav Rebernik

Time and Interactions in Complex Systems - Roland Fivaz

Synthetic Systems Theory: Linkage between Western Theory and Physics and Eastern Thought - Yong Pil Rhee

A Postscript the Kenneth Boulding - Ernst von Glaserfeld

News from the IFSR	*IFSR*	News from the IFSR

Dear Members!

Just a reminder! Do not forget the two important meetings of the IFSR in April of next year!

Details of the meeting will be sent to the member societies soon!

And again a Merry Christmas and A Successful New Year!

Gerhard Chroust

DO NOT FORGET!

BOARD MEETING
OF THE IFSR

(for representatives of IFSR member societies)

WEDNESDAY, APRIL 15, 1998, 17.00 – 19.30
Preliminary agenda in IFSR Newsletter 16/3

STRATEGY MEETING
OF THE IFSR

(for representatives of IFSR member societies)

SATURDAY, APRIL 18, 1998, 9.30-12.30
Wienerwald-SCHOTTENKELLER
Freyung 6, Vienna

EMCSR '98
April 14-17, 1998, Vienna

FUSCHL CONVERSATION
April 19-24, 1998, Fuschl

CALENDAR OF EVENTS

Title	Date and Place	Further Information
Abbreviations: CfP, CfA: Call f.Papers/Abstract, FP: Final Paper due, <No. nn>: more details in issue.nn		
Engineering Of Intelligent Systems: EIS'98 <No.16/4>	Feb. 11-13, 1998 Tenerife, Spain CfA: expired	ICSC Canada, P.O. Box 279, Millet, Alberta T0C 1Z0, Canada Email: icsc@compusmart.ab.ca, Fax: +1-403-387-4329 http://www.compusmart.ab.ca/icsc/eis98.htm

14th European Meeting on Cybernetics and Systems Research <No 16/2>	April 14-17, 1998, Vienna, Austria CfP: Oct. 17, 1997	Austrian Soc. for Cybernetic Studies, -Schotteng. 3, A-1010 Vienna, Austria, tel: +43-1-53532810, fax +43-1-5320652, email: sec@ai.univie.ac.at http://www.ai.univie.ac.at/emcsr/
First national Conference on systems science <No 16/3>	June 24-26, 1998, Milano, I CfP: Dec. 31,1997	Universita' degli Studi Di Milano Dipartimento di Scienze della Informazione (AIRS), att. Prof.Mauri , Via Comelico,39 20135 – Milano, bandini@dsi.unimi.it, fax: +39 (0)2-55006.276 ; tel: +39(0)2-55006.269
7th International Conference in Information Processing and Management of Uncertainty in Knowledge-based Systems (IPMU 98) <Nr. 16/3>	July 6 - 10, 1988 Paris (France)	IPMPU '98, LIP6, UPMC, Case 169, 4 place Jussieu, 75252 PARIS Cedex 05, France, Fax: +33 - 1- 45 75 08 90 e-mail: ipmu laforia.ibp.fr http://www-laforia.ibp.fr/~baslofti/ipmu.html
WORLD MULTICONFERENCE ON SYSTEMICS, CYBERNETICS AND INFORMATICS: SCI'98	July, 12-16, 1998 Orlando, Florida CfP: Jan. 12, 1998	The International Institute of Informatics and Systemics. Prof.Nagib Callaos, IIIS6220 S. Orange Blossom Trail, Suite 173 Orlando, FL 32809, USA, Fax: +1 (407) 856-6274, e-mail: SCI98@aol.com http://www.iiis.org
EUROMICRO'98: Engeinering Systems and Software for the next decade	Aug. 25-27, 1998, Västeras, S CfP: Feb. 28, 1998 FP: June 15, 1998	F. Tirado, Dept,. de Informatica y Automatica, Universidad Complutense, 28040 Madrid, Spain Tel.: +34-1-3944378, fax: +34-1-3944687, email: ptirado@dia.ucm.es
IFIP'98: 15th IFIP World Computer Congress: 'The global Information Society' <No. 16/2>	Aug. 31- Sept 4, 1998 Vienna/Budapest CfP: Jan. 16,1998	Austrian Computer Society, Wollzeile 1-3, A-1010 Vienna, tel: +43 1 512 02 35-0, fax: -9 email: ifip98@ocg.or.at John v. Neumann Computer Soc., Bahtori u. 16, H-1054 Budapest, tel: +36 1 13 293 49, fax: +36 1 13181 40, ifip98@neumann.hu, http://www.ocg.or.at/ifip98/
13th Int. Conference on Systems Science <No. 16/3>	Sept. 15-18, 1998 Wroclaw, PL CfA: Jan. 31, 1998 FP: May 31, 1998:	Prof. Adam Grzech, Wroclaw University of Technology, Institute Of Control And Systems Engineering, Wybrzeze Wyspianskiego 27, 50-370 Wroclaw, Poland, tel: +48-71-320-33-28, fax +48-71-320-3884, email:icss@ists.pwr.sroc.pl, www: http://www.ists.pwr.wroc.pl/13icsss/
IDIMT'98, 6th Interdisciplinary Information Management Talks	Oct. 21-23, 1998 Zadov, Czech Republic CfP: April 1998 FP: July 1998	Gerhard Chroust, Systemtechnik, Kepler Universität Linz, 4040 Linz, tel: +43-732-2468-866, fax -878 email:Chroust@SEA.uni-linz.ac.at
2nd International Conference on: "Circuits, Systems and Computers " (CSC'98)	Oct. 26-28, 1998 Piraeus, Greece CfP: March 26, 1998	Prof. N.E.Mastorakis, Hellenic Naval Academy, Terma Hatzikyriakou, 18539, Piraeus, GREECE. Email: mastor@softlab.ntua.gr Fax: (Office) first priotity: (+301) 7775660, Tel: (Office) (+301) 7775660, http://www.softlab.ece.ntua.gr/~mastor
1998 Frontiers in Education <No. 16/4>	Nov. 4-7, 1998 Tempe, Arizona, USA CfA: Jan 9, 1998 FP: March 21, 1998	(www.eas.asu.edu/~asufc/conference/fiehmpg,htm) or mail to fie98@asu.edu.
Cybernetics and Ecology <No. 16/3>	Nov. 7-10, 1998 Palma de Mallorca, E CfP Jan. 1, 1998	Cybernetics Academy „Stefan Odobleja" - Dragan European Foundation, 153 Calea Rahovei, sector 5, Bucharest, Romania Tel.: (401) 335 37 19, fax: (401(336 07 79 e-mail: ioana hoisescu connex ro
Synergy Matters: With Systems in the 21st Century: 6th International Conf. of the United Kingdom Systems Society	July 5-9, 1999	Doreen Gibbs, Lincoln School of Management, University of Lincolnshire and Humberside, Lincoln LN6 7Ts, UK Tel. +44 1522 886202, fax +44 1522 886023, Dgibbs@lincoln.ac.uk