



SIMULETTER is a quarterly publication of
the ACM Special Interest Group on Simulation

SIGSIM Officers and Editorial Staff

Chairman:

Richard E. Nance
Dept. of Computer Science
Virginia Tech
562 McBryde Hall
Blacksburg, VA 24061
(703) 961-5605

Vice-Chairman:

Tuncay Saydam
Dept. of Comp.
& Info. Sciences
University of Delaware
Newark, DE 19947
(302) 451-2712

Secretary/Treasurer:

Stephen D. Roberts
Regenstrief Health Center
1001 West Tenth Street
Indianapolis, IN 46202
(317) 630-7400

Editor:

Tuncer I. Ören
Dept. of Computer Science
University of Ottawa
Ottawa, Ont., Canada K1N 9B4
(613) 231-5420

During Sabbatical Leave
(1984 Sept. 1 - 1985 June 30)

Institut für Statistik und Informatik or
Universität Wien
Liebiggasse 4
A-1014 Wien, Austria

(43-222) 42 33 56

Associate Editors:

Osman Balci
Dept. of Computer Science
Virginia Tech
562 McBryde Hall
Blacksburg, VA 24061
(703) 961-4841

Maurice S. Elzas
Computer Science Dept.
Dutch Agricultural University
Wageningen
The Netherlands
31-8370 84154

Ghislain C. Vansteenkiste
Dept. of Applied Mathematics
and Biometrics
University of Ghent
B-9000 Belgium
32-91 236 961

Bernard P. Zeigler
Dept. of Computer Science
Wayne State University
Detroit, MI 48202

IIASA
System & Decision Science Program
A-2361 Laxenburg, Austria

(43-222) 715 21 224

SIMULETTER is a quarterly publication of the ACM Special Interest Group on Simulation of the Association for Computing Machinery.

Editorial material should be sent to the Editor, Tuncer I. Ören, University of Ottawa. Subscriptions, address changes and other business communications should be sent to **SIMULETTER**, c/o ACM, 11 West 42nd Street, New York, NY 10036 USA. (212) 869-7440.

All contributions to **SIMULETTER** are unrefereed working papers unless otherwise indicated. Except for editorial items, all sources of material appearing in **SIMULETTER** will be clearly identified. Articles and items attributed to individuals are ordinarily to be interpreted as personal rather than organization opinions, and in no way does this non-editorial material represent the opinion of the editor regarding its accuracy or quality. Unless specifically stated, the contents of **SIMULETTER** do not represent the official position of SIGSIM or ACM.

All contributions should be sent to the editor in 'camera ready' form, typed single-spaced and clearly with margins ready for publication. Authors of longer articles are requested to write to the editor for copy paper. All correspondence must be signed; however, letter to the editor will be published anonymously if requested.

TABLE OF CONTENTS

Chairman's Column: Simulation Classics (of the Discrete Event kind)	
Richard E. Nance	2
Editorial: Surveys on Discrete Event Simulation	
Tuncer I. Ören	5
* * * INVITED PAPER	
Optimizing Simulated Systems	
Georg Ch. Pflug	6
- - -	
FROM ACM HQ	
- "Careers in Computing - A call for Comment	10
ASSOCIATIONS	12
JOURNALS	14
BOOKS/PROCEEDINGS	22
EVENTS	
- Recent Conferences	35
- List of Events	
Tuncer I. Ören & Murat Özmızrak	37
- Additional Information on Conferences	41
CONTRIBUTIONS TO SIMULETTER	64

Chairman's Column

SIMULATION CLASSICS
(of the Discrete Event Kind)

One of the few perquisites of this elected position is the ability to weave certain favored topics into this column in SIMULETTER. As you must realize, writing this column is not always a pleasurable "perq" (recall the column discussing the increase in dues). However, the subject for this issue is more enjoyable; although it may lose me a few friends and target me for the "Presumptuous Personality of the Period Award". After all, who gave Dick Nance the prerogative to designate simulation classics? (Honestly, I hope you will take issue with my selections and consider your own list or an expansion of mine. If you do so, I guarantee you equal space in SIMULETTER.)

What is a Simulation Classic?

Webster defines "classic" as "of the highest class; being a model of its kind; excellent; standard; authoritative ...". An alternative definition in Webster's also appeals to me, as some of you know, by noting (colloquially) that a classic is "a famous automobile of the period 1925-1942". Clearly, the latter definition is not suitable in the context, and perhaps the components of the first definition, while contributing to my concept of classic, do not completely convey the characteristics that I have in mind.

Therefore, I propose an operational definition of "classic" that includes four properties: age, impact, insight, and innovation. To elaborate, I have considered candidates for classic status in discrete event simulation as having a publication date at least five years old -- 1978 or earlier. From the pre-1979 publications, I have selected candidates based on their possession of one or more of the following criteria:

Impact - the degree to which the publication had immediate or long-term impact on an area of discrete-event simulation;

Insight - the extent to which the author conveyed an early understanding of technical importance or awareness of developing simulation issues; and

Innovation - the reflection of innovative or ingenious thinking in the treatment of the subject matter or the resolution of technical issues.

While I have strived to base my selections on the three I's above, no doubt my choices are influenced by personal tastes and preferences. That is simply an admission and not an apology.

In making my selections, I limited myself to three choices in each category. If fewer than three choices emerged after some reflection on a category, I considered my knowledge too limited in that particular area and omitted it as a category for further consideration. Such was the case with transformations to Non-uniform Random Variates, clearly a category of considerable importance, but one in which I had only a single selection!

Selections

The explanations and caveats aside, let me share with you my selections in five areas of discrete event simulation. The ordering within each area is alphabetical, indicating no ranking within an area.

Random Number Generation

The choices are difficult in this area. The IBM technical report on random number generation and testing from 1959 is tempting since it is one of the most referenced items in the early literature. However, after additional reflection my choices are:

D. E. Hull and A. R. Dobell, "Random Number Generators," SIAM Review, 4 (3): July 1962, 230-254.

D. E. Knuth, The Art of Computer Programming: Volume 2/Seminumerical Algorithms, Addison-Wesley, 1969.

D. H. Lehmer, "Mathematical Methods in Large-Scaled Computing Units," Annals of the Computational Laboratory, Harvard University, Volume 26:1951, 141-146.

The selection of Knuth and Lehmer seems beyond argument. Lehmer's work of course defines the linear congruential methods utilized in random number generators since the paper appeared. Knuth's book, in fact all of his books in my opinion, are classics of computer science for their depth, clarity of presentation, and completeness of coverage. Perhaps some will argue with the choice of Hull and Dobell, the paper which drew together and set forth the conditions for full period for the mixed and multiplicative generators. The only serious contender in my mind is the early Tausworthe paper, which advances the use

of feedback shift register sequence generation for producing uniform random variates.

Modeling Concepts

This category contains a sleeper; at least one entry I doubt others would choose. However, if you are familiar with the paper you might agree with me that the insight alone well defends my choice.

J. C. R. Licklider, "Interactive Dynamic Modeling," Prospects for Simulation and Simulators of Dynamic Systems, George Shapiro and Milton Rogers, eds., Sparten Books, New York, 1967, 281-289.

K. D. Tocher, "Some Techniques of Model Building," Proceedings IBM Scientific Computing Symposium on Simulation, Models and Gaming, 1966, 119-155.

B. P. Zeigler, Theory of Modeling and Simulation, John Wiley, 1976.

The Licklider paper is of course the sleeper, but it reflects the perceptions of a technology only now being realized. The Tocher paper includes the wheel chart, the forerunner of the entity cycle diagram, which is ubiquitous in simulation modeling in the United Kingdom. Tocher's description of a real-time simulation model for process control displays rare insight. Zeigler's book, the most complete attempt at formalizing simulation modeling concepts utilizing general systems theory, has had a notable impact on the field.

Simulation Programming

Among the many candidates in the area, my selections are:

A. S. Ginsberg, H. M. Markowitz, and P. M. Oldfather, "Programming by Questionnaire," Memorandum RM-4460-PR, RAND Corporation, April 1965.

P. J. Kiviat, "Digital Computer Simulation: Computer Programming Languages," Memorandum RM-5883-PR, RAND Corporation, January 1969.

K. Nygaard and O.-J. Dahl, "The Development of the SIMULA Languages," SIGPLAN Notices, 13 (8):August 1978, 245-272.

The PBQ Project represents the first effort at program generation, although the project did not characterize itself by

that term. Nevertheless, the innovation of utilizing a questionnaire approach as a higher order language (HOL) descriptive mechanism set the stage for subsequent developments in interactive program generation. Kiviat's work meets all three criteria, offering the kind of treatment that one still learns from by reading it today. The nuggets of insight seem to rise to the surface with each successive reading. My reference to the Nygaard and Dahl paper is actually to a preprint of the paper that later appeared in the book entitled History of Programming Languages, edited by R. L. Wexelblat. I did not wish to violate my publication criteria; yet, the insights displayed by the authors in reviewing the objectives and constraints of a simulation programming language design, coupled with the impact of SIMULA itself, demands the inclusion of this paper.

Statistical Analysis

This is perhaps the most controversial area because of the large amount of work within the area. I am forced to designate four selections, but can claim to still observe my criteria since two selections are independently traced as the origins of the regenerative process. My selections are:

R. W. Conway, "Some Tactical Problems in Digital Simulation," Management Science, 10 (1):October 1963, 47-61.

M. A. Crane and D. L. Iglehart, "Simulating Stable Stochastic Systems I: General Multi-Server Queues," J. ACM, 21 (1):January 1974, 103-113.

G. S. Fishman, "Statistical Analysis for Queueing Simulations," Management Science, 20 (3):November 1973, 363-369.

A. M. Law, "Confidence Intervals in Discrete Event Simulation: A Comparison of Replications in Batch Means," Nav. Res. Logist. Q., 24: 1977, 667-678.

Conway's paper probably represents the first attempt to deal comprehensively with the analysis of simulation output, touching on initial state bias, sampling with respect to permanent and temporary entities, and sample size definition. It meets all of the criteria for a classic. The Fishman and the Crane and Iglehart papers concurrently develop the regenerative process. Actually, as George Fishman pointed out to me several years ago, the idea is mentioned in the 1961 book Queues

by D. R. Cox and W. L. Smith. However, the groundwork for the approach is cultivated in these two papers and several which followed. The experimental comparison by Law is chosen because of its innovation in dealing with experimental evaluations of techniques by comparison with known analytic results. Perhaps this is not the first paper to do so, but it is the first paper in my experience which displays uncommon insight and innovation in its treatment.

Simulation Textbooks

One might question my designation of a textbook area, but the teaching of simulation is so important that it cannot be omitted. Again, the choices are extremely difficult for several fine textbooks have been written over the years. My choices are:

G. S. Fishman, Concepts and Methods in Discrete Event Digital Simulation, John Wiley, 1973.

T. H. Naylor, J. L. Balintfy, D. S. Burdick, and K. Chu, Computer Simulation Techniques, John Wiley, 1966.

T. J. Schriber, Simulation Using GPSS, John Wiley, 1974.

Fishman's book (the first of two in the area) represents a graduate level text that clearly deals with all aspects of discrete event simulation. Its breadth and depth are remarkable for the time. The Naylor, et.al., advances an innovative organization of topical material that is still reflected in texts today. The issues of verification and design of experiments are given primary attention. Finally, the Schriber book would merit selection based on impact alone. Literally thousands of students have learned GPSS utilizing this book which is organized to give a comprehensive and complete treatment of a very rich language.

Concluding Comments

Some readers by now may be saying, "so what's the purpose of all of this?" "Why should I care what you think is good?"

My purpose is twofold, one of which I have eluded to in the first paragraph of the column. The first purpose is to suggest that researchers, especially Ph.D. students, in any of the first four areas should examine the selections. They might not conclude that my evaluations match their own, but they should be exposed to the information that enables them to reach such a conclusion.

The second purpose, and perhaps the more important one, is to open a dialogue concerning the areas of research in simulation both discrete event and continuous models. That dialogue might begin with questions like:

What are the areas of research within discrete event and continuous simulation?

What is the current status of our knowledge in these areas?

How did we get to this particular point?

Where do we go from here and how?

Such a dialogue requires the kind of "roots identification" that I have begun here. Now, perhaps some equally presumptuous individual might share a list of selections for continuous simulation. Opinions, selections, and especially additions are welcomed.

Richard E. Nance

EDITORIAL

SURVEYS ON DISCRETE EVENT SIMULATION

Extensive travel commitments in eight countries during the summer of 1984, plus settling in new academic environments jointly at IIASA (International Institute for Applied Systems Analysis) and at the University of Vienna to spend my sabbatical year, caused the delay in the preparation of this October issue of SIMULETTER.

To complement the Chairman's Column, I am enclosing a bibliographic reference and the abstract of one of my recently published articles:

Ören, T.I. (1984), Discrete Event Simulation Software: A State-of-the-Art Review.

In: 1984 Canadian Conference on Industrial Computer Systems, R.E. Butler (Ed.), pp.34/1-10, CICS (Canadian Industrial Computer Society) Ottawa, Ont., May 22-24, 1984.

Highlights of a broad view of discrete simulation are given with emphasis on modelling paradigms and simulation software. In addition to the traditionally well known modelling paradigms such as process, event, and network flow representations, some other modelling formalisms which emphasize the organization of component models and/or the goal(s) of the model are also pointed out. References are given for twenty seven languages for simulation with discrete models. The accompanying bibliography covers over 170 documents cross-indexed in about 100 categories.

The following two references that I have taken from the April 1984 issue of International Abstracts in Operations Research can also be useful to the interested readers:

29548

'Of clouds & Clocks' - A guided walk through a simulator's toolbox. Kreutzer, W. (Computer Science, University of Canterbury, Christchurch New Zealand), NZOR (New Zealand) 11 (1983) 1 (Jan). pp. 51-120.

A comprehensive review of high-level, user-oriented systems simulation languages and packages for discrete event simulation, with minimodel sample programs. The paper develops basic conceptual and notational frameworks and their computer implementation for SIMULA67, ECSL, SIMSCRIPT, GASP, MONTECODE, GPSS, CAPS, etc., as well as several general purpose programming languages. It includes a tabular comparison.

H.G. Daellenbach (New Zealand)

29551

Ereignisdiskrete Simulationssprachen - Ein Überblick (Discrete event simulation languages - A review) (German). Scheifele, M. (Fraunhofer-Institute für Arbeitswirtschaft und Organisation. Silberburgstr. 119 A.D-7000 Stuttgart 1, Germany, F.R.) and Warschat, J. Applied Systems Analysis (Germany, F.R.) 4 (1983) 3, pp. 125-133.

For the formulation and the simulation of discrete event processes in different application areas special simulation languages have become more and more important. This article provides some orientations for the user about the rapid development and the great number of languages.

Please consider the invitation for contribution to SIMULETTER on page 64 as a personal invitation and be part of the action.

Tuncer I. Ören

acm

SIG-84-8

Association for Computing Machinery

"CAREERS IN COMPUTING" - A CALL FOR COMMENTS

This note is being sent SIG officers and to SIG members via the Newsletters, as a follow up to the launch meeting of the "Careers in Computing" project chaired by ACM Vice-President JAN Lee at ACM '84. JAN also spoke about the project at the luncheon for SIG chairs and it was discussed by the SIGBOARD. I was asked to collect comments from the SIGs to be incorporated in a plan of campaign on December 1 that will pool feedback from all the areas of ACM which are involved.

The project will provide information about "careers in computing" to young people of high school age and to other people who interact with the school population. The information will include advice on: curricular material for high school computer courses, other aspects of high school preparation for college computer work (which may be learning to read and write English rather than esoteric programming languages), subject specialties that can be combined with computing (because computing affects so many activities, the primary need may be answers to questions of the form "How could I use computing in a career in ..."), prospects for people lacking particular skills (e.g. math) to work with computers, the selection of colleges which combine computing with other specific subjects, and so forth.

A career in computing is not construed as a career as a computer scientist or programmer or systems analyst. Several discussants felt that the spirit of the project is closer to "computers in your career" ("you" being the student). It will give a lot of attention to educational paths that let students take a minor or selected courses in computing while majoring in other subjects at college. The project seeks material to help students make realistic career choices - it does not want artificial glamorizations to recruit more students into computer science.

Views are sought from the SIGs on the following matters. What should high school students be taught and told that can make them aware of careers that use computing with which SIG members are familiar? What should be done to help students prepare for these careers? For which kinds of groups and individuals should material be developed? Schools, youth clubs, computer clubs, civic organizations, schools of education, boards of education, legislative committees, departments of education and labor at the state and federal levels, teachers unions, private and public foundations, other professional associations; teachers, school administrators, high school counselors and college recruiters are possibilities. Are there more? Where should activity be focused?

What kinds of materials should be developed? What special skills and volunteer efforts can SIGs provide, such as graphics and electronic publishing? Should special activities such as scholarship funds be developed? The delivery mechanism will include new lectureship activities promulgated by chapters. What roles should national and local SIGs play?

The comments in this note are starters. The more ideas that respondents give the merrier. Several people who discussed the project in San Francisco stressed the need to combat some quite widespread misconceptions about computing, and to emphasize the volatility of the field, the necessity to learn how to learn, the danger of premature specialization trapping young people in areas that are "hot" today but potentially dead by the time they reach the job market.

The post office still delivers letters to me at 17 Lovers Lane, Princeton, N.J. 08540, sooner or later. I trust that resolving mutually hostile electronic mail protocols will not still be a potential career in computing by the time my children have all graduated.

Thanks.

Michael P. Barnett

Association of SIMULA Users

Forskningsvn. 1 B, Postboks 335 Blindern, 0314 Oslo 3, Norway, telefon 46 69 30 Telex 76518 ncc n

Oslo, 20th September 1984

Professor Tuncer Øren
Institut für Statistik und Informatik
University of Vienna
Roosveltplatz 6/2
A-1090 Vienna
Austria

Dear Professor Øren

Your name and address has been passed on to us by Mr. Georg Pierre Philippot who, I believe, met you during your visit to Hungary in August. He informed us that you had offered to print information and articles from the Association of SIMULA Users in the SIGSIM Newsletter.

I enclose a sheet giving you some information about the ASU, which might be of interest to readers of the SIGSIM Newsletter. I believe that it was something of this kind you discussed with Mr. Philippot. I also enclose the current copy of the SIMULA Newsletter. Maybe there is something there that might be of interest.

Membership of the Association is free of charge (at the moment) and our financial position does not allow for much publicity. So you will understand we are always very pleased for assistance in this respect.

Should this information not be suitable, I would be obliged to hear further from you. In the meantime thank you for your interest.

Yours sincerely



Eileen Schreiner
ASU Secretary

Enclosure

Association of SIMULA Users

Forskningsvn. 1 B, Postboks 335 Blindern, 0314 Oslo 3, Norway, telefon 46 69 30 Telex 76518 ncc n

THE ASSOCIATION OF SIMULA USERS - its aims and activities

The Association of SIMULA Users is a non-profit organisation open to all individuals as well as organisations interested in the use, development and promotion of the SIMULA 67 programming language.

The aims of the ASU are:

- To provide a forum for SIMULA Users for discussion and exchange of ideas on SIMULA applications.
- To help new SIMULA Users to master the language and learn about existing applications.
- To encourage the use of SIMULA.
- To make recommendations to the SIMULA Standards Group (SSG) the SIMULA Development Group (SDG) and their members about development of the SIMULA language, and to support all efforts to keep SIMULA well-defined and truly machine-independent.

The Association was established in 1973 at the first Users Conference in Oslo, and today numbers approx. 600 members. For the last twelve years the Association has, in cooperation with the Norwegian Computing Center, published a quarterly newsletter which is distributed worldwide to approx. 1300 subscribers. From 1st January 1985, this Newsletter will be supported by the newly established company, simula a.s., as will the ASU and all matters pertaining to SIMULA. The Newsletter includes regular contributions on SIMULA usage and development, correspondence on technical problems, announcements of meetings and publications and information relevant to the SIMULA community.

The Newslettter is free of charge and is automatically sent to all registered ASU members.

The Association endeavours to hold at least two activities each year. The location of the yearly conference is determined by the Annual General Meeting. Usually one of the members offers to host and arrange it at his work site. The same applies to the special workshops, seminars and schools on advanced SIMULA. In this way, members are also activated. This work is carried out voluntarily.

The special workshops and seminars cover a wide range of activities such as Computing System Reliability, held in Newcastle; Program development tools, held in Lund; Real-time simulation, held in Edinburgh; SIMULA and industrial systems, held in Budapest. Successful Winter and Summer Schools for Advanced SIMULA have been held in Freiburg and a school of the same type will be held in Groningen in the Spring of next year. The 1985 conference is scheduled to be held in Calgary at the end of August. Announcements of these activities will be inserted in the Newsletter.

SIMULA publications, including proceedings of the yearly conferences, are also available and may be obtained from the address below:

ASU Secretariat
Norwegian Computing Center
P.O.B. 335, Blindern
0314 OSLO 3
Norway
Tel.: (02) 466930 Telex: 76518 ncc n

SIMULA Newsletter, Vol. 12 No. 3. August 1984

Editors: Karel Babcicky, Eileen Schreiner
Norwegian Computing Center
P.O.B. 335, Blindern
Oslo 3
Norway

Tel.: (02) 46 69 30
Telex: 76518 ncc n

The SIMULA Newsletter is published quarterly by the Norwegian Computing Center on behalf of the Association of SIMULA Users, and provides for the dissemination of ideas, comments and criticism concerning the SIMULA programming language and its applications.

Users' contributions are therefore indispensable. Material submitted for publication should be typewritten, and of general interest to SIMULA users and others interested in the SIMULA language. The editors reserve the right to emend or abridge contributions where necessary.

Contents

Editorial -----	2
SIMULA goes commercial-----	3
Details about simula a.s. -----	3
Conference Abstracts -----	4
Conference Reminder -----	11
An interesting use of "Detach" -----	12
Human life saved dramatically by SIMULA T-shirt Ron Kerr -----	13
ALBATROSS is on the wing! -----	14
Profit from your SIMULA programs -----	15
S-PORT SIMULA on PRIME -----	16
S-PORT SIMULA on VAX/UNIX -----	16
ICL 2900 SIMULA -----	17
Available SIMULA implementations with price list and addresses of distributors -----	17
SIMULA Textbooks -----	20
Puzzle Corner -----	23
Song of the AFSI -----	24
SIMULA Calendar -----	25

SPECIAL INTEREST GROUP NEWSLETTERS

ACM SIG Newsletters are sent to SIG members as a regular benefit. Following are subscription rates for non-ACM members. For subscription information, contact ACM Headquarters, 11 West 42nd Street, New York, NY 10036 (212) 869-7440.

			Single Copy Prices	
			Member	Non-Member
SIGACT News (Automata and Computability Theory)	<i>Quarterly</i>	\$15.50	\$ 4.00	\$ 4.00
SIGADA Ada Letters (Ada)	<i>Bimonthly</i>	\$30.00	\$ 7.50	\$ 7.50
SIGAPL Quote Quad (APL)	<i>Quarterly</i>	\$30.00	\$ 7.50	\$ 7.50
SIGARCH Computer Architecture News (Architecture of Computer Systems)	<i>Quarterly</i>	\$26.00	\$ 6.50	\$ 6.50
SIGART Newsletter (Artificial Intelligence)	<i>Quarterly</i>	\$20.00	\$ 5.00	\$ 5.00
SIGBDP DATABASE (Business Data Processing)	<i>Quarterly</i>	\$20.00	\$ 5.00	\$ 5.00
SIGBIO Newsletter (Biomedical Computing)	<i>Quarterly</i>	\$20.00	\$ 5.00	\$ 5.00
SIGCAPH Newsletter (Computers and the Physically Handicapped), Print Edition	<i>Quarterly</i>	\$22.00	\$ 5.50	\$ 5.50
SIGCAPH Newsletter, Cassette	<i>Quarterly</i>	\$22.00	\$ 5.50	\$ 5.50
SIGCAPH Newsletter, Print and Cassette	<i>Quarterly</i>	\$26.00	\$ 6.50	\$ 6.50
SIGCAS Newsletter (Computers and Society)	<i>Quarterly</i>	\$18.00	\$ 2.00	\$ 4.00
SIGCHI Bulletin (Computer and Human Interaction)	<i>Quarterly</i>	\$30.00	\$ 7.50	\$ 7.50
SIGCOMM Computer Communications Review (Data Communications)	<i>Quarterly</i>	\$25.00	\$ 7.50	\$10.00
SIGCPR Newsletter (Computer Personnel Research)	<i>Quarterly</i>	\$10.00	\$ 2.50	\$ 2.50
SIGCSE Bulletin (Computer Science Education)	<i>Quarterly</i>	\$19.00	\$ 4.75	\$ 4.75
SIGCUE Bulletin (Computer Uses in Education)	<i>Quarterly</i>	\$20.00	\$ 2.00	\$ 4.00
SIGDA Newsletter (Design Automation)	<i>Quarterly</i>	\$ 5.00	\$ 1.25	\$ 1.25
SIGDOC Newsletter (Systems Documentation)	<i>Quarterly</i>	\$16.00	\$ 4.00	\$ 4.00
SIGGRAPH Computer Graphics (Computer Graphics)	<i>Quarterly</i>	\$50.00	\$12.50	\$12.50
SIGIR Forum (Information Retrieval)	<i>Quarterly</i>	\$12.00	\$ 3.00	\$ 3.00
SIGMAP Newsletter (Mathematical Programming)	<i>Quarterly</i>	\$20.00	\$ 5.00	\$ 5.00
SIGMETRICS Performance Evaluation Review (Measurement and Evaluation)	<i>Quarterly</i>	\$14.00	\$ 3.75	\$ 3.75
SIGMICRO Newsletter (Microprogramming)	<i>Quarterly</i>	\$20.00	\$ 5.00	\$ 5.00
SIGMOD Record (Management of Data)	<i>Quarterly</i>	\$ 9.00	\$ 2.00	\$ 2.00
SIGNUM Newsletter (Numerical Mathematics)	<i>Quarterly</i>	\$19.00	\$ 4.75	\$ 4.75
SIGOA Newsletter (Office Automation)	<i>Quarterly</i>	\$17.50	\$ 4.50	\$ 4.50
SIGOPS Operating Systems Review (Operating Systems)	<i>Quarterly</i>	\$14.00	\$ 3.50	\$ 3.50
SIGPLAN Notices (Programming Languages)	<i>Monthly</i>	\$35.00	\$ 3.00	\$ 4.00
SIGPLAN FORTRAN FORUM (Fortran)	<i>Quarterly</i>	\$16.00	\$ 4.00	\$ 4.00
SIGSAC Newsletter (Security, Audit and Control)	<i>Quarterly</i>	\$22.00	\$ 5.50	\$ 5.50
SIGSAM Bulletin (Symbolic and Algebraic Manipulation)	<i>Quarterly</i>	\$15.00	\$ 3.75	\$ 3.75
SIGSIM Simuletter (Simulation)	<i>Quarterly</i>	\$10.00	\$ 2.50	\$ 2.50
SIGSMALL/PC Newsletter (Small and Personal Computing Systems and Applications)	<i>Quarterly</i>	\$28.00	\$ 7.00	\$ 7.00
SIGSOFT Software Engineering Notes (Software Engineering)	<i>Quarterly</i>	\$12.00	\$ 1.50	\$ 3.00
SIGUCCS Newsletter (University and College Computing Services)	<i>Quarterly</i>	\$20.00	\$ 5.00	\$ 5.00



SIMULATION

Journal of the Society for
Computer Simulation

SIMULETTER November 1984, Vol. 15, No. 4

CONTENTS

VOLUME 43 : NUMBER 1 : JULY 1984

International Officers

President
WALTER KARPLUS
University of California at Los Angeles
Los Angeles, California

Senior Vice President
NORBERT POBANZ
Bechtel, Inc.
San Francisco, California

Vice President, Europe
G.C. VANSTEENKISTE
State University of Ghent
Ghent, Belgium, B-9000

Secretary
BRIAN UNGER
University of Calgary
Calgary, Alberta, Canada

Treasurer
V. WAYNE INGALLS
Boeing Computer Services Co.
Seattle, Washington

Executive Committee

WALTER KARPLUS, *President*
NORBERT POBANZ, *Senior Vice Pres.*
G.C. VANSTEENKISTE, *Vice President,*
Europe

GEORGE MARR
Silver Systems
Little Silver, New Jersey

RALPH C. HUNTSINGER
University of Calgary
Calgary, Alberta, Canada

California State University - Chico
Chico, California

WILLIAM D. WADE
Wade Engineering Co.
Huntington, New York

STEWART I. SCHLESINGER, *Past*
President

Regional Council Chairmen

Central States

Vacant

Eastern

TIMOTHY DENNIS
Pennsylvania Power & Light
Allentown, Pennsylvania

Midwestern

DONALD EWING, JR.
University of Toledo
Toledo, Ohio

Northwestern

RONALD A. HAMMOND
Boeing Computer Services
Seattle, Washington

Southeastern

ERNEST MOYERS
C.A.C.I.
Huntsville, Alabama

Southwestern

DOUGLAS HARLESS
Applied Dynamics
Austin, Texas

Western

EDWARD Y. LAMBERT
Pacific Missile Test Center
Point Mugu, California

United Kingdom

JEFFREY MORRISON
British Aerospace, Ltd.
Preston, Lancs, England

IDENTIFICATION STATEMENT

SIMULATION (USPS 497020)

Published monthly by Simulation Councils, Inc.
1010 Pearl Street, La Jolla, California 92037

Price: \$42 per year

Second Class postage paid at La Jolla, California,
and at additional offices

Postmaster: Send address changes to
Simulation, P.O. Box 2228, La Jolla, California
92038

LIMITED PERMISSION TO PHOTOCOPY

Permission is granted to photocopy portions of this
publication for personal use and for the use of clients
and students. This permission does not extend to
other types of reproduction nor to copying for in-
corporation into commercial advertising nor for any
other profit-making purpose.

INS Number US ISSN 0037-5497/84
\$2.00 + .10

TECHNICAL PAPERS

- 11 An exploration of the behaviour of resale markets through computer simulation
Andrew Berczi
- 41 The rotation and assignment of imbalanced air force specialties: A policy analysis model
Thomas D. Clark, Jr. Kevin Lawson

FEATURES

- 22 Names of published computer models in the environmental biological sciences: A partial list
and new potential risks
Ronald N. Kickert
- 49 Computers handle algebra, too
Malcolm Ritter

DEPARTMENTS

- 8 ACROSS MY DESK
Charles A. Pratt
- 51 CONSULTING AND SERVICES DIRECTORY
- 52 CALENDAR OF EVENTS
- 54 CLASSIFIED ADVERTISING
- 55 INDUSTRY NEWS
- 56 CONFERENCE ANNOUNCEMENTS
- 56 CALL FOR PAPERS
- 60 SIMULATION IN THE SERVICE OF SOCIETY
ETHICS: Other Views - Contemporary
John McLeod

COVER

See article on page 11 for a study of random imperfect markets
utilizing computer simulation.

Application for membership - Page iii
Guidelines for short technical papers - Page 7
Information for authors - Page 64



JULY 1984 SIMULATION

May
1984

Volume 1
Number 1

TRANSACTIONS

of

THE SOCIETY FOR COMPUTER SIMULATION

Contents

Editorial	iv
<i>O. A. Palusinski</i>	
Modeling MOS-Transistors in the Avalanche- Breakdown Regime	1
<i>A. Schütz, S. Selberherr, H. W. Pötzl</i>	
Step Size Control in Ordinary Differential Equation Solvers	15
<i>H. A. Watts</i>	
Efficient Step Size Control for Output and Discontinuities	27
<i>C. W. Gear</i>	
An Improved Method for Simulation of Dynamic Systems with Discontinuous Nonlinearities	33
<i>R. M. Howe, X. A. Ye, B. H. Li</i>	
Direct Programming of Continuous System Simulation Languages Using Bond Graph Causality	49
<i>D. Karnopp</i>	
Process Style Packages for Discrete Event Modeling: Data Structures and Packages in SIMULA	61
<i>G. Birtwistle, G. Lomow, B. Unger, P. Luker</i>	
Theoretical and Computer Aided Analysis of Steady State Moving Boundaries in Electrophoresis	83
<i>W. Thormann, R. A. Mosher</i>	

THE SOCIETY FOR COMPUTER SIMULATION

Mathematics and Computers in Simulation

Transactions of IMACS

Editor-in-Chief: R. VICHNEVETSKY, Dept. of
Computer Science, Rutgers University, New Brunswick,
New Jersey 08903, U.S.A.

Topics covered by the journal include mathematical tools in the foundations of Systems Modelling in specific applications to science and engineering, and in the supporting analysis of numerical methods. They also include considerations about computer hardware for simulation (digital, analog and hybrid) and about special software and compilers. Finally, the journal publishes articles concerned with the general philosophy of systems simulation, and its impact on disciplinary and interdisciplinary research. The journal also includes a Bibliography and a Book Review section.

EXAMPLES OF RECENT PAPERS PUBLISHED

Volume 25, number 1

CONTENTS: On error estimates of the numerical solution of the convection-diffusion equation, *G.A. Keramidas and T.S. Papatheodorou (U.S.A.)*. Expert systems in the simulation domain, *H. de Swaan Arons (Netherlands)*. Modeling and simulation of nonlinear and adaptive observers, *E. Hasenjaeger and M. Koehne (Fed. Rep. Germany)*. Comb filters - Simulation and design, *A.T. Kossidas and S.A. Paktitis (Greece)*. Application of the Haar functions to solution of differential equations, *M. Ohkita, Y. Kobayashi and M. Inoue (Japan)*. Linear and non-linear programming software validity, *P. Tolla (France)*. Advanced concepts and capabilities for the analysis of simulation output, *C.R. Standridge and A.A.B. Pritsker (U.S.A.)*. Simulation of a digitally controlled system, using the SIMUL language, *R. Gorez (Belgium)*. PMICE programming methodology, *A. Baccigalupi and C. Sanges (Italy)*. Variance reduction: The current state, *J.R. Wilson (U.S.A.)*. A conceptual approach for simulation software, *C. Rolland, F. Ambedet, D. Isso-Ibeka and O. Thiery (France)*. Multigrid methods for variation problems: The V-cycle, *S.F. McCormick (U.S.A.)*. Dual nature of events in discrete simulation, *A. Javor (Hungary)*. Hybrid simulation of multidimensional P.D.E.'s via solution of many one dimensional problems I. Theoretical basis and hybrid implementation, *H.I. El-Zorkany and R. Balasubramanian (Canada)*. Hybrid simulation of multi-dimensional P.D.E.'s via solution of many one dimensional

problems II. Performance study, *H.I. El-Zorkany and R. Balasubramanian (Canada)*. Book Reviews, *P. Van Remoortere (Belgium)*. Bibliography, *P. Van Remoortere (Belgium)*.

Volume 25, Number 2 (*special issue on modeling of social decision processes*)

Introduction to a modeling of social decision processes, *T.L. Saaty (U.S.A.)*. Priorities and preferences in conflict resolution, *J.M. Alexander (U.S.A.)*. Pain in creative writing: Quick relief using the Analytic Hierarchy Process, *W. Gerrish (Canada)*. A new model in the energy policy planning, *A.H. Gholamnezhad (U.S.A.)*. Measuring the intangibles in social decisions: Assessing benefits and costs of energy policy options, *K.H. Mitchell and M.P. Soye (Canada)*. The forward and backward processes in health policy planning, *B. Odynocki (U.S.A.)*. Prediction and the Analytic Hierarchy Process, *L.G. Vargas (U.S.A.)*. Book Reviews, *P. Van Remoortere (Belgium)*. Bibliography, *P. Van Remoortere (Belgium)*.

Subscription Information:

1984: Volume 26 in 6 issues

Price: US \$107.75 / Dfl. 280.00

(Add US \$8.00 / Dfl. 21.00 for postage and handling)

ISSN: 0378 - 4754

Systems Analysis Modelling Simulation

Journal of Mathematical Modelling and Simulation in Systems Analysis

SYSTEMS ANALYSIS - MODELLING - SIMULATION

Volume 1

1984

Number 3

Contents

DEL GROSSO, G.; MARCHETTI, F.: Principal Eigenvalues and Exit Times for Diffusions on Manifolds	175
HOANG, T.: A Fuzzy Method in a Control Model for Large Scale Systems	183
FANDEL, G.: Lines of Development in Multiple Criteria Decision Making	191
NACHKOV, I. G.: Mathematical Modeling of Water Resources System Management	199
KRUG, W.: Digital Simulation of Partial Differential Equations of Chemical Engineering Systems	207
BANDEMER, H.: Another Approach to Investigate Functions Being Approximately Periodical	217
KRIEDEL, U.; MENDE, W.; GRAUER, M.: An Analysis of World Energy Consumption and World Population in Terms of a Hyperlogistic Evolution Model	225
ALBRECHT, K.-F.; MENDE, W.: A Possible Description and Interpretation of Population Growth Data in German Towns	237
FRANKSEN, O. I.: Are Datastructures Geometrical Objects? Part III: Appendix A. Linear Differential Operators ..	251



Akademie-
Verlag · Berlin

SYSTEMS RESEARCH

The official journal of the
International Federation for
Systems Research

Contents

C. West Churchman	89	Churchman's Conversations
B. R. Gaines	91	Methodology in the Large: Modeling All There Is
H. F. Wedde	105	An Exercise in Flexible Formal Modeling under Realistic Assumptions
K. Chen	117	System Analysis in Different Social Settings
J. D. R. de Raadt	127	An Application of Ashby's Law to the Skewness of Income and Output Distributions
J. Kornai	135	Descriptive-Explanatory Theoretical Models of the Socialist Economy: Review of a Research Direction
A. J. Bahm	145	Holons: Three Conceptions
<i>Book Review</i> G. J. Klir	151	<i>The Cybernetic Laws of Social Progress: Towards a Critical Social Philosophy and a Criticism of Marxism</i> by Arvin Aulin
	153	<i>Biographical Notes on Contributors to this Issue</i>

ISSN 0731-7239
SYREER 1(2) 89-154 (1984)



PERGAMON PRESS

Oxford New York Toronto Sydney Paris Frankfurt

SYSTEMS RESEARCH

The Official Journal of the International Federation for Systems Research

Editor-in-Chief

John N. Warfield
Institute for Information Technology
Thompson Hall
George Mason University
4400 University Drive
Fairfax, VA 22030
U.S.A.

Editorial Advisory Board

Bela H. Banathy
Far West Laboratory for Educational
Research and Development
San Francisco
CA 94103
U.S.A.

George J. Klir
Department of Systems Science
Thomas J. Watson School of Engineering
State University of New York at Binghamton
Binghamton, NY 13901
U.S.A.

Horst Wedde
Department of Computer Science
Wayne State University
532 Mackenzie Hall
5050 Cass
Detroit, MI 48202
U.S.A.

Gerrit Broekstra
Graduate School of Management
Poortweg 6-8
2612 PA Delft
The Netherlands

Franz Pichler
Institute of Systems Science
University of Linz
A-4040 Linz
Austria

James A. Wise
Department of Architecture
University of Washington
Seattle, WA 98155
U.S.A.

C. West Churchman
College of Business Administration
University of California
Berkeley, CA 94720
U.S.A.

Robert Trapp
Department of Medical Cybernetics
University of Vienna Medical School
Freyung 6
A-1010 Vienna
Austria

Gerard de Zeeuw
Institute for Andragology
University of Amsterdam
Grote Bickersstraat 72
1013 KS Amsterdam
The Netherlands

Brian Gaines
Department of Computer Science
York University
4700 Keele St.
Downsview, Ontario
Canada M3J 1P3

Robert J. Waller
School of Business
University of Northern Iowa
Cedar Falls, IA 50614
U.S.A.

Publishing, Subscription and Advertising Offices

Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, U.S.A. and for the remainder of the world to: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K.

Subscription Rates (including postage and insurance)

Subscription rate for 1985: for libraries, university and government departments, industrial establishments and other multiple reader institutions U.S. \$60.00. Two-year rate (1985/6), U.S. \$114.00. *Specialty reduced rates to individuals* — in the interests of maximizing the dissemination of the research results published in this important international journal, we have established a two-tier price structure. Any individual whose institution takes out a subscription at the full rate may purchase a second or additional subscription for personal use at a much reduced rate of U.S. \$30.00 per annum. Members of IFSR receive the journal free as part of their membership entitlement. Published quarterly.

Copyright © 1984 Pergamon Press on behalf of International Federation for Systems Research.

It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to IFSR if and when the article is accepted for publication. However, assignment of copyright is not required from authors who work for organizations which do not permit such assignment. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical photocopying, recording or otherwise, without permission in writing from the copyright holder.

Photocopying Information for Users in the U.S.A.

The Item-fee Code for this publication indicates that authorization to photocopy items for internal or personal use in granted by the copyright holder for libraries and other users registered with the copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance of \$3.00 per copy per article is paid directly to the Copyright Clearance Center Inc., 21 Congress Street, Salem, MA 01970. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works or for resale. Specific written permission must be obtained from the publisher for such copying. In case of doubt please contact your nearest Pergamon office.

The Item-fee Code for this publication is: 0731-7239/84 \$3.00 + 0.00

Microform Subscriptions

Current subscriptions are available on microfiche simultaneously with the paper edition and on microfilm on completion of the annual index at the end of the subscription year.

Headington Hill Hall
Oxford OX3 0BW, U.K.
Telex: 83177 Telephone: Oxford 64881

Pergamon Press

Maxwell House, Fairview Park
Elmsford, NY 10523, U.S.A.
Telex: 137328 Telephone: 914/592-7700

SIMULATION

These proceedings deal with practical papers on simulation in a variety of applications designed for exchanging experience. Other topics include advancement of state of the art simulation and modeling; discrete and continuous application in computer systems, in industry and business networks, socio-economics and other fields.

Proceedings of the 16th Annual Simulation Symposium

Tampa, Florida, March 16-18, 1983.
Sponsored by ACM SIGSIM, IEEE-CS, SCS, and IMACS. 318 pages; 21 papers.
ACM/SIGSIM Members: \$18.00. Others: \$36.00.
Order No. 577830

Proceedings of the 15th Annual Simulation Symposium

Tampa, Florida, March 17-19, 1982.
Sponsored by ACM SIGSIM, IEEE-CS, SCS, and IMACS. 638 pages; 20 papers.
ACM/SIGSIM Members: \$18.75. Others: \$25.00.
Order No. 577820

Proceedings of the 14th Annual Simulation Symposium

Tampa, Florida, March 17-20, 1981.
Sponsored by ACM SIGSIM, IEEE-CS, SCS, and IMACS. 304 pages; 16 papers.
ACM/SIGSIM Members: \$16.50. Others: \$22.00.
Order No. 577810

Proceedings of the 13th Annual Simulation Symposium

Tampa, Florida, March 19-20, 1980.
Sponsored by ACM SIGSIM, IEEE-CS, and SCS. 335 pages.
ACM/SIGSIM Members: \$16.50. Others: \$22.00.
Order No. 577800

Symposium on the Simulation of Computer Systems — 1975

Boulder, Colorado, August 12-14, 1975.
Sponsored by ACM SIGSIM and the National Bureau of Standards. 264 pages.
ACM/SIGSIM Members: \$15.00. Others: \$25.00.
Order No. 577750

Symposium on the Simulation of Computer Systems — 1974

Gaithersburg, Maryland, June 4-6, 1974.
Sponsored by ACM SIGSIM and the National Bureau of Standards. 210 pages.
ACM/SIGSIM Members: \$15.00. Others: \$25.00.
Order No. 577740

1979 Winter Simulation Conference

San Diego, California, December 3-5, 1979.
Sponsored by ACM SIGSIM, AIEE, IEEE, NBS, ORSA, SCS, and TMS. Two volumes, 692 pages; 62 papers, 6 tutorials.
ACM/SIGSIM Members: \$40.00. Others: \$54.00.
Order No. 578790

Papers Presented at the Conference on Simulation, Measurement and Modeling of Computer Systems.

Boulder, Colorado, August 13-15, 1979.
Sponsored by ACM SIGMETRICS, SIGSIM, and NBS. (Published as *Performance Evaluation Review*, Vol. 8, No. 3 and *Simulation*, Vol. 11, No. 1.) 291 pages; 30 papers.
ACM/SIGMETRICS/SIGSIM Members: \$12.00.
Other \$16.00.
Order No. 487790

MULTIFACETTED MODELLING AND DISCRETE EVENT SIMULATION

Bernard P. Zeigler

*Department of Computer Science
Wayne State University
Detroit, USA*

**May/June 1984, 374pp., \$42.50/£25.50 (UK only)
ISBN 0.12.778450.0**

Problems confronting scientists and decision-makers are often called "large scale" or "complex" as are the models proposed to help in their solution. Beyond these clichés of the "systems approach" lies a multifaceted reality to which current simulation languages and tools encourage a piece-meal approach. In contrast, this book develops a modelling methodology that supports both the selection of appropriate partial views as well as their integration into a coherent whole. The author explores the formalism of discrete event systems and applies it to the design of computer bases for multifaceted modelling.

An especially useful feature of the book is its description and critique of existing and proposed state-of-the-art simulation support environments. The concepts of multifaceted modelling are refined to a level where computer implementation is conceivable. The interested reader, theoretician, software designer, or graduate student, will find that much remains to be done to bring the multifaceted approach to fruition.

CONTENTS:

Part 1 MOTIVATION AND PERSPECTIVE. Multifaceted Modelling: Motivation and Perspective.

Part 2 FUNDAMENTALS AND FORMALISM. Understanding Formalisms; System Specifications and Morphisms; Formalism for Discrete Event Systems; A Working Framework.

Part 3 MULTICOMPONENT MODELS. Multicomponent Models of Spatially Distributed Systems; Devs Models at the Structured System Level; Multicomponent Devs: Modularity and Hierarchy; Aggregation and Other Simplification Procedures.

Part 4 MULTIFACETTED SYSTEM MODELLING. Specification of Model Static Structure; The System Entity Structure; Objectives-Driven Methodology: Experimental Frames; Experimental Frames: Operational Concepts; Modelling in the Large: Boundary Expansion, Integration; Multifaceted Model Building Methodology.

Part 5 MULTIFACETTED SYSTEM ARCHITECTURES. Modularity in Models and Experimental Frames; Simulation of Modular and Hierarchical Models; System Architectures for Multifaceted Modelling.

***Multifaceted Modelling and
Discrete Event Simulation
\$42.50/£25.50 (UK only)
ISBN: 0.12.778450.0***

PROMOTIONS DEPARTMENT
Academic Press Inc. (London) Ltd
24-28 Oval Road, London NW1 7DX, England
OR Freepost, London NW1 1YA
(UK only - No stamps needed)

Mathematical Computer Performance and Reliability

Proceedings of the International Workshop, held in Pisa, Italy, September 26-30, 1983

edited by G. IAZEOLLA, University of Pisa, Italy, P.J. COURTOIS, Philips Research, Brussels, Belgium and A. HORDIJK, University of Leiden, The Netherlands

1984. x+430 pages. US \$50.00/Dfl. 130.00 ISBN 0-444-86892-5

This book provides a review of the state of the art in this field and incorporates some of the most significant quantitative methods which can satisfy the demand of scientists and users interested in the mathematics of computer system engineering. It emphasizes interdisciplinary aspects of applied mathematics and computer science and is the result of contributions by scientists who are active in applied mathematical research of interest to the analysis of computer performance and reliability.

CONTENTS: Parts: I. Queueing System Models: Decomposability in General Markovian Networks (*S. Balsamo*). On the Analysis of Two-Dimensional Queueing Problems (*J.W. Cohen*). Diffusion Approximations for Computer/Communications Systems (*E.G. Coffman and M.I. Reiman*). On Functional Equations for One or Two Complex Variables Arising in the Analysis of Stochastic Models (*G. Fayolle*). Insensitivity for Stochastic Networks (*A. Hordijk*). Aggregation and Disaggregation in Queueing Networks: The Principle of Product-Form Synthesis (*S. Balsamo and G. Iazeolla*). The Dependence of Sojourn Times in Closed Queueing Networks (*F.P. Kelly*). On the Existence and Uniqueness of the Homogeneous Network (*R. Marie and G. Rubino*). Problems of Reducibility in Structured Markov Chains of M/G/1 Type and Related Queueing Models in Communication Engineering (*M.F. Neuts*).

Weak D-Markov Chain and its Application to a Queueing Network (*Y. Takahashi*). A Renewal Approximation for the Generalized Switched Poisson Process (*P. Tran-Gia*). Multi-Armed Bandit Problems and Resource Sharing Systems (*P. Varaiya and J. Walrand*). **II. Approximation Techniques:** Iterative Aggregation/Disaggregation Methods (*F. Chatelin*). Error Bounds for the Analysis by Decomposition of Non-Negative Matrices (*P.J. Courtois and P. Sema*). A Perspective on Iterative Methods for the Approximate Analysis of Closed Queueing Networks (*E. de Souza e Silva, S.S. Lavenberg and R.R. Muntz*). Fixed-Point Approximations for Distributed Systems (*I. Mitrani*). An Aggregation Principle for Computing Invariant Probability Vectors for Semi-Markovian Models (*R. Schassberger*). Aggregation Methods for Large Markov Chains (*P.J. Schweitzer*). On the Structure of Nearly Uncoupled Markov Chains (*G.W. Stewart*). A Bound Problem in the Modeling of Computer Systems and Queueing Networks (*C.P. Tan*). **III. Performance and Reliability Models:** Performance Analysis of the Checkpoint-Rollback-Recovery System via Diffusion Approximation (*A. Duda*). Modelling the Execution of Block Structured Processes with Hardware and Software Failures (*E. Gelenbe and I. Mitrani*). Trustable Evaluation of Computer Systems Dependability (*J.-C. Laprie*). Performability Modeling of Distributed Real-Time Systems (*J.F. Meyer*). Some Results on Database Locking: Solutions, Computational Algorithms and Asymptotics (*D. Mitra and P.J. Weinberger*). A Golden Ratio Control Policy for a Communication Channel (*A. Itai and Z. Rosberg*). Reliability Evaluation for Fault-Tolerant Systems (*K.S. Trivedi*). **IV. State of the Art and Future Directions.**

north-holland

IN THE U.S.A. AND CANADA:
ELSEVIER SCIENCE
PUBLISHING CO., INC.
P.O. BOX 1663
GRAND CENTRAL STATION
NEW YORK, NY 10163, USA

IN ALL OTHER COUNTRIES:
ELSEVIER SCIENCE
PUBLISHERS
BOOK ORDER DEPT.
P.O. BOX 211
1000 AE AMSTERDAM
THE NETHERLANDS



THE SOCIETY FOR COMPUTER SIMULATION
(Simulation Councils, Inc.)
P.O. Box 2228 La Jolla, California 92038-2228 Telephone (619) 459-3888

June 12, 1984

Richard E. Nance
ACM
Department of Computer Science
Virginia Tech
562 McBryde Hall
Blacksburg, VA 24061

Dear Dr. Nance:

Thank you for your letter of June 1 in which you ask about the Proceedings for SCSC 84.

Copies of the Proceedings can be ordered from this office for \$90.00 plus an additional \$6.00 for postage outside the United States and Canada plus \$2.00 if payment is not included with order.

This will be two large hardbound volumes totaling approximately 1,200 pages.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. Pratt', written in a cursive style.

Charles A. Pratt
Executive Director

CAP/ml

SIMULATION SERIES (Hardbound)

Price: \$30.00 each

2 or more, \$27.50 each

8 or more, \$25.00 each

Systems and Simulation in the Service of Society	Vol. 1, No. 2
Recent Developments in Urban Gaming	Vol. 2, No. 2
Computer Simulation in Design Applications	Vol. 3, No. 1
Simulation Systems for Manufacturing Industries	Vol. 3, No. 2
An Overview of Simulation in Highway Transportation, Part 1	Vol. 7, No. 1
An Overview of Simulation in Highway Transportation, Part 2	Vol. 7, No. 2
Simulation of Energy Systems, Part 1	Vol. 8, No. 1
Simulation of Energy Systems, Part 2	Vol. 8, No. 2
Simulation in Business Planning and Decision Making	Vol. 9, No. 1
Simulating the Environmental Impact of a Large Hydroelectric Project	Vol. 9, No. 2
Survey of the Application of Simulation to Health Care	Vol. 10, No. 1
Computer Modeling and Simulation: Principles of Good Practice	Vol. 10, No. 2
Peripheral Array Processors (San Diego)	Vol. 11, No. 1
Computer Simulation in Emergency Planning	Vol. 11, No. 2
Lumped-Parameter Models of Hydrocarbon Reservoirs	Vol. 12, No. 1
Computer Models for Production and Inventory Control	Vol. 12, No. 2
Aerospace Simulation	Vol. 13, No. 1
Simulation in Strongly Typed Languages: ADA, PASCAL, SIMULA . . .	Vol. 13, No. 2
All About Simulators, 1984 (Norfolk)	Vol. 14, No. 1

OTHER PUBLICATIONS (Softbound)

Winter Simulation Conference Proceedings 1980 (Orlando)	\$ 48.00
Winter Simulation Conference Proceedings 1981 (Atlanta)	48.00
Winter Simulation Conference Proceedings 1982 (San Diego)	48.00
Winter Simulation Conference Proceedings 1983 (Arlington)	48.00
Computer Simulation of Physiological Systems	10.00
Modeling and Simulation on Microcomputers: 1982	20.00
Modeling and Simulation on Microcomputers: 1983	20.00
Modeling and Simulation on Microcomputers: 1984	20.00
Prominent Names in Simulation	5.00
Index to Simulation Literature	38.00
Simulation in Inventory and Production Control	20.00
Simulation in Health Care Delivery Systems	20.00
Summer Computer Simulation Conference Proceedings 1981 (Washington, D. C.)	50.00
Summer Computer Simulation Conference Proceedings 1982 (Denver)	50.00

OTHER PUBLICATIONS (Hardbound)

Summer Computer Simulation Conference Proceedings 1983 (Vancouver), Vol. 1 & 2	90.00
Summer Computer Simulation Conference Proceedings 1984 (Boston), Vol. 1 & 2	90.00

(Member No. _____)

SCS Members Deduct 25%

California residents add 6% sales tax

(Add \$2 per order, if not prepaid.)

Add \$3 per order for overseas orders.

Simulation (monthly technical journal) One year subscription included in SCS membership	42.00
Two year subscription	76.00
Three year subscription	110.00
Postage outside United States, per year	3.00
TRANSACTIONS (quarterly scholarly journal), SCS members \$20.00 per year. Others \$80.00 per year	
Postage paid outside United States, per year	3.00
(Add \$2.00 per journal order, if not prepaid)	

All checks must be in U.S. dollars drawn on U.S. or Canadian banks. Make remittances payable to SCS. All orders shipped by printed matter or book rates. Please allow 4 to 6 weeks delivery time and 12 weeks for overseas orders.

SCS, P.O. Box 2228, La Jolla, California 92038 USA

Computer Networks, Simulation Modelling, Telecommunications, Computer Communications, Data Processing Systems, Operations Research, Distributed Systems

Computer Networks and Simulation II

edited by S. SCHOEMAKER, *Sperry Univac Computer Systems*

1982 xvi + 326 pages
Price: US \$46.25 (in USA & Canada)
Dfl. 120.00 (Rest of World)
ISBN 0-444-86438-5

This work, on the interrelation of computer networks and simulation, builds on the first book, viz *Computer Networks and Simulation I*. In *Computer Networks and Simulation II*, the further evolution of the application of modelling and simulation techniques to the increasingly more complex area of computer networking, is described. A state-of-the-art cross section is given of computer networking and of simulation, revealing the need for and the possibilities of sophisticated tools for the development, the construction and the evolution of computer networks. A new dimension is added by giving a description of current and future capabilities which computer networks can provide to distributed modelling and simulation.

It describes the modelling, the formalization and the validation of protocols (protocol entities).

In the second part of the book, applications of simulation-hardware and software in the design and verification of a variety of networks are depicted, as well as a description of applied simulation systems. The third part describes group modelling and global simulation projects with the respective relation to computer communication systems.

The book is intended for those researchers and practitioners who are involved in computer networking and the application of simulation methodologies.



NORTH-HOLLAND

Amsterdam and New York

CONTENTS: Introduction. **Foundations.** Introductory remarks on CCITT. Use of Computers for Networking Planning and Circuit Group Dimensioning (*F. Bigi*); 2.a. A "reference model" for the formal description of entities which perform protocols (*G. Le Moli*); 2.b. Formal description techniques of protocols and services in the view of the theory of colloquy (*A. Farol*); 3. Formal modeling of communication protocols (*C.A. Sunshine*). **Simulation in Networking.** 4. A review of simulation (*S. Schoemaker*); 5. Simulation techniques in network design (*A. Remes*); 6. Simulation of packet switched datacommunication networks (*A. Giessler, J.O. Hänle*); 7. Simulation of protocol layers of communication in computer networks (*B. Wolfinger, O. Drobnik*); 8. Modeling and Evaluation of communication protocols (*R.R. Razouk, G. Estrin*); 9. Simulation of a hierarchically connected computer network (*W.L. Price*); 10. TETRASIM: a program system for the simulation of telephone networks (*T. Røgeberg*); 11. The communications environment generator (*D.E. Cronin*). **Networking in Simulation.** 12. Electronic communication for interactive group modeling (*H. Lipinski, R. Adler*); 13. The GLOSAS project (*T. Utsumi, J. deVita*).

COMPUTER NETWORKS AND SIMULATION, I, edited by S. Schoemaker

1978. 1st repr. 1980 xii + 256 pages
US \$42.25 / Dfl. 110.00 ISBN 0-444-85208-5

"Here is a book comprising papers by some 17 specialists on the subject of networking and computer simulation; a book which also explores the difficult and developing science of computer network interconnection, compiled for those who are associated with, or have interest in, the design, implementation and maintenance of computer networks and/or the further development of simulation techniques. . . . There are many references and illustrations in this volume which are helpful."

The Computer Journal

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
52 Vanderbilt Ave., New York, N.Y. 10017

Continuation orders for series are accepted.

Orders from individuals must be accompanied by a remittance, following which books will be supplied postfree.

The Dutch guilder price is definitive. US\$ prices are subject to exchange rate fluctuations. Prijzen zijn excl. B.T.W.

Computer Simulation, Modelling

Simulation of Systems '79

(Proc. of the 9th IMACS Cong., Sorrento, Italy, 24-28 Sept. 1979)

editors L. DEKKER, G. SAVASTANO and G.C. VANSTEENKISTE

1980 xvi + 1170 p.
Price: US \$125.00 (in USA & Canada)
Dfl. 325.00 (Rest of World)
ISBN 0-444-86123-8

This book collects the proceedings of the congress and is arranged in three sections. Two additional sections are dedicated to the special session "Views On Parallel Simulation" and to the current research carried out at the University of Naples.

Almost all the aspects of model building and simulation are considered, from those concerned with the methodology, to those concerned with the computer and its use, to the practical application to different fields - including some relevant non-engineering areas. The invited and contributed papers are divided into three main groups: 1. Methodology in Modelling and Tools. 2. Simulation of Well-Defined Systems. 3. Simulation of Ill-Defined Systems. The methodology of model building includes large distributed and non-linear systems. The tools for model-building include a series of papers on general purpose and special purpose software for Data Processing Systems and Simulatuon Software. There is also a section on simulation of well-defined systems, covering almost all areas of Engineering Science. Finally, the section on simulation of ill-defined systems deals with Bio-Systems and with Socio-Economic Systems.



NORTH-HOLLAND

Amsterdam and New York

CONTENTS: Preface. Opening Address. **Invited Papers:** The Impact of Simulation on Innovation (*W.J. Beek*). Modelling and Simulation Methodology: State of the Art and Promising Directions (*B.P. Zeigler*). **Special Session "Views on Parallel Simulation":** *Future Oriented:* Outline of a Future Parallel Simulator (*L. Dekker et al.*). Multiprocessor Simulating Systems With Distributed Memory and Universal Commutation (*A.V. Kalyayev*). Simulation and Process-Control with Parallel Processes as Implemented in PORTAL - Experience and Outlook (*L. Lienhard et al.*). *State of the Art:* Simulation Model of a Multiprocessing System (*G. Lagostena and C. Buonvino*). The Third Generation Microprocessor MC 68000 (*E. Stritter, T. Gunter and C. Brugger*). Connected System (*G.L. Viviani*). Views and Innovations on Parallel Analog Simulation Systems - "The Present Generation" (*R.W. Embley and W. Kaplan*). A Modular Programming System for a Digital Simulation Computer (*G.F. Graber*). Workshop: Brief Report on Sorrento Workshop for International Standardization of Simulation Languages (SWISSL).

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
P.O. Box 1663, Grand Central Station, New York, NY 10163

Continuation orders for series are accepted.

Orders from individuals must be accompanied by a remittance, following which books will be supplied postfree.

The Dutch guilder price is definitive. US \$ prices are valid only in the U.S.A. and Canada. Prijzen zijn excl. B.T.W.

Computer Sciences, Simulation, Control and Systems,
Mechanical and Electrical Engineering

Simulation of Distributed- Parameter and Large-Scale Systems

Proceedings of the IMACS European Simulation Meeting on Simulation of Distributed-Parameter and Large-Scale Systems, University of Patras, Greece, 2-4 October, 1979.

edited by S.G. TZAFESTAS, *Control Systems Laboratory, Department of Electrical Engineering, University of Patras, Patras, Greece.*

1980 x + 380 pages
Price: US \$57.75 (in USA & Canada)
Dfl. 150.00 (Rest of World)
ISBN 0-444-85447-9

The IMACS European Simulation Meeting on "Simulation of Distributed-Parameter and Large-Scale Systems" belongs to a series of IMACS Meetings in European countries with the aim of exchanging the latest research developments and practical experience in the field of "System Simulation". The basic intent of this Meeting was to provide an opportunity for cross-fertilizing discussions in the distributed-parameter and large-scale systems area, among Greek research workers and their colleagues from all over the world.

Although distributed-parameter systems (DPS) have infinite dimensionality, they have, until now, not been extensively studied by techniques used in the large-scale systems (LSS) areas. Hence, there is a need to investigate the applicability of LSS methods to DPS, and also to reveal and study problems and applications which require combined DPS and LSS tech-



NORTH-HOLLAND

Amsterdam and New York

niques. It is hoped that by presenting techniques of DPS and LSS in parallel, these Proceedings will help towards this direction.

The book is divided into three parts: Part 1 involves the contributions on DPS; the second part contains work on LSS and Multivariable Systems; and the third part contains work on applications, as well as some papers in closely related simulation topics. These papers were included in the program to expand the scope of the meeting, and, together with four tutorial lectures delivered during the Meeting, they have increased the interest shown by participants.

This is the first book to present DPS and LSS in a *single and unified* work. It contains new, important information and ideas and covers a variety of areas within DPS and LSS.

CONTENTS: Preface. **Parts:** 1. **Distributed-Parameter Systems.** 1.1. Methodology. Invited Paper: Filtering Theory for Stochastic Processes with Two-Dimensional Time Parameter (*A. Bensoussan, P.L. Chow and J.L. Lions*). 1.2. Specific Systems. 2. **Large-Scale and Multivariable Systems.** 3. **Simulation Tools and Miscellaneous Applications.** 3.1. Simulation Tools. 3.2. Applications. Author Index. Subject Index.

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
P.O. Box 1663, Grand Central Station, New York, NY 10163

Continuation orders for series are accepted.

Orders from individuals must be accompanied by a remittance, following which books will be supplied postfree.

The Dutch guilder price is definitive. US \$ prices are valid only in the U.S.A. and Canada. Prijzen zijn excl. B.T.W.

Computing in Medicine, Biology; Numerical Mathematics; Stochastic Processes; Control and Systems

Mathematical Modeling in Immunology and Medicine

Proceedings of the IFIP TC 7 Working Conference on Mathematical Modeling in Immunology and Medicine, Moscow, U.S.S.R, 5-11 July, 1982

edited by G.I. MARCHUK and L.N. BELYKH, Department of Numerical Mathematics, USSR Academy of Sciences, Moscow, USSR

1983 x + 396 pages
Price: US \$46.25 (in USA & Canada)
Dfl. 120.00 (Rest of World)
ISBN 0-444-86588-8

The book presents recent advances in mathematical modeling in immunology and medicine, of which the most interesting and promising presentations were selected. It consists of three parts: Invited plenary lectures, mathematical models in immunology, and mathematical models in medicine. Suggested are some newly constructed models and some new approaches to the problems of optimization, identification and numerical simulation. The mathematical models presented in the book cover a wide range of processes going on in living systems at the most different levels, from intercellular interactions to the processes of epidemic development.

CONTENTS: Invited Papers: Mathematical Models of Cell-Cell Adhesion (G.I. Bell); Properties of a Mathematical Model of Thrombopoiesis based on the von Foerster Approach



NORTH-HOLLAND

Amsterdam and New York

(I. Györy, J. Eller, M. Zöllei, F. Krizsa); A Simple Mathematical Model of Immunological Tolerance in Chickens (T. Hrabá, P. Klein, J. Doležal); Symmetry, Complexity and Stability in Immune System Network Theory (G.W. Hoffmann, A. Cooper-Willis); Optimization of Large-Scale Problems (A. Kalliauer); On Mathematics and Statistics in Immunology (R.R. Mohler). Structural Analysis and Control of Large-Scale Systems Using Bilinear Models (J.M. Petrović); The Numerical Treatment of Some Fourth Order Variational Inequalities (F. Scarpini). **Mathematical Models in Immunology.** Contributors: L. N. Belykh, G.A. Bocharov, C. Bruni, Y. Cherruait, V.E. Druzchenko, L.N. Fontalin, A. Gandolfi, S.N. Garkusha, A. Germani, E.V. Gjulling, A.N. Glukhikh, V.M. Glushkov, V.V. Ivanov, V.M. Janenko, V.D. Jorkevich, A.F. Karas, N.A. Karatueva, Y.S. Kolesov, V.N. Krutko, V.A. Kuzin, R. Laugalys, V.P. Lozovoy, G.I. Marchuk, V.M. Matrosov, J. Mockus, V.G. Nesterenko, N.V. Pertsev, R.V. Petrov, I.B. Pogozhev, S.M. Shergin, V.A. Shpak, D. Shvitra, J.I. Skalko, R.N. Stephanenko, R. Strom, M.G. Zaitsev, S.M. Zuev. **Mathematical Models in Medicine.** Contributors: K.S. Agafonnikova, K.G. Astahova, A.P. Berberntsova, E. Bernard-Weil, D.S. Chernavsky, L.I. Churikova, B.F. Dibrov, J. Henry, H.Z. Ikramova, V.K. Ovanov, G.G. Ivanova, B.N. Kholodenko, A.A. Klementiev, A. Makhmudov, H.H. Mansurov, G.I. Marchuk, F.H. Muratov, Y.A. Neyfakh, A.P. Novikova, V.N. Novosel'tsev, M.P. Orlova, V.D. Peterson, A.M. Petrovsky, O.N. Pyatigorskaya, L.I. Ragalavichus, V.N. Razzhevaikin, A.P. Rimkus, A.P. Shvayuk, N.V. Stepanova, A.B. Stupin, J.M. Svirezhev, L.G. Tambovseva, V.S. Timerkaev, L.A. Trunova, K.B. Yudin, M.R. Zak, A.M. Zhabotinsky, V.M. Zhivoderov. Author Index.

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
P.O. Box 1663, Grand Central Station, New York, NY 10163
Continuation orders for series are accepted.

Orders from individuals must be accompanied by a remittance, following which books will be supplied postfree.

The Dutch guilder price is definitive. US \$ prices are valid only in the U.S.A. and Canada. Prijzen zijn excl. B.T.W.

Electrical Engineering, Mechanical Engineering,
Mechanics, Chemical Engineering, Aerospace
Engineering

Modeling and Simulation in Engineering

10th IMACS World Congress on Systems Simulation
and Scientific Computation, Montreal, Canada,
8-13 August, 1982

edited by WILLIAM F. AMES, *Georgia Institute of
Technology, Atlanta, Georgia, U.S.A.*, in collaboration
with ROBERT VICHNEVETSKY

IMACS TRANSACTIONS ON SCIENTIFIC
COMPUTATION, Volume III

1983 x + 340 pages
Price: US \$44.25 (in USA & Canada)
Dfl. 115.00 (Rest of World)
ISBN 0-444-86609-4

This third volume of papers presented at the 10th
IMACS World Congress held in Montreal, Canada, is
devoted to modeling and simulation in various fields
of engineering. The volume is divided into five sections
representing five major areas of engineering interest.
These are, in order of occurrence, Chemical Engineering,
Mechanical Engineering, Electrical Engineering, Mechan-
ics and Aerospace Engineering. The last section also
includes some miscellaneous papers.

CONTENTS: Preface. **Section I: Chemical Engineering.**
Contributors: *G.C. April, T.P. Chin, M.B. Cutlip,
L. Dorcák, M. Haider, R. Hainzl, D.M. Himmelblau,
D.L. Johnson, C. Kleinstreuer, R.W. Kluck, I. Kostial,
L.A. Kozdoba, M.D. McKinley, M.S. Paller, A. Pijnacker*



NORTH-HOLLAND

Amsterdam and New York

more, the performance evaluation of designs is covered
in great depth, notably techniques for modeling,
simulations, and measurements. The volume is orga-
nized in four sections which cover computer system
performance, computer system and network simulators,
computations and architectures of parallel computers,
and arithmetic and languages for large-scale computers,
respectively.

CONTENTS: Preface. **Section 1: Computer System Perform-
ance.** Papers by: *H.D. Hughes and L. Li; R.F. Garzia; A. Hač;
P.J. Denning and W. Kowalk; R. Suri; A. Brandwajn;
M. Ruschitzka; C. Martel; T.F. Gonzalez; T.-P. Chang and
Y.-M. Yu; B. Mikolajczak; J. Stokłosa.* **Section 2: Computer
Systems and Network Simulators.** Papers by: *R.H. Perrott and
C. King; U.W. Pooch; P. Navaux et al.; A. Faro and G. Messina;
H. Decker; E. Pearse O'Grady; M.K. Kirchoff and R.A. Rogers;
R. Vaccaro, F. Cennamo and A. D'Orta; V.C. Rideout et al.*
**Section 3: Computations and Architectures of Parallel
Computers.** Papers by: *M. Ginsberg; J.F. Gloudeman and
J.C. Hodge; J.R. Wallis and J. Rodney Grisham; R.W. Hockney;
J.J. Lambiotte et al.; W. Schönauer and K. Raith; Y. Kaneda
and M. Kohata; E.J. Kushner and M. Edward Borasky;
G.A. Magó and R.P. Pargas; R.G. Reynolds and T.L. Chang;
W. Ameling; J. Milde, L. Krings and W. Ameling.* **Section 4:
Arithmetic and Languages for Large-Scale Computers.** Papers
by: *W.L. Miranker; U. Kulisch; G. Bohlender and K. Grüner;
H. Böhm; E. Kaucher; S.M. Rump; C.P. Ullrich; J.W. von
Gutenberg; S.D. Johnson; T.J. Myers and A. Toni Cohen.*

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
P.O. Box 1663, Grand Central Station, New York, NY 10163

Continuation orders for series are accepted.

Orders from individuals must be accompanied by a remittance,
following which books will be supplied postfree.

The Dutch guilder price is definitive. US \$ prices are valid only in the U.S.A. and Canada.
Prijzen zijn excl. B.T.W.

Energy and Natural Resources, Economic Planning;
Simulation, Systems Engineering, Nuclear Engineering

Energy Modeling and Simulation

10th IMACS World Congress on Systems Simulation and Scientific Computation, Montreal, Canada, 8-13 August, 1982

edited by A.S. KYDES, Brookhaven National Laboratory, Upton, New York, U.S.A. in collaboration with A.K. AGRAWAL, S. RAHMAN, R. VICHNEVETSKY, W.F. AMES

IMACS TRANSACTIONS ON SCIENTIFIC COMPUTATION, Volume IV

1983 xii + 394 pages
Price: US \$50.00 (in USA & Canada)
Dfl. 130.00 (Rest of World)
ISBN 0-444-86610-8

This book is divided into three main sections. The first section, Energy Systems Modeling and Analysis, presents methodological papers which represent the state-of-the-art for analyzing components of the energy system from a system analysis perspective. The section also presents some case studies using current methodologies. The subsections are divided according to the principle themes, e.g. energy-economy modeling, resource supply, electric utility systems, new energy technologies and demand assessment methods. Section II, Simulation of Nuclear Power Plants, presents state-of-the-art papers on thermal reactors and breeder reactors. These two appear to provide the best baseload electric generation to coal over the next thirty to forty years. These

systems are simulated to analyze both normal operations as well as stress analysis. The third section, Magnetic Fusion Energy, presents key research on various components necessary for developing magnetic energy as the new breakthrough for the twenty-first century.

CONTENTS: Preface. **Section I. Energy Systems Modeling and Analysis.** A. Energy-Economy Modeling. Papers by: *W. Smith; J.M. Anderson; A.S. Kydes, M.J. Minasi, E.A. Hudson; F.M. Murphy; E.A. Hudson; R.J. Goettle; R. Hauptman.* B. Analyzing Resource Supply. Papers by: *D. Eppe, L. Hansen, W. Roberts; E. Barouch, G.M. Kaufman, J. Nelligan; J.G. Debanne, E. Roohy-Laleh; M. Benveniste.* C. Modeling Electric Utility Systems. Papers by: *J. Lyneis, D. Geraghty; E.V. Niemeyer; T.J. Horst; R. Rahman.* D. Methods for Evaluating New Technologies. Papers by: *A.S. Kydes; D.S. Bauman et al.; C. Marchetti; P.E. Love.* E. Demand Analysis Methods. Papers by: *D.R. Fromholzer; J.E. McMahon; J.H. Zalkind; A.E. Samuel, T.H. Chia; E. Mosekilde, K. Paamand, N.I. Meyer.* **Section II. Simulation of Nuclear Power Plants.** A. Thermal Reactors. Papers by: *R.J. Mills; P.C. Green, S.J. Lucas; J.C. Barral et al.; G.S. Srikantiah, A.K. Singhal; J. Olive; J.P. Sursock, A.B. Long; P.K. Jain et al.; P.W. Wyatt, F.C. Luffey.* B. Breeder Reactors. Papers by: *A.K. Agrawal et al.; U. Quast; C. Siméon; S. Takashima, H. Kanoh, M. Masubuchi; W. Zijl, H. de Briujn; C.I. Yang, W.T. Sha, K.E. Kasza; P. Bogorinski.* **Section III. Magnetic Fusion Energy.** Papers by: *J. Manickam, R.C. Grimm, R.L. Dewar; D.W. Hewett; C.K. Chu; J.A. Holmes et al.; O. Betancourt; K.V. Roberts; Bruce I. Cohen; M. Rabiński, A. Maslowski; J. Killeen.* Author Index.

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands
Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
P.O. Box 1663, Grand Central Station, New York, NY 10163
Continuation orders for series are accepted.
Orders from individuals must be accompanied by a remittance, following which books will be supplied postfree.

The Dutch guilder price is definitive. US \$ prices are valid only in the U.S.A. and Canada. Prijzen zijn excl. B.T.W.



NORTH-HOLLAND

Amsterdam and New York

ELSEVIER SCIENCE PUBLISHERS

Simulation Modelling; Applications: Automation, Control, Design; Systems Hardware, Systems Software

Simulation in Engineering Sciences

Applications to the Automatic Control of Mechanical and Energy Systems

Proceedings of the IMACS International Symposium, Nantes, France, 9-11 May, 1983

edited by J. BURGER and Y. JARNY, *Ecole Nationale Supérieure de Mécanique Nantes, France*

1983 xii + 438 pages

Price: US \$52.00 (in USA & Canada)

Dfl. 135.00 (Rest of World)

ISBN 0-444-86795-3

This book contains the texts of the papers presented at the IMACS Symposium, held in Nantes, France. The various chapters of this volume take into account the topics used at the sessions of the Symposium. The four invited survey papers are followed by the contributions related to simulation methods and tools, studied from both the software and the hardware points of view. A great number of papers are devoted to technical applications, i.e. to the simulation of actual processes. The contributions concerning mainly modelling are not separated from the others in this work because of the strong connection between modelling and simulation.

CONTENTS: Preface. Invited Papers. Simulation Software: Today and Tomorrow (*F.E. Cellier*); Parallel Processors in Engineering Sciences (*L. Dekker*); Comparaison des Optimums Energétique, Economique et Ecologique d'un Système Industriel (*P. Le Goff*); Fourier Methods in Computational Fluid and Field Dynamics (*R. Vichnevetsky*). Sections. I: Simulation



NORTH-HOLLAND

Amsterdam and New York

Tools – Software. Papers by: *E.F. Camacho, L.G. Franquelo and J. Lozano; L. Marcocci and S. Spelta; R.C. White and A.A. Merabet; M. Barthelmes et al.* II: **Simulation Methods - Numerical Methods.** Papers by: *A. Maslowski; L. Fortuna, A. Gallo and M. La Cava; J. Lopez-Coronada and L. Le Letty; J.G. Den Holland, J.A. Hoogstraten and G.A.J. Van De Moesdijk; C.A. Brebbia.* III: **Simulation Tools - Hardware.** Papers by: *Y. Yamamoto and M. Lenngren; J.E. Rooda and S. Joosten; K.A. Grabowiecki; M.H. Dost.* IV: **Simulation and Control Methods and Techniques(1).** Papers by: *R. Hah Nassar, D. Meizel and P. Bielec; D. De Buyser, L. De Wael and G.C. Vansteenkiste; A. Swierniak; M.E. Elaraby and A.A. El-Kader.* V: **Biological Systems.** Papers by: *M. Sibony; Y. Umetani and N. Inou; D. Gitton and C. Doncarli.* VI: **Simulation and Control Methods and Techniques (2).** Papers by: *V.M. Marchenko; A. Oustaloup; D. Ambrózy; J. Souza Leao, J.P. Gouyon and J.P. Babary; E.P. Chubarov and V.A. Kubyshkin.* VII: **Energy Systems.** Papers by: *R. Gorez and C. Duqué; L. Fortuna et al.; N. Dänilä, N. Stan and D.C. Ionescu; H. Habibollahzadeh et al.* VIII: **Mechanical Systems (1).** Papers by: *P.K. Sinha and A.J. Hulme; G. Garcin, M. Guesdon and F. Degraeve; V.F. Poterasu, M. Di Paola and G. Muscolino.* IX: **Vehicles - Transportation (1).** Papers by: *K. Furuta, Y. Ohyama and O. Yamano; J. Riepe; M.E. Ahmed and M.M. Bayoumi.* X: **Mechanical Systems (2).** Papers by: *S. Kobayashi et al.; A. Bermúdez and J. Durany; E. Schnack.* XI: **Chemical Systems.** Papers by: *M. Metzger; M. Perroud and G. Bornard; S. Vigneswaran.* XII: **Manipulators - Robots (1).** Papers by: *J.M. Chartres, J.M. Barbez and D. Meizel; J.Y. Grandidier et al.; T. Mita; F. Bournonville and J. Descusse.* XIII: **Thermic Systems.** Papers by: *M. Popović and E. Humo; Y. Jarny and J. Burger; V.J. Berwaerts et al.;* XIV: **Vehicles - Transportation (2).** Papers by: *J. Castet; M. Degonde; J.A. J.A. Hoogstraten and G.A.J. Van De Moesdijk.* XV: **Manipulators - Robots (2).** Papers by: *R. Chaudet and J. O'shea; K. Desoyer, P. Kopacek and I. Troch.* XVI: **Electrical and Electromechanical Systems.** Papers by: *F. Bordry, H. Foch and M. Metz; M. Gautier.* Author Index.

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
P.O. Box 1663, Grand Central Station, New York, NY 10163

Continuation orders for series are accepted.

Orders from individuals must be accompanied by a remittance, following which books will be supplied postfree.

The Dutch guilder price is definitive. US \$ prices are valid only in the U.S.A. and Canada. Prijzen zijn excl. B.T.W.

Computer Simulation, Systems, Operations & Control,
Design & Analysis, Industry

SIMULATION

in 2 volumes

Proceedings of the 1983 Summer Computer Simulation Conference, July 11-13, 1983, Vancouver, B.C., Canada

Sponsored by The Society for Computer Simulation

Volume 1: Contributed Papers
1983 xxxvi + 908 pages ISBN 0-444-86715-5
Price: US \$60.00 (in USA & Canada)
Dfl. 200.00 (Rest of World)

Volume 2: State-of-the-Art Topics
1983 xxxvi + 220 pages ISBN 0-444-86716-3
Price: US \$30.00 (in USA & Canada)
Dfl. 100.00 (Rest of World)

The 1983 SCSC is the fifteenth of a series of annual meetings dedicated to the exchange of ideas and technical information on the use of computers for modeling and simulation. Stewart Schlesinger acted as General Chairman at this event, and the Program Chairmen were A. Jack Shiewe and Walter Karplus.

The Proceedings have been printed in two volumes. Volume 1 contains a broad spectrum of contributed papers describing current work in engineering design and analysis; physical, chemical, biological, electrical, and mechanical processes; environmental, industrial, and military applications; systems, operations and control; management and planning; and research and training. Volume 2 includes special survey papers and plenary presentations of broad general interest.

Each volume contains an author index, and a title and keyword index.



NORTH-HOLLAND

Amsterdam and New York

Published by The Society for Computer Simulation.
Distributed in the USA and Canada by The Society for
Computer Simulation, La Jolla, CA, USA.

CONTENTS: Volume 1. Simulation Methods. Sessions: Operational Evaluation Modeling; Continuous System Simulation Methodologies; Numerical Methods for Simulation; Simulation Languages (Panel); General Simulation Methodologies; Applied Simulation Techniques. **Computer Systems:** Government Simulation/Computation Facilities - Present and Future (Panel); Capacity Management (Panel); Distributed Systems and Networks; Graphics; Digital Systems. **Simulation Credibility and Validation:** Credibility of Models (Panel); Missile Life-Cycle Support Through Simulation; Simulation as a Validation Tool. **Physical and Engineering Processes:** Controls and Optimization; Vibration and Mechanics; Missile Flight; Engineering Physics; Parallel Processing for Jet Engine Simulation; Simulation of Communication of Radar Systems. Energy, Resources and Environment: Electric Power System Simulation Studies; Nuclear Plant Simulation; Simulation of Energy, Resources and Strategies. **Management and Social Sciences:** Financial Analysis; Management Planning; Business Models; The NBS Automated Manufacturing Research Facility; Operations Flow. **Chemical Sciences:** Issues in Simulation in the Chemical Science (Panel); Simulation of Human Physiology; Frontiers of Simulation in Applied Chemistry; Frontiers of Simulation in Pharmacokinetics I; Frontiers of Simulation in Pharmacokinetics II; Frontiers of Simulation in Pharmacokinetics III; Process Simulation in Chemical Engineering; Frontiers of Simulation in Pharmacokinetics IV; Simulation and Computer-Aided Instruction for Chemists and Chemical Engineers. **Training and Research Simulators:** Use of Marine Simulators in Research and Training (Panel); Steady State Process Simulators; Simulator Technology; Steady State Process Simulators for the Mineral Industries; Training Device Software Productivity (Panel); Mathematical Modeling and Validation for Power Plant Training Simulators; Component Models for Process Simulators; Missile Simulation Models and Applications; Process Training Simulators; Justifying Dynamic Process Simulators (Panel); Simulators Used in Power Plant Operator Training - A Tutorial; Acceptability Criteria as Applied to Simulators Used in Power Plant Operator Training (Panel); Fidelity of Environment Models for Missile Simulation (Panel). **Volume 2. State of the Art Topics.** Sessions: Simulation Languages and Applications; Supercomputers - Architecture and Use; Numerical Methods for Ordinary Differential Equations (Circa 1983). **Special Plenary Presentations.**

Send your order to your bookseller or
ELSEVIER SCIENCE PUBLISHERS
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributor in the U.S.A. and Canada:
ELSEVIER SCIENCE PUBLISHING CO., INC.
P.O. Box 1663, Grand Central Station, New York, NY 10163
Continuation orders for series are accepted.

Orders from individuals must be accompanied by a remittance, following which books will be supplied postfree.

The Dutch guilder price is definitive. US \$ prices are valid only in the U.S.A. and Canada.
Prijzen zijn excl. B. T. W.

The IMACS European Simulation Meeting on Simulation in Research and Development was held in the historical town of Eger, Hungary 27-30 August 1984. The event was organized in accordance with the guidelines of this series and hence the number of participants was limited /in this case to 63/ this provided the possibility for the International Programme Committee for a careful selection of the submitted materials to keep the scientific level high that has been fully achieved. 35 lectures were presented and 13 posters displayed.

The participation was really international from 17 countries i.e. Austria, Bulgaria, Canada, Czechoslovakia, Cuba, F.R.G., G.D.R., Hungary, Italy, the Netherlands, Norway, Poland, Sweden, U.K., U.S.A., U.S.S.R., Yugoslavia, among them a number of leading scientists of the field.

The Meeting was held in 7 sessions arranged sequentially in time i.e.

- Session I: Parallel Simulation
chaired by: Prof. T.I. Ören /Canada/
- Session II: Discrete Simulation Methods
chaired by: Prof. W. Ameling /F.R.G./
- Session III: Simulation of Digital Systems
chaired by: Dr. L. Bakocs /Hungary/
- Session IV: Methods for Simulating Continuous Systems
chaired by: Prof. I. Troch /Austria/
- Session V: Simulation of Continuous Systems I
chaired by: Prof. A. Sydow /G.D.R./
- Session VI: Simulation of Continuous Systems II
chaired by: Doz. Dr. F. Breitenecker /Austria/
- Session VII: General Questions, Methods, Tools
chaired by: Prof. K. Tarnay /Hungary/

The conference was concluded by a lively and very interesting Round Table Discussion "From Theory to Application of Simulation; How to Bridge the Gap?" where Dr. Jávör, who was also chairman of the Organizing and the International Programme Committee of the Meeting, was chairing.

In accordance with the planned scope a wide range of topics in research and development have been tackled. Just to choose from some of the interesting topics that where of great interest; the questions of Parallel processing in simulation /W. Ameling, L. Dekker, L. Birta/, multimode and switch level modelling in simulating complex VLSI systems /A. Jávör, M. Lightner/, discrete particle modelling in classically continuously modelled cases /D. Greenspan/ and applications of the methods developed by him. In other lectures different interesting results in applications /e.g. I. Troch, F. Breitenecker/ and general methodological questions /T.I. Ören, A. Sydow, V.N. Koval, V.V. Kalashnikov/ were treated.

Summing up it can be stated that the Meeting provided information of the latest results in research on a high level - not only from Europe but also from the American Continent - and the discussions enabled valuable and fertilizing exchange of ideas.

LIST OF EVENTS

Compiled and Edited by

Tuncer I. Ören
Murat Özmizrak

Computer Science Dept.
University of Ottawa
Ottawa, Ontario K1N 9B4
Canada

** indicates new entry
-- indicates an update

1 9 8 4

N O V E M B E R

November, 1984
ARTIFICIAL INTELLIGENCE AND PRODUCTIVITY
Paris, France

Contact: SIMTEC Consultants
211 rue Saint-Honore
75001 Paris, France

November 1-4, 1984
1984 MEETING OF THE AMERICAN SOCIETY FOR
CYBERNETICS
Philadelphia, USA

Theme: Autonomy, Intervention, and Dependence as they relate to Cybernetics and: Family Systems/Family Therapy, Organizations/Management Consulting, International Development, Artificial Intelligence, Cognitive Systems, Architectural Systems, Information Systems, Biological Systems, Planning/Evaluation, Ecosystems, Education, Science Fiction.

Contact: Dr. Frederick Steiner
Annenberg School of Communications
University of Pennsylvania
Philadelphia, PA 19104, USA
Phone (215) 898-5233 - (215) 243-2794

November 6-9, 1984
FGCS 84 INTERNATIONAL CONFERENCE ON FIFTH
GENERATION COMPUTER SYSTEMS
Tokyo, Japon

Deadline: April 15, 1984

Contact: Hideo Aiso
ICOT, Mita Kokusai Building
21F 1-4-28 Mita
Minato-ku, Tokyo 108, Japon
Phone 3-456-3195
Telex 32964

November 7-9, 1984
EIGHTH ANNUAL INTERNATIONAL COMPUTER
SOFTWARE AND APPLICATIONS CONFERENCE
(COMPSAC 84)
Chicago, Illinois, USA

Deadline: April 6, 1984
Contact: Albert Hawkes
Sargent and Lundy Engineers
55 East Monroe St.
Chicago, IL 60603, USA

November 15-16, 1984
CALIFORNIA EDUCATIONAL COMPUTING
CONSORTIUM
San Diego, California, USA

Deadline: April 1, 1984
Contact: Virginia S. Lashley
Glendale College
1500 North Verdugo Road
Glendale, CA 91208, USA

November 19-21, 1984
POWER PLANT SIMULATION
Mexico City, Mexico

Topics: Use of simulation in power plant analysis, Use of simulation in power plant design, Training simulators, Model validation, Power plant modelling, Simulation Languages, Numerical methods, New developments.

Deadline: September 15, 1984
Contact: Prof. David L. Hetrick
Department of Nuclear and Energy Eng.
University of Arizona
Tucson, Arizona 85721, USA
Phone (602) 621-2514

-- November 28-30, 1984
WINTER SIMULATION CONFERENCE
Dallas, Texas, USA

Topics: Decision Support Systems, Simulation System Software, Distributed Simulation, Offshore Technology, Manufacturing, Environmental Systems, Mini and Micro Applications, Graphics Applications, Health Care Systems, Transportation, Energy and Petroleum Systems, Communications, Military Systems, Aerospace Applications, Planning and Scheduling.
Contact: Dennis Pegden
Industrial Engineering Department
207 Hammond Building
Pennsylvania State University
University Park
Pennsylvania 16802, USA
Phone (814) 863-1675

D E C E M B E R

December 3-4, 1984
IEEE WORKSHOP ON PRINCIPLES OF
KNOWLEDGE-BASED SYSTEMS
Denver, Colorado, USA

Topics: Knowledge Acquisition, Knowledge Representation, Causal Modeling, Knowledge Utilization, Validation
Deadline: September 3, 1984
Contact: Mark S. Fox
Robotics Institute
Carnegie-Mellon University
Pittsburgh, PA 15213, USA

December 6-8, 1984
1984 REAL TIME SYSTEMS SYMPOSIUM
Austin, Texas, USA

Contact: Mirosla Malek
University of Texas at Austin
Computer Science Department
Austin, TX 78712, USA
Phone (512) 471-5704

December 10-15, 1984
STOCHASTIC MODELLING AND FILTERING
Working Conference
Organized by IFIP (WG 7.1)
Rome, Italy

Contact: IFIP Secretariat
3, rue du Marche
1204 Geneva, Switzerland

-- December 28-31, 1984
FOURTH INTERNATIONAL CONFERENCE ON APPLIED
NUMERICAL MODELLING
Tainan, Taiwan, Republic of China

Contact: Dr. Y.L. Chou
Engineering Science Department
National Cheng Kung University
Tainan, Taiwan 700, Republic of China
Phone (062) 361111 Ext. 617

=====

1 9 8 5

=====

J A N U A R Y

-- January 2-4, 1985
EIGHTEENTH HAWAII INTERNATIONAL CONFERENCE
ON SYSTEM SCIENCE
Honolulu, Hawaii, USA

Topics: Distributed Processing, Mini-Micro Systems, Interactive Systems, Personal Computing, Data Communication, Graphics, User-Interface Technologies, Software Design Tools and Techniques.
Contact: Ralph Sprague
University of Hawaii
2404 Maile Way
Honolulu, HI 96822, USA
Phone (808) 948-7430

** January 24-26, 1985
COMPUTER SIMULATION IN EMERGENCY PLANNING
San Diego, California, USA

Topics: General, Policy, Nuclear, Fire, Spills, Earthquakes, Emergency Medical, Other Natural or Man-Made Emergencies.
Contact: The Society for Computer Simulation
P.O. Box 2228
La Jolla, California 92038, USA
Phone (619) 459-3888

La Jolla, California 92038, USA
Phone (619) 459-3888

-- January 24-26, 1985
SCS MULTICONFERENCE ON MODELLING AND
SIMULATION ON MICROCOMPUTERS AND
DISTRIBUTED SIMULATION 1985
San Diego, California, USA

Topics: Parallel processing and simulation, Architectures for parallel simulation, Distributed simulation engines, Deadlock detection and prevention, Synchronization and communication, Languages for distributed simulation, Support environments, Empirical studies and results.
Contact: The Society for Computer Simulation
P.O. Box 2228
La Jolla, California 92038, USA
Phone (619) 459-3888

M A R C H

March 1985
EIGHTEENTH ANNUAL SIMULATION SYMPOSIUM

March 12-14, 1985
ACM COMPUTER SCIENCE CONFERENCE
New Orleans, Louisiana, USA

Deadline: April 30, 1984
Contact: Terry M. Walker
Computer Science Department
University of Southwestern Louisiana
P.O. Box 44330
Lafayette, LA 70504, USA
Phone (318) 231-6339

March 12-14, 1985
IFAC/IFORS/IFIP WORKSHOP ON ARTIFICIAL
INTELLIGENCE PATTERN RECOGNITION IN
ECONOMICS AND MANAGEMENT
Zurich, Switzerland

Contact: Prof. L.F. Pau
Battelle Institute
7 route de Drize
CH-1227 Carouge, Switzerland

M A Y

May 21-24, 1985
1985 INTELLIGENCIA 1985
Paris, France

Contact: Charles A. Pratt, SCS
P.O. Box 2228
La Jolla, California 92038, USA
Phone (619) 459-3888

J U N E

** June 12-24, 1985
FIFTH CONFERENCE ON NONLINEAR FINITE
ELEMENT ANALYSIS AND ADINA
Cambridge, Massachusetts, USA

Contact: K.J. Bathe
MIT, 77 Massachusetts Av. Room 3-356
Cambridge, Massachusetts 02139, USA
Phone (617) 253-6645

J U L Y

July 1985
SUMMER COMPUTER SIMULATION CONFERENCE
Chicago, Illinois, USA

** July 15-18, 1985
NATIONAL COMPUTER CONFERENCE
Chicago, USA

Contact: AFIPS
1899 Preston White Drive
Reston, VA 22091, USA
Phone (703) 620-8900

** July 29-31, 1985
FIFTH INTERNATIONAL CONFERENCE ON
MATHEMATICAL MODELLING
Berkeley, California, USA

Topics: Engineering Systems, Resources,
Biomedical Systems, Socio-Economic Prob-
lems, Environmental Sciences, Methodology,
Model Validations.

Contact: Pr. Xavier J.R. Avula
Institute for Applied Sciences
Branch Office
P.O. Box 1488
Rolla, Missouri 65401, USA
Phone (314) 341-4585

July 29-August 2, 1985
1985 WORLD CONFERENCE ON COMPUTERS IN
EDUCATION
Norfolk, Virginia, USA

Contact: Mr. John McGregor
Department of Computer Studies
Murray State University
Murray, Kentucky 42071, USA

A U G U S T

August 5-9, 1985
ELEVENTH IMACS WORLD CONGRESS / SYSTEM
SIMULATION AND SCIENTIFIC COMPUTATION
Oslo, Norway

Topics: Systems modelling and simulation,
model identification and validation,
numerical methods for differential and
integral equations, simulation of large
scale systems, simulation of discrete sys-
tems, control and optimization theory and
applications, simulation tools, parallel
computation, special computers and soft-
ware for simulation and scientific compu-
tation.

Abstract Deadline: September 1, 1984
Registration Deadline: June 15, 1985
Contact: Eleventh IMACS World Congress
NFA, Kronprinsengt. 17
N-Oslo 2, Norway
Phone (02) 41 87 35
Telex 18213 XFIN

** August 26-31, 1985
SECOND INTERNATIONAL SYMPOSIUM ON SYSTEMS
ANALYSIS AND SIMULATION
Berlin, German Democratic Republic

Topics: Methods and Fundamentals, Simula-
tion Techniques, Applications.

Deadline: February 1, 1985
Contact: Central Institute of Cybernetics
and Information Processes of the Academy
of Sciences of the GDR
DDR-1086 Berlin
Kurzstrasse 33
P.O.B. 1298
German Democratic Republic
Phone 2072365
Telex 114536 zki dd

S E P T E M B E R

September 2-6, 1985
TWELFTH IFIP CONFERENCE ON SYSTEM
MODELLING AND OPTIMIZATION
General Conference
Organized by IFIP (TC 7)
Budapest, Hungary

Contact: IFIP Secretariat
3, rue du Marche
1204 Geneva, Switzerland

=====
1 9 8 6
=====

J U N E

June 1986
MATHEMATICAL MODELLING IN IMMUNOLOGY
Working Conference
Organized by IFIP (WG 7.1)
Vienna, Austria

Contact: IFIP Secretariat
3, rue du Marche
1204 Geneva, Switzerland

June 16-19, 1986
NATIONAL COMPUTER CONFERENCE
Las Vegas, Nevada, USA

J U L Y

July 1986
SUMMER COMPUTER SIMULATION CONFERENCE

=====
1 9 8 7
=====

J U N E

June 15-18, 1987
NATIONAL COMPUTER CONFERENCE
Chicago, Illinois, USA

**THE 1985 SCS
MULTICONFERENCE
SAN DIEGO, CALIFORNIA
24-26 JANUARY 1985**

Conference Announcement

FOUR CONFERENCES IN ONE!

**Modeling and Simulation on Microcomputers
Computer Simulation in Emergency Planning
Distributed Simulation 1985
AI, Graphics, and Simulation**

★ Technical Sessions ★ Professional Development Seminars
★ Social Events ★ Technical Exhibits

At the Bahia Hotel in San Diego, California

San Diego, a beautiful place to visit and a beautiful place to work. Join us at the fourth annual Multiconference sponsored by The Society for Computer Simulation for an educational and enjoyable experience. Walk to the Pacific Ocean — just two blocks from the Bahia Hotel. Visit Old Mexico — only fifteen minutes away by car or trolley. Stroll through Balboa Park or the Zoo, or take a cruise around the bay or just relax and savour the sights of our city by the Bay — San Diego.



Highlights of the Conference

KEYNOTE SPEAKER: Dr. Douglas B. Lenat. Dr. Lenat is on the faculty of the Computer Science Department at Stanford. He is now on leave to work as principal scientist at Micro Electronic and Computer Technology Corporation. He is conducting research on the processes and knowledge used to suggest and test new discoveries in science, particularly elementary mathematics. He has developed a line of computer programs which contain rules for analogic and inductive reasoning to direct an exploration of various scientific theories. Dr. Lenat is author of several papers and texts in the area of AI.

LUNCHEON SPEAKER: Robert Lee Chartrand. Mr. Chartrand is the Senior Specialist in Information Policy and Technology for the Congressional Research Service of the Library of Congress. He serves as advisor to members and committees of the U.S. Congress, preparing major studies, conducting special seminars, and holding consultations on the

roles and applications of information and its technology within government and society. He is author of several books and congressional studies one of which he will bring to the conference entitled, "Information Technology for Emergency Management."

SOCIAL EVENTS: A Cruise on the Bahia Belle. This has become a traditional social event among the participants and their guests at the Multiconference. An evening cruise around Mission Bay aboard a replica of an old Southern paddlewheeler has been very well received by all who have attended.

EXHIBITS: There will be an opportunity for vendors to present their products at the conference site. Tables will be made available for exhibits located in areas of high visibility. For more information regarding exhibits, please contact: Charles A. Pratt, SCS, P.O. Box 2228, La Jolla, CA 92038 or phone: (619) 459-3888.

Pre-Register Now. Use the Registration Forms on the Outside Back Cover. For More Information about the Multiconference Write: SCS, P.O. Box 2228, La Jolla, CA 92038. Or Call: (619) 459-3888.

CALL FOR PAPERS

SCS Conference on AI, Graphics and Simulation

This conference will provide a forum for presenting new techniques for developing, validating, and interacting with simulation models. We solicit approaches based upon research in AI, graphics, and model specifications. Accepted papers will appear in the conference proceedings. Areas of particular interest include:

- Applying expert system approaches to simulation modeling
- Graphical display and interaction techniques for the construction and validation of models
- Prototyping software, especially distributed software
- Techniques for the specification and decomposition of models and sub-models
- Simulation environments.

DEADLINES AND REQUIREMENTS

Papers should be no longer than 5,000 words, approximately 20 double-spaced pages in length, with the author names appearing only on the cover paper. All papers will be refereed. Extended abstracts will also be considered. Submit five copies of the paper by 15 July 1984 to:

Dr. Graham Birtwistle
Department of Computer Science
University of Calgary
Calgary, Alberta, T2N 1N4
CANADA
(403) 284-6015

Authors of accepted papers will be notified by 1 September 1984. Camera-ready copies will be due no later than 1 November 1984.

CONFERENCE ORGANIZERS

General Chairman

Dr. Graham Birtwistle
Dept. of Computer Science
University of Calgary
Calgary, Alberta, Canada
T2N 1N4
(403) 284-6015

Program Chairmen

Dr. Brian Unger
Dept. of Computer Science
University of Calgary
Calgary, Alberta, Canada
T2N 1N4
(403) 284-6316

Dr. Brian Wyvill
Dept. of Computer Science
University of Calgary
Calgary, Alberta, Canada
T2N 1N4
(403) 284-6009

Program Committee

Dr. William R. Franta
University of Minnesota
136 Lind Hall
Minneapolis, MN 55455
(612) 339-9391

Dr. Jean Vaucher, Chairman
C.P. 6128, Station A
University of Montreal
Montreal, Quebec, Canada
H3C 3J7
(514) 343-7090

Dr. Ivan Futo
Institute for the Coordination of
Computer Techniques
H-1368 Hungary
Budapest, POB 224
Hungary

Mr. Wayne Ingalls
24645 S.E. 192nd St.
Maple Valley, WA 98038
(206) 773-8356

SIMULATION COUNCILS, INC.
P.O. Box 2228
La Jolla, CA 92038

Nonprofit Organization
U.S. Postage Paid
San Diego, CA
Permit No. 1368

CALL FOR PAPERS

Computer Simulation in Emergency Planning

24-26 January 1985
San Diego, California

Emergency planning is a highly inter-disciplinary field of endeavor which is concerned primarily with the formulation and execution of plans, arrangements and functional capabilities to mitigate the life and property threatening aspects of natural and man-made disasters.

During January, 1983 the Society for Computer Simulation held, as a part of its annual MultiConference the first conference on the use of Computer Simulation in Emergency Planning. A second conference of this type is now being planned for the 1985 SCS MultiConference, 24-26 January 1985.

Papers are invited covering planned, current, ongoing or completed work relating to the conceptualization, definition, design, implementation, testing or operational use of simulations for training, research, resource database, command and control, warning systems, evacuation planning as well as plan creation, evaluation or revision within the emergency planning field. Papers may reflect basic or applied research, development experience and/or operational experience or may cover a subject from an operational or a policy perspective. Proposals for tutorials are also welcome.

It is anticipated that the conference will include at least the following workshops or sessions.

- General
- Policy
- Nuclear (Civil)
- Nuclear (Wartime)
- Fire
- Spills
- Earthquakes
- Emergency Medical
- Other Natural Emergencies
- Other Man-Made Emergencies

See page 3 for deadlines and requirements

CONFERENCE SITE

The conference will be held at the Bahia Hotel on Mission Bay in beautiful San Diego, California. This is your opportunity to combine an outstanding educational experience with a vacation from winter. Bring your family!

CONFERENCE ORGANIZERS

General Chairman

Daniel R. Perley
Perley Technologies Corp.
35 Holiday Drive
Constance Bay, Ontario
Canada K0A 3M0
(613) 832-3500

Ben Clymer
32 Willow Drive, Apt. 1B
Ocean, NJ 07712
(201) 462-9400

Dr. Curtis P. Clogston
Health Science Ctr at San Antonio
7703 Floyd Curl Drive
San Antonio, TX 78284
(512) 691-6895

John Harr
Pertec Computer Corporation
12910 Culver Blvd.
Los Angeles, CA 90009
(213) 717-3243

Dr. Murray Rosenthal
21250 Califa St., Ste 216
Woodland Hills, CA 91367

Terry Haney
TEMJAM Corp.
5943 Salamea
Woodland Hills, CA 91367

Ron Goodman
ESSO Resources Canada, Ltd.
339 50th Ave. S.E.
Calgary, Alberta, CAN T2G 2B3

Professor Salvatore Belardo
University of New York, Albany
1400 Washington Ave.
Albany, NY 12222

Lois Clark McCoy
San Diego County Office of
Disaster Preparedness
5201-Q Ruffin Road
San Diego, CA 92123

Jim Watkins
Cal. Office of Emergency Services
2800 Meadowview Rd.
Sacramento, CA 95823-9577

Dr. John Carroll
University of Western Ontario
c/o R. R. #4 Komoka,
Ontario, Canada N0L 1R0

Leo Schmidt
Institute for Defense Analysis
1801 N. Beauregard St.
Alexandria, VA 22311



**1985 SCS MULTICONFERENCE
PRE-REGISTRATION FORM**

Name: _____
Last First M.I.

Company: _____

Address: _____

City: _____ State: _____ ZIP: _____

Phone No. () _____ Ext. _____

Registration fees (check only one box):

	Advance	After Jan. 1 1985
<input type="checkbox"/> Conference Participant	\$155.00	\$180.00
<input type="checkbox"/> Member of SCS	\$155.00	\$180.00
<input type="checkbox"/> Non-Member	\$170.00	\$195.00

Primary interest (check one only):

- Modeling and Simulation on Microcomputers
- Computer Simulation in Emergency Planning
- Distributed Simulation 1985
- AI, Graphics, and Simulation

Refund requests postmarked no later than Jan. 20, 1985 will be honored. Advance registration fees are transferable. All checks must be in U.S. dollars and drawn on a U.S. or Canadian bank.

Total remittance: U.S. \$ _____

Make check payable to SCS. Mail to: SCS, P.O. Box 2228, La Jolla, CA 92038. Telephone: (619) 459-3888

**PROFESSIONAL DEVELOPMENT SEMINARS
REGISTRATION**

January 22-23, 1985

Each course in ONE FULL DAY - 9:00 to 5:00, unless otherwise stated. Fees are as follows:

	Advance	At Conf.
Monday		
<input type="checkbox"/> Programming the UNIX Shell (U)	\$130	\$150
Tuesday		
<input type="checkbox"/> An Introduction to the "C" Language (C)	\$130	\$150
<input type="checkbox"/> Distributed Simulation (D)	\$130	\$150
<input type="checkbox"/> Continuous Simulation Languages for Microcomputers (M)	\$130	\$150
<input type="checkbox"/> Simulation of Emergencies (E)	\$130	\$150
<input type="checkbox"/> An Introduction to Prolog (P)	\$130	\$150
<input type="checkbox"/> Simulation in Ada (A)	\$130	\$150
<input type="checkbox"/> Efficient Experimentation Design (X)	\$130	\$150
Monday & Tuesday (2 days)		
<input type="checkbox"/> Simulation of Waiting-Line Systems (W)	\$200	\$260
Total of seminars only:	\$ _____	

HOTEL RESERVATIONS FOR THE SCS MULTICONFERENCE

Mail to: BAHIA HOTEL
998 West Mission Bay Drive
San Diego, CA 92109
(619) 488-0551

ENCLOSE DEPOSIT FOR FIRST NIGHT
Single rate: \$60.00
Double rate: \$64.00

Name: _____

Street: _____

City: _____ State: _____ ZIP: _____

Arrival Date: _____ Departure Date: _____

Deposit Enclosed: _____

Make reservations by December 24, 1984 to insure space availability. Deposit refunded only if hotel is notified 24 hours before arrival. SCS not responsible for hotel reservations.

SIMULATION COUNCILS, INC.
P.O. Box 2228
La Jolla, CA 92038

Nonprofit Organization
U.S. Postage Paid
San Diego, CA
Permit No. 1368

Address Correction Requested

**THE 1985 SCS
MULTICONFERENCE**
SAN DIEGO, CALIFORNIA
24-26 JANUARY 1985

Make Plans to Attend the
1985 Multiconference

**ARTIFICIAL INTELLIGENCE
IN SIMULATION**

GHENT, BELGIUM

February 25-27, 1985

**FLANDERS TECHNOLOGY
INTERNATIONAL**

Conference Program

CALL FOR ATTENDANCE

In order to stimulate effective discussions, the number of participants will be strictly limited. The attendance of the conference is by invitation only. Apply for an invitation by returning the attached information form duly completed and send an abstract of a working paper to be presented at the conference. Oral presentations will be in English. The conference will include a number of survey and introductory lectures, lectures on current research projects or research proposals. Active discussion periods will be organized and a close interaction between the participants will be promoted.

Conference Proceedings, illustrating the state of the art of the topic, will be published.

The meeting forms part of the International Flanders Technology conference program. Several late-results in computer-aided developments will be exhibited. Further information concerning organization details, full paper requirements, as well as the final program will only be sent to the accepted applications. A social program is being planned for all participants.

The attached form should be returned before October 31, 1984. A three pages typewritten abstract (avoid figures and use single spacing) must be sent to arrive before November 30, 1984.

Mailing address :
G.C. VANSTEENKISTE/E.J.H. KERCKHOFFS
University of Ghent, Coupure Links 653
B - 9000 Ghent, BELGIUM

Phone 91-236961 telex 12754 RUGENT

TOPICS OF THE WORKING CONFERENCE

The conference will concentrate on advanced information processing technologies in systems modelling and simulation, more specifically the storage and use of knowledge in modelling, as well as other artificial intelligence related aids in simulation. Accordingly, contributions are given priority if they find their formulation in one of the steps involved when AI supported modelling and simulation of the phenomena are performed.

Suggested topics fall among :
Knowledge Representation in Simulation;
Man-Machine Interfaces in Simulation;
Symbolic Manipulation in Simulation;
Question-Answering Systems in Simulation;
Expert Systems and Simulation;
Object-oriented Modelling and Simulation.

When phenomena are studied through simulation, two aspects are interacting with each other : model building/formalization/analysis and model utilization. Hence, contributions are expected to touch one or both of these aspects and should emphasize the use of AI techniques to enable/facilitate/improve the problem study through simulation. In complex problems, for which conventional simulation approaches have proven to be insufficient, the incorporation of heuristic knowledge may be needed. This requires the use of AI related techniques, more specifically its applied branch Knowledge Engineering. Contributions dealing with these aspects are greatly welcomed.



1985 Eastern Simulation Conferences

MEETING ANNOUNCEMENT and

CALL FOR PAPERS

An SCS World-Wide Multi-Conference

Williamsburg, Virginia

March 24-29, 1985

ESC '85

“FAST FORWARD”

- ★ **Simulators**
- ★ **The Simulation Profession**
- ★ **Simulation in ADA**
- ★ **Artificial Intelligence and Simulation**

★ **General Chairman**

G. Vince Amico
Consultant
831 Longhaven Drive
Maitland, FL 32751
(305) 644-7556 (H)
(305) 275-2123

★ **Arrangements**

S. Whitney Downer, III
'Pard Recognition
824 Spar Avenue
Beachwood, NJ 08722
(201) 349-8016

★ **General Program
Chairman**

A. Ben Clymer
Clymer Technology
32 Willow Drive
Suite 1B
Ocean, NJ 07712
(201) 493-4364

★ **Registrar/Publications/
Publicity**

Charles A. Pratt
Executive Director, SCS
P.O. Box 2228
La Jolla, CA 92038-2228
(619) 459-3888

Our theme for the ESC '85 is inspired by the “fast forward” impact of simulation and simulators on the high technology research, development, engineering, design and training environment. Maintaining this “fast forward” thrust for simulation demands the continuing evolution of equipment, programming, languages and applications — and, the simulation profession.

ESC '85 will provide an outstanding forum for the world-wide simulation community to explore ideas, study advanced techniques, and appraise developments promoting the state-of-the-art.

Four highly topical conferences will be conducted in parallel, each having special keynote and plenary sessions, technical and position papers, and panel discussions. Those who register for one conference may attend sessions in any of the other three conferences.

ESC '85 Special Features

- ★ Discounted airfares (Piedmont) and hotel rates
- ★ Pre-conference reception on Sunday, March 24th
- ★ Exhibits of simulation equipment, software and services
- ★ All-conference luncheon and keynote address
- ★ Old-fashioned Colonial Virginia banquet, with entertainment
- ★ Guided tours of Williamsburg, Yorktown and Jamestown
- ★ Tour of NASA-Langley simulation/simulator facilities
- ★ Professional Development Seminars, SCS-sponsored

The ESC '85 — being planned for the world-wide interests and concerns of simulationists, managers and aficionados. Plan to attend. Be sure to participate!



The Society for Computer Simulation
P.O. Box 2228
La Jolla, CA 92038

Simulators

John S. Gardenier
Commandant
(G-DMT-1, Rm 5410)
U.S. Coast Guard
Washington, D.C. 20593
(202) 426-1058
FTS 426-1058

**Artificial Intelligence
& Simulation**

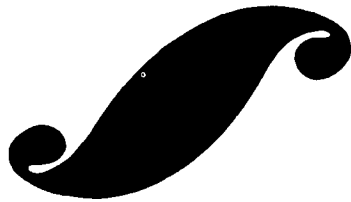
Willard M. Holmes
U.S.A. Missile Command
Attn: DRSMI-RDW
Redstone Arsenal,
Alabama 35898
(205) 876-1048

Simulation in ADA

Brian W. Unger
University of Calgary
Department of
Computer Science
Calgary, Alberta, Canada
T2N 1N4
(403) 284-6316

The Simulation Profession

A. Gerald Edwards
MISD-US Army ARDC
c/o 184 Westville Ave.
Caldwell, NJ 07006
(201) 724-3668



Society for General Systems Research

CALL FOR PAPERS

1985 Annual Meeting
Los Angeles, CA
May 27-31, 1985

Bela H. Banathy
President, SGSR and
Chair of the 1985 Meeting
Far West Laboratory for Educational
Research and Development
1855 Folsom Street
San Francisco, CA 94103

The program of the 1985 meeting embraces the entire scope of systems inquiring by which: (a) **systems theory** is defined and formulated through its continuous evolution; (b) **systems philosophy** is explicated and evolved; and (c) **systems methodology** is pursued as a field of study as well as implemented in a variety of contexts and through a variety of strategies, methods, and tools that apply systems theory and philosophy.

A. PROGRAM THEME

The 1985 program has a special theme: to define and characterize competencies — namely, knowledge, understanding ways of thinking, skills, and dispositions that are required or desired for engaging in systems inquiry: (a) pursuing scholarship in systems theory, philosophy, and methodology; (b) applying systems thinking and theory and using systems methodology in the disciplines, professions, and various human activity systems and exploring the design of arrangements for acquiring competence in systems inquiring. Furthermore, special attention will focus on competencies related to the application of systems thinking to global issues.

Contributions that do not address the competence theme are also invited and will be incorporated in the program. A map of the 1985 meeting is depicted in the enclosed figure.

B. ORGANIZATION

The program is arranged and organized into eight *program areas*, based on the definitional scheme explained above. These areas are described in Section D and the individuals who will take primary responsibility for organizing each program area are identified. Their areas of responsibility are: (a) initiating symposia in their program area, (b) reviewing proposals for contributions, and (c) arranging paper sessions from those contributions. These individuals will act as co-program chairs and coeditors of the proceedings. Proposals for contributions to the various program areas and abstracts and drafts of papers should be sent directly to the persons named in the various program areas. Recommendations for conference management should be sent to the *Chair of the Management Committee: John Holmdahl, P.O. Box 24252, Los Angeles, California 90024*. John will work with members of the Los Angeles Area Chapter.

An innovative feature of the 1985 program will be in providing opportunities for *unfolding and continuing synthesis in prearranged ways*. For example:

- As part of each session and symposium by devoting time to synthesizing the presentations and discussions.
- By program area at the end of each day, conducted by the program area committees with the involvement of both the symposia/paper session presenters and session participants.
- On Wednesday and Friday morning there will be an overall synthesis of all seven areas.
- Finally, findings of these syntheses will be fully developed and published.

To enhance synthesis and a continuing conversation during the conference, each program area shall have its own assigned "homeroom" that can be used to maintain program involvement and elaboration.

C. PROGRAM DEVELOPMENT SCHEDULE

- October 15:** Abstracts for papers and symposium proposals should be received by program area chairs.
November 30: Program chairs accept abstracts and symposium proposals and notify authors.
January 15: Drafts of papers/symposium contributions should be received by program chairs.
February 15: Program area chairs notify authors and the SGSR Office (Louisville) on acceptance of drafts. The Louisville office will mail out forms by the 20th of February to authors for preparing camera-ready copies.
March 30: Camera-ready copies of papers and symposium contributions should be received at the office of Bela Banathy.

D. PROGRAM AREAS

The procedure — described in the theory area — of how the abstracts will be circulated and used to enhance an initial synthesis in a program area will apply to all program areas.

CALL FOR PAPERS 1985 ACM-SIGMOD

INTERNATIONAL CONFERENCE ON MANAGEMENT OF DATA
MAY 28-31, 1985
AUSTIN, TEXAS

The focus of this year's conference will be on the new advances in database management to meet the fifth generation challenge.

We would like to place an emphasis on AI applications, knowledge based systems, new architectures, applications in automated manufacturing and CAD/CAM, databases for work stations, etc. We are also soliciting papers in the following areas of database management:

- Database Theory
- Database Models
- Database Design Methodologies
- Database Machines
- Distributed Databases
- Database Operating Systems
- Concurrency Control
- Performance Issues and Optimization
- User Interfaces and Graphics
- Database Management in Office Systems
- Database Applications

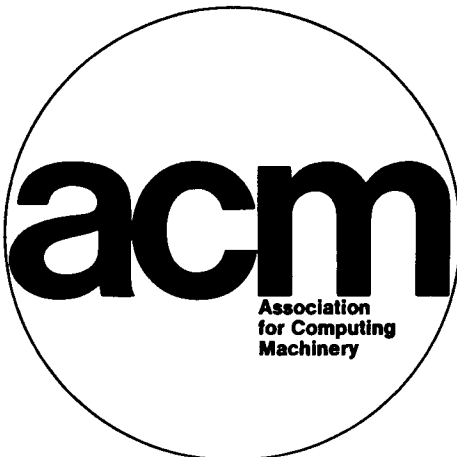
IMPORTANT DATES

Submission Deadline: Dec. 3, 1984

Acceptance Notification: Feb. 4, 1985

Final Version Due: March 4, 1985

Conference: May 28-31, 1985



Five copies of a complete manuscript not exceeding 5000 words should be sent by December 3, 1984, to the address listed below:

Prof. Sham Navathe
Computer and Information
Sciences Dept.
512 Weil Hall
University of Florida
Gainesville, FL 32611 U.S.A.

Papers from countries outside of North America are strongly encouraged. Limited travel funds for authors may be available.

The manuscript must include an abstract and appropriate references. It is important to indicate what the original contribution of the paper is, and to include a comparison with relevant previous work. Papers longer than 25 double-spaced, typewritten pages are subject to immediate rejection. Each paper will be reviewed by at least three Program Committee members and judged as to its originality, quality, and significance.

Notification of acceptance or rejection of papers will be done by February 4, 1985. For inclusion in the Conference Proceedings, the final draft of each accepted paper, typed on special forms, must be received by the Program Chairman by March 4, 1985. Authors of accepted papers will be expected to sign a copyright release form.

Panel sessions will be an important part of the conference. We solicit proposals for these panels. Each proposal must include the subject matter of the panel, the justification for having it, who would participate, and who would organize it. Proposals should be sent to Mike Mannino at the University of Florida (same address as Navathe's), phone (904) 392-7443.

GENERAL CHAIRMEN:

Al Dale, University of Texas
Gene Lowenthal, MCC, Austin, Texas

PROGRAM CHAIRMAN:

Sham Navathe, University of Florida

PROGRAM COMMITTEE:

Peter Apers, Vrije University, The Netherlands
Carlo Batini, University of Rome
Don Batory, University of Texas
Bharat Bhargava, Purdue University
Haran Borai, MCC, Austin, Texas
Michael Carey, University of Wisconsin
Stefano Ceri, Politecnico di Milano
Arvola Chan, CCA
Stavros Christodoulakis,
University of Toronto
Claude Delobel, IMAG, France
Ramez Elmasri, University of Houston
Paula Hawthorn, Hewlett Packard
Mathias Jarke, New York University
Mathai Joseph,
Tata Institute of Fundamental Research,
Bombay, India
Randy Katz, University of California
Larry Kerschberg,
University of South Carolina
Ravi Krishnamurthy, IBM,
Yorktown Heights, N.Y.
S. Kundu, Louisiana State University
Peter Lockemann,
University of Karlsruhe,
West Germany
Raymond Lorie, IBM, San Jose
D. Stott Parker, University of California
Kamran Parsaye, SILOGIC, Inc.
David Reiner, CCA
Nick Roussopoulos,
University of Maryland
Heinz Schweppe,
Technical University at Braunschweig
Ed Sciore,
State University of New York, Stony Brook
Yuzuru Tanaka,
Hokkaido University, Japan
Toby Teorey, University of Michigan
Kyu Young Whang, IBM,
Yorktown Heights, N.Y.
Gio Wiederhold, Stanford University
Mihalis Yannakakis, Bell Labs,
Murray Hill, N.J.

PANEL COORDINATOR:

Mike Mannino, University of Florida

LOCAL ARRANGEMENTS:

Cerise Blair, MCC, Austin, Texas

REGISTRATION CHAIRMAN:

Chris Edmondson-Yurkanan,
University of Texas

CONFERENCE TREASURER:

Marc Smith, MCC, Austin, Texas

EUROPEAN COORDINATOR:

Stefano Ceri, Politecnico di Milano



CALL FOR PAPERS

Symposium on Computational Geometry

5-7 June
The Johns Hopkins University
Baltimore, Maryland

Conference Chair:
Joseph O'Rourke
The Johns Hopkins University

Sponsored by ACM SIGGRAPH

Papers are solicited in all areas of Computational Geometry, including:

- design and analysis of geometric algorithms
- data structures for computational geometry
- applications with a distinct geometric flavor:
 - robotics: collision avoidance, shortest path computation
 - graphics: solid modelling algorithms
 - pattern recognition: shape decomposition
 - mathematics: combinational geometry

Proceedings will be distributed at the Symposium and will be subsequently available for purchase from ACM.

Conference Timetable

Three copies of extended abstract	15 Dec 1984
Acceptance letters	1 Feb 1985
Camera-ready papers	15 Mar 1985
Conference	5-7 Jun 1985

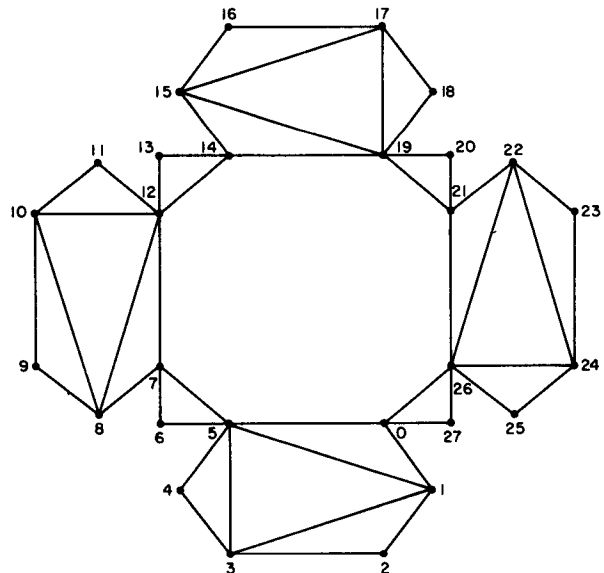
Program Committee

David Dobkin, *Princeton University*
 Franco Preparata, *University of Illinois*
 Joseph O'Rourke, *The Johns Hopkins University*
 Godfried Toussaint, *McGill University*

Send four copies of an extended abstract by 15 Dec 1984 to:

Joseph O'Rourke
 Department of Electrical Engineering
 and Computer Science
 The Johns Hopkins University
 Baltimore, Maryland 21218

(301) 338-8468





EURO VII

Seventh European Congress on Operational Research

Bologna, Italy
June 16-20, 1985

Call for Papers,
Software and Sessions

Sponsored by EURO:
The Association of European Operational
Research Societies within IFORS

Organizers

Associazione Italiana di Ricerca Operativa (AIRO)
Facoltà di Ingegneria dell'Università di Bologna.

Location

Facoltà di Ingegneria, 2 Viale Risorgimento, Bologna, Italy.

Important dates

Deadline for session proposals: October 31, 1984.

Deadline for abstracts of papers or software presentations: December 15, 1984.

Acceptation of papers (invitation letter): February 4, 1985.

Invitation programme: February 15, 1985.

Congress: June 16-20, 1985.

Conference Language English.

Software fair (besides formal presentation of software during sessions).

Hardware facilities (for sessions and fair)
Micro-computers Apple, IBM-PC, Olivetti, ...
Terminals connected to a Digital Vax 11/780, IBM 4341, CYBER 7600, CRAY 1/M 2200.

Social Programme

Wine party on Sunday, June 16.

Dinner on Tuesday, June 18.

Excursions organized for accompanying persons to Venezia, Firenze, Ravenna.

Instructions to Authors

Potential contributors are invited to submit abstracts of up to 200 words for consideration. All abstracts accompanied by a cheque of money order for 75000 Lit (Italian Liras), made payable to "EURO VII, Conto N. 45497-00, Credito Italiano, Filiale di Bologna", should be sent to the Secretariat of EURO VII. The money will be returned immediately if the paper is not accepted, otherwise it will be used as a booking deposit.

Official Carrier



TOOLS AND MODELS FOR MANAGERS AND CONSULTANTS

Operational Research is a very attractive field for academic researchers. The number of books and scientific publications is one manifestation of this success. But few of these nice tools and models are actually applied extensively in real organizations. Why?

Do people in organizations know about the available tools? Do people within the academic field know the problems faced by organizations?

The theme has been chosen to enable the conference to make a contribution to reduce the gap between the two worlds. Considering the impact of computer facilities (micro-computers, fifth generation computer systems) and the European programme ESPRIT, an emphasis is to be given to the *presentation of software*.

Programme Committee

- Chairman : E. Jacquet-Lagrèze (France)
Members : S. Axsäter (Sweden)
R. Boschi (Switzerland)
C. Carlsson (Finland)
E. Field (United Kingdom)
R. Gault (Ireland)
A. Rinnooy Kan (Netherlands)
Ch. Schneeweiss (Federal Republic of Germany)
B. Tilanus (EJOR)
P. Toth (Italy)
L. Valadares Tavares (Portugal)
P. Vincke (Belgium)
J. Weglarz (Poland)

Organizing Committee

- Chairman : P. Toth
Treasurer : G. Urgeletti
J.P. Brans
Members : G. Carpaneto
P. Harhammer
E. Jacquet-Lagrèze
R. Mambelli
S. Martello
B. Martinoli

STRUCTURE OF THE CONFERENCE

Participants are invited to:

- present a paper in a session,
- organize a session of 3 papers,
- present software in a session (a room with special equipment will enable such presentations),
- present software in a software fair.

Sessions will be organized in a matrix whose rows are related to approaches and techniques and columns to methodology or applications.

Approaches and techniques

- A. Mathematical Programming
- B. Multicriteria Decision Making
- C. Graphs and Networks
- D. Forecasting and Simulation
- E. Statistics and Stochastic Processes
- F. Fuzzy Sets
- G. Game Theory and Negotiation
- H. Expert Systems
- I. Decision Support Systems
- J. Other

Applications - Methodology

- 1. Methodology, Philosophy
- 2. Strategic Planning
- 3. Production, Inventory, Scheduling
- 4. Location and Distribution
- 5. Marketing and Purchasing
- 6. Manpower
- 7. Finance and Banking
- 8. Transportation and Traffic
- 9. Energy
- 10. Telecommunications
- 11. Health
- 12. Military
- 13. Environmental Problems
- 14. Agriculture
- 15. Education
- 16. Other

ANNOUNCING The Working Conference on:
KNOWLEDGE-BASED MODELLING AND SIMULATION METHODOLOGIES

July 1-5, 1985
At Wageningen Agricultural University
Wageningen, Netherlands

SCIENTIFIC COMMITTEE: M.S. Elzas, T.I. Ören, B.P. Zeigler, F. Pichler,
A.E. Jones.

SCOPE:

This conference is the third one in a series of conferences advancing the fundamental concepts and methods of Modelling and Simulation in an endeavor to establish firm foundations of this field. One of the indications of the success of the approach has been the overwhelming interest in the book published by North-Holland, on the occasion of the first meeting of this series in 1979.

ORGANIZATIONAL FORM:

The working Conference consists of a series of tutorial lectures by invited leading scientists in the field, short presentations by practitioners, discussions and computerized demonstrations on the theoretical foundations for knowledge-based modelling and its integration with system-analysis, design and decision support systems. To foster an intensive exchange of ideas, attendance at the conference is limited to about 60 people.

TOPICS:

- Conceptual bases for system modelling
- State-of-the-art in the application of AI techniques to modelling and simulation
- Software for model-bases and knowledge-based simulation
- Expert systems for model-identification and optimization
- Model-based methodologies and systems in AI.

AUDIENCE:

The audience is expected to consist of:

- Senior professional from universities, research facilities, or industry interested in state-of-the-art developments
- Young scientists and post-doctorals who would like to orient their research in the direction of the subject area

OBJECTIVES:

The lecturers and participants of the Working Conference will have interests in one or more sub-areas within the spectrum of knowledge-based modelling activities and will be encouraged to share their specific knowledge with other participants in constructive discussions.

PUBLICATION:

As for the two earlier conferences, the lecture notes will be edited by M.S. Elzas, T.I. Ören, and B.P. Zeigler and published as a reference book by North-Holland after the conference.

FEES AND INFORMATION:

The conference fee is US \$200.00 (including the Conference Book).

For further information contact:

Professor ir. M.S. Elzas
Computer Science Department
Wageningen Agricultural University
Hollandseweg 1
6706 KN Wageningen, Netherlands
Phone: (011-31-8370) 84153

*** PREVIOUS PUBLICATIONS:**

- 1) Zeigler, B.P., Elzas, M.S., Klir, G.J., Ören, T.I. (Eds.) (1979). Methodology in System Modelling and Simulation North-Holland, Amsterdam 537 p.
- 2) Ören, T.I., Zeigler, B.P., Elzas, M.S. (Eds.) (1984). Simulation and Model-Based Methodologies: An Integrative View, Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 672 p.

Dipartimento di Elettronica
Politecnico di Torino

Dipartimento di Informatica
Universit  di Torino

Istituto Elettrotecnico Nazionale
Galileo Ferraris

General Chairman
K. S. Trivedi (USA)

Scientific Program Committee

- G. Balbo (Italy)
- H. Beilner (W. Germany)
- A. Bertoni (Italy)
- A. Bobbio (Italy)
- M. Gerla (USA)
- U. Herzog (W. Germany)
- J. C. Laprie (France)
- J. F. Meyer (USA)
- M. K. Molloy (USA)
- S. Natkin (France)
- J. L. Peterson (USA)
- J. Sifakis (France)
- F. J. W. Symons (Australia)
- M. Vernon (USA)

Local Organising Committee

- M. Ajmone Marsan
- G. Conte
- A. Cumani

In cooperation with
ACM SIGMETRICS
AEI
CNR - PFI - MUMICRO
IEEE North Italy Section

INTERNATIONAL WORKSHOP ON
TIMED PETRI NETS

TORINO, ITALY

JULY 1-3, 1985

SCOPE: The aim of the workshop is to bring together scientists involved in the development of graphical models for performance evaluation in the areas of Computer Science, Communications, and Reliability. The exchange of ideas and the presentation of recent experience will make it possible to establish the state of the art in this field, and also to indicate the directions for future research.

TOPICS:

- Theoretical aspects of Petri nets with deterministic and/or stochastic timing.
- Applications of timed Petri nets to system design and analysis in the fields of Computer Science, Communications, and Reliability (other fields may be of interest as well).
- Tools for the automated analysis of timed Petri net models.
- Other types of graphical models for system performance evaluation.

INSTRUCTIONS FOR AUTHORS: Authors are invited to submit original papers that either describe recent developments in some of the areas of interest of the Workshop or survey one of the Conference topics. Three copies of full papers should be submitted to the Technical Program Committee Chairman at the following address:

Professor G. Balbo
Dipartimento di Informatica, Universit  di Torino
Corso Massimo d' Azeleglio, 42
10125 Torino, ITALY

Papers should be no longer than 20 double-spaced typed pages, including tables and figures. The first page of the manuscript should include the title of the paper, the full names of the authors, their affiliation, complete mailing addresses, telephone and Telex numbers, as well as a 200-word abstract.

IMPORTANT DATES:

today	<i>return the enclosed reply form</i>
december 1, 1984	<i>deadline for submission of full papers</i>
march 1, 1985	<i>notification of acceptance</i>
may 1, 1985	<i>camera ready copy due</i>
june 1, 1985	<i>deadline for registration</i>

International Workshop on TIMED PETRI NETS

Please complete this form and return it as soon as possible to:

Professor M. Ajmone Marsan
Dipartimento di Elettronica, Politecnico di Torino
Corso Duca degli Abruzzi, 24
10129 Torino, ITALY

Please send me further information about the Workshop I plan to attend

I plan to submit a paper Subject area:

Tentative title:

.....

.....

Full name and complete mailing address:

.....

.....

Phone number: Telex:

NCC'85

Call for Papers

1985 National Computer Conference
July 15-18 • McCormick Place • Chicago, Illinois
"TECHNOLOGY'S EXPANDING HORIZONS"

You are invited to attend and to participate in the 1985 NCC program. The 1985 theme, "Technology's Expanding Horizons", focuses on the advances that are being made in both hardware and software, as well as the expanding potential of the next generation of computing systems. New and innovative approaches to system design are leading to dramatic changes in the industry.

The 1985 program will feature informative sessions on contemporary issues that are critically important to the industry. Sessions and papers will be selected on the basis of quality, topicality, and suitability for the NCC audience. All subjects related to computing technology and applications are suitable.

YOU CAN PARTICIPATE BY:

WRITING A PAPER

• Send for "Instructions to Authors" — TODAY.

ORGANIZING AND LEADING A SESSION

• Send preliminary proposal (title, abstract, target audience) — TODAY.
• After preliminary approval, send final session proposal by AUG. 31, 1984.
Authors and session leaders will receive final notification of acceptance by February 15, 1985.

SEND ALL SUBMISSIONS, PROPOSALS, CORRESPONDENCE & INQUIRIES TO:

Anthony S. Wojcik, NCC '85 Program Chairman
Department of Computer Science Illinois Institute of Technology
3300 South Federal Chicago, Illinois 60616
or call: (312) 567-5150 for further information.

• Submit papers by Oct. 30, 1984.

Meeting Announcement and Call for Papers



CLOSING THE LOOP IN SIMULATION
THE INTERNATIONAL LANGUAGE

Summer Computer Simulation Conference



Chicago, Illinois
July 22-26, 1985

General Information and Important Dates

- A 200-word abstract should be submitted to:

Charles A. Pratt
SCS
P.O. Box 2228
La Jolla, CA 92038
(619) 459-3888

Please **include your telephone number** and submit your abstract before **November 15, 1984**. Abstracts received after this date will be considered as long as time and program space permit.

- Notification of acceptance will be sent by **January 15, 1985**.
- Complete manuscripts of accepted papers in proper format with finished artwork must be received by **March 16, 1985**.
- Only papers which have not been previously published or presented should be submitted. Authors must obtain employer, client, or governmental releases prior to submittal of the final manuscript. Papers will be published in the Conference Proceedings, if received by deadline.
- Authors will be expected to register early (at a reduced rate) and to attend the Conference at their own expense to present accepted papers.

Sponsored by:

**The Society for Computer Simulation
(Simulation Councils, Inc.)**

In Affiliation with:

AGU (American Geophysical Union); **AIAA** (American Institute of Aeronautics and Astronautics); **AIChE** (American Institute of Chemical Engineers); **BES** (Biomedical Engineering Society); **IEEE** (Institute of Electrical and Electronics Engineers; Computer Society; Systems, Man, and Cybernetics Society); **IMACS** (International Association for Mathematics and Computers in Simulation); **ISA** (Instrument Society of America).

For More Information Contact:
The Society for Computer Simulation
P.O. Box 2228
La Jolla, CA 92038
(619) 459-3888

1985 SUMMER COMPUTER SIMULATION CONFERENCE

Technical Program

The 1985 Summer Computer Simulation Conference will feature technical papers, panel discussions, state-of-the-art reviews and tutorials on all aspects and applications of computer simulation. A comprehensive and innovative coverage of the field of simulation is planned consisting of over 60 sessions covering 16 topical groups.

SIMULATION METHODS

Modeling Techniques
Numerical Methods for Simulation
Simulation of Continuous Systems
Simulation of Discrete Systems
Simulation Executives
Simulation Languages
Stochastic Applications
Teaching Simulation
Simulation Environments

COMPUTER SYSTEMS

Super Computer Applications
Parallel Processor Applications
Simulation of Computer Systems
Simulation of VLSI Circuits
Simulation with Microcomputers
Graphics

SIMULATION CREDIBILITY AND VALIDATIONS

Validation Methodology
Credibility of Models
Quality Assurance Techniques
Case Studies
Ethics

PHYSICAL AND ENGINEERING SCIENCES

Aeronautical and Astronautical Systems
Vibration and Mechanics
Electromagnetic Processes
Controls and Optimization

CHEMICAL SCIENCES

Chemical Reactors and Separation Processes
Advanced Mathematical Techniques
Dynamic Systems in Chemical Engineering
Thermophysical Properties
Desktop Chemical Simulation

ENERGY

Power Plants
Simulation of Power System Transients
Modeling and Simulation of Electrical Power Networks
Simulation of Biomass Power Generation
Hydrodynamics and Heat Transfer
Reservoirs

BIOMEDICAL SIMULATION

Pharmaco-Kinetic Applications
Prosthetic Applications
Simulation of Biological Processes

ENVIRONMENTAL SCIENCES

Models and Simulation of Ecological Systems
Simulation of Animal Populations
Simulation of Chemical Transport Through the Soil
Aquatic Pollution Models

MANAGEMENT AND THE SOCIAL SCIENCES

Economic System Models
Decision Support Systems
War Games
Simulation of Production Systems
Transportation

TRAINING AND RESEARCH SIMULATORS

Power Plant Simulators
Chemical Process Simulators
Flight Simulators
Missile Simulators
Simulator Technology
Maritime Simulation
Interactive Video Simulators

GOVERNMENT SIMULATION/COMPUTER FACILITIES

Government Simulation/Computation Facilities —
Present and Future
Simulation for Military Decision
Government Simulation Applications
Workstations

ARTIFICIAL INTELLIGENCE

Aerospace Applications
Electronic System Applications
Robotics
Expert and Knowledge Based Systems
Signal Fusing and Pattern Recognition
Natural Language Processing
Learning Systems
Voice Recognition

DATA COMMUNICATIONS SYSTEMS

The Functional Evolution and Role of Data Communications
Design of Data Communications Networks
Protocols
Performance Analysis
Multiplexing and Concentration
Design Issues
Integrated Systems
Systems Components & Their Interrelationships
Satellite Communications
RADAR and SONAR Systems
Avionics
Signal Processing

CAD/CAM & MANUFACTURING SYSTEMS

FLIGHT SIMULATION SYSTEMS

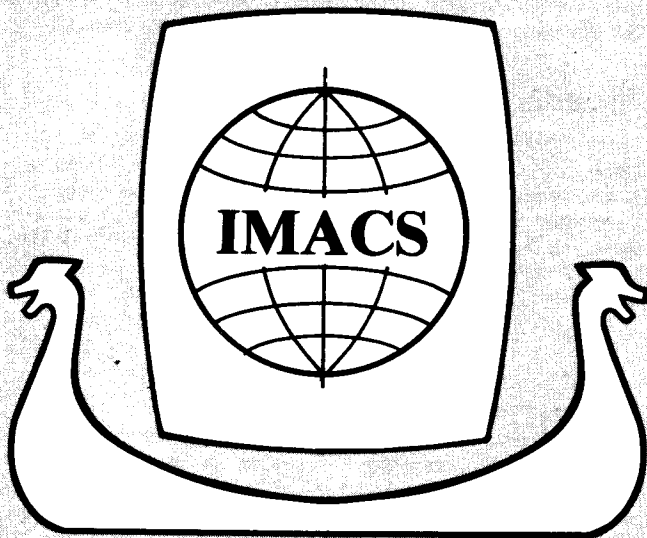
Visual Simulation
Motion Simulation
Tactical Simulation
Instructional Simulation
Software Simulation
Radar Land Simulation

SIMULATION OF DISCRETE SYSTEMS

Stochastic Applications
Methodology

11th IMACS WORLD CONGRESS

SYSTEM SIMULATION AND SCIENTIFIC COMPUTATION



August 5-9, 1985
Oslo, Norway

First Announcement • Call for Papers

EXHIBITION

In connection with the 11th IMACS World Congress an exhibition will be organized at the Congress area. It will be arranged for product presentations and the exhibitors will demonstrate equipment systems and applications, and report on their experiences.

CONFERENCE CO-CHAIRMEN

R. Vichnevetsky (USA)
B. Wahlström (Finland)
R. Henriksen (Norway)

LOCAL ORGANIZING COMMITTEE

R. Henriksen (Chairman)
N. P. Sundby (General Secretary)

THE SCIENTIFIC PROGRAM COMMITTEE

B. Wahlström (Chairman)
R. Henriksen (Local Scientific Committee)

SUBMISSION OF PAPERS

The Scientific Program will consist of three types of papers:

contributed papers
solicited papers
invited papers

A large part of the scientific program will be put together by Session Organizers who have the responsibility to solicit papers in specific areas of interest and have the authority to accept papers for their respective sessions (i.e. solicited papers).

Those willing to become session organizers are invited to make themselves known to Dr. Wahlström and/or Dr. Henriksen as soon as possible.

There will be some invited review papers, but the majority of papers will be selected from those offered as a result of this *Call for papers*.

Those interested in presenting a paper should send an abstract (300-500 words) in duplicate to both of the following addresses:

Dr. Rolf Henriksen
The Norwegian Institute of Technology
Division of Engineering Cybernetic
N-7034 Trondheim-NTH
Norway

• • •

. . .

Dr. Björn Wahlström
Technical Research Centre of Finland
Vuorimiehentie 5
SF-02150 Espo 15
Finland

The attached reply card should be enclosed with the copies being sent to Dr. Henriksen.

Deadline for submission of abstracts is *September 1, 1984*.

SELECTION OF PAPERS

Papers will be preliminary accepted on the basis of submitted abstracts. Notification of acceptance and author's kit will be mailed by November 30, 1984.

Only previously unpublished papers will be accepted for presentation at the Congress. Authors must be prepared to assign sole rights for publication to IMACS and not to permit other publication without the prior consent of IMACS. Full papers must be submitted by

March 30, 1985

The Organizers reserves the right not to accept a paper. Authors will be informed of the final decision by April 30, 1985. Preprints of all papers accepted for the Congress will be distributed to all registered participants upon arrival. Proceedings will be available for sale after the event and published by an international publishing company.

LANGUAGE

The Congress language will be English only, and abstracts and papers must be submitted in that language.

PARTICIPATION

The registration fee is believed to be US\$ 250-300, which will include Preprints and part of the Social Program.

Pre-registration and enquiries

Prospective participants (authors and non-authors) are asked to complete the attached form.

Authors should enclose it with the abstract.

Non-authors should mail it to the printed address.

Social program

The Social Program will include a reception and cocktail party, a sightseeing tour, Banquet, post-congress tours and accompanying persons' program.

TIME SCHEDULE

The key dates are:

Abstracts submission	September 1, 1984
Preliminary acceptance	November 30, 1984
Full paper submission	March 30, 1985
Registration deadline	June 15, 1985

A Second Announcement and Call for Papers will be issued by *March 1, 1984*.

ALL CORRESPONDENCE

11th IMACS World Congress
NFA
Kronprinsensgt. 17
N-Oslo 2
Norway

Secretariat:
Mr. Sundby
Tel. Norway (02) 41 87 35
Telex 18 213 XFIN

A Conference sponsored by:



NORWEGIAN SOCIETY OF AUTOMATIC CONTROL

1973 ROME
1974 NOVOSIBIRSK
1975 NICE
1977 WÜRZBURG
1979 WARSAW
1981 NEW YORK
1983 COPENHAGEN
1985 BUDAPEST



12th IFIP Conference on
**SYSTEM MODELLING
AND OPTIMIZATION**
BUDAPEST, HUNGARY, SEPTEMBER 2-6, 1985



- Organized by the
John von Neumann Society for Computer
Sciences
- with the sponsorship of the
Hungarian Academy of Sciences
- Co-sponsored by
IFORS, International Federation of
Operational Research Societies



PROGRAM COMMITTEE

A. V. Balakrishnan, U. S. A.
Y. Evtushenko, U. S. S. R.
M. Iri, Japan
P. Kall, Switzerland
R. Kluge, German Democratic Republic
J. L. Lions, France
F. Lootsma, Netherlands
M. Lucertini, Italy
K. Malanowski, Poland
M. J. D. Powell, United Kingdom
A. Prékopa, Hungary
S. M. Robinson, U. S. A.
J. Stoer (chairman), Federal Republic of Germany
J. Szelezsán, Hungary
P. Thoft-Christensen, Denmark
G. C. Vansteenkiste, Belgium



ORGANIZING COMMITTEE

M. Arató
P. Kelle
L. Lovász
I. Maros
T. Pongrácz
A. Prékopa (chairman)
J. Stáhl
B. Strazicky
J. Szelezsán (secretary)
Z. Varga



INVITED SPEAKERS

A number of experts will be invited to give lectures on the main topics of the conference.

TOPICS OF THE CONFERENCE

The aim of the conference is to discuss recent advances in the mathematical representation of engineering, socio-technical, and socio-economic systems as well as in the optimization of their performances.

The conference will highlight these and related areas:

- *Optimal Control*
- *Modelling and optimization of stochastic systems*
- *Linear and nonlinear programming*
- *Integer programming and optimization in networks*
- *Performance optimization of computer-communication systems*
- *Optimization software*
- *Applications in economic, engineering, industrial, energy, biomedical, environmental, traffic and transportation, educational systems.*



ABSTRACTS

Extended abstracts of papers to be presented on the conference should be submitted to the secretariat by JANUARY 31, 1985. They should be of app. 2 pages in length, and should describe original unpublished results by their authors.



GENERAL INFORMATION

The conference is to be held at the Hungarian Academy of Sciences, in the centre of Budapest. Accomodations will be provided in hotels. The hotel room rate is between \$ 20–40 for a single room.

The conference language is English and typescripts of a selection of complete papers will be published in the Conference Proceedings.

A social program for participants will be arranged.

The registration fee will be \$ 80.

Further information will be given in the second announcement which will be issued in March 1985. The second announcement will among other things contain the preliminary program (inclusive of plenary addresses), the final registration form and further particulars concerning travelling, accommodation and registration. Further information will be sent only to those who return the completed preliminary registration form.

SECRETARIAT

Dr. J. Szelezzán, John von Neumann Society for Computer Sciences.

Budapest, 5, P.O.B. 240, H-1368

Hungary

Telephone: International + 361 113 850

DEADLINES

Submit paper abstract by JANUARY 31, 1985

Notification of acceptance by MARCH 31, 1985



12 th IFIP PRELIMINARY REGISTRATION FORM CONFERENCE ON SYSTEM MODELLING AND OPTIMIZATION

BUDAPEST

• HUNGARY •

SEPTEMBER 2–6, 1985

I plan to contribute a paper entitled:

Abstract included

Abstract will be sent before JANUARY 31, 1985

I may attend the Conference, please send further information.

Name

Address

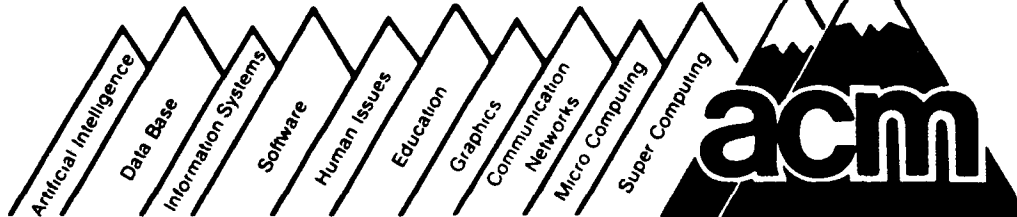
..... Country

Return to Dr. J. Szelezzán, John von Neumann Society for Computer Sciences,

Budapest 5, P.O.B 240, H-1368 HUNGARY

CALL for PARTICIPATION

85



THE RANGE of COMPUTING: MID-80's PERSPECTIVE

— 1985 ACM ANNUAL CONFERENCE —

OCTOBER 14—16

DENVER, COLORADO

The 1985 ACM Annual Conference will explore the wide range of computing technology and its impact on society. The program will focus on the 1980's—where we are and where we are going. Program emphasis will be on applications and pragmatics.

Topics of interest include, but are not limited to:

Artificial Intelligence—

expert systems, automatic programming, robotics, language processing, knowledge representation

Data Base—

data base management systems, non-textual data, data representation/compression, data integrity, encryption

Information Systems—

office automation, long-range planning, auditing, question/answer systems, decision support systems

Software—

software engineering, program verification, very high level languages, structured methodologies, operating systems, portability/compatibility

Human Issues—

programmer productivity, social issues, uses for the handicapped, employment, computer crime, man-machine interface, security

Education—

computers in education, computer education, literacy, CAI/CMI

Graphics—

CAD/CAM CAE, games, animation, mapping

Communication Networks—

teleconferencing, electronic mail, protocols, local area networks

Micro Computing—

personal computing, small business systems, mainframe interface, process control, micro management planning control security

Super Computing—

performance evaluation, array processing, simulation, architecture, super micros, numerical methods

You are invited to submit:

- an original technical paper.
- a survey paper.
- a proposal for a tutorial or panel.

Papers should be complete and include an abstract. Proposals should include specifics of purpose, subject, and participants. Papers, panels, and tutorials will be chosen for inclusion in the conference program on the basis of greatest value to conference attendees and readers of the proceedings. Submission of papers by students is encouraged. Participants need not be members of ACM.

IMPORTANT DATES

Submission of papers and proposals for panels/tutorials	February 15, 1985
Notification of acceptance	April 15, 1985
Outlines or summaries by panel and tutorial participants	May 31, 1985
Camera-ready manuscripts	June 30, 1985
(Authors will be sent special paper and instructions for preparing camera-ready copy and must sign the copyright release form.)	

Send six (6) copies of papers and proposals to:

Dr. Judith D. Schlesinger
Program Chair, ACM '85
P.O. Box 24102
Denver, Colorado 80224

For further information, contact Dr. Schlesinger at the above address or at (303) 758-2951.

FORTHCOMING EVENTS (ctd.)

Title	1985	Place	Deadlines	Further Information
IFAC Symposium Automation for Mineral Resource Development	July 9 — 11	Brisbane, AUS	—	Prof. Alban J. Lynch Julius Kruttschnitt Mineral Research Centre University of Queensland Isles Road, Indooroopilly, QLD 4068 Australia
IFAC Symposium Planning and Operation of Electric Energy Systems	July 22 — 25	Rio de Janeiro, BR	June 1, 1984	T. E. DyLiacco Consultant 651 Radford Drive Cleveland, OH 44143 USA
3rd IFAC/IFIP Symposium Computer Aided Design in Control and Engineering Systems	July 31 — Aug. 2	Copenhagen, DK	Sept. 1, 1984	Prof. P. M. Larsen Electric Power Engineering Building 325 DK 2800 Lyngby, Denmark
IFAC/IFORS Conference Control Science and Technology for Development	August 20 — 22	Beijing, PRC	Oct. 1, 1984	Prof. Yan Xiaojun Research Institute of Automation for Machine-Building Industry De Sheng Men Wai Beijing, China
2nd IMACS/IFAC/WGMA Intl. Symposium Systems Analysis and Simulation	Aug. 26 — 31 1985	Berlin GDR	abstracts: Aug. 15, 1984	Organizing Committee 2nd Intern Symposium on Systems Analysis and Simulation Central Institute of Cybernetics and Information Processes of the Academy of Sciences of the GDR P.O.B. 1298 DDR-1086 Berlin
2nd IFAC/IFIP/IFORS/IEA Conference Analysis, Design and Evaluation of Man-Machine Systems	Sept. 10 — 12	Varese, I	Sept. 15, 1984	Prof. Dr. Ing. Gunnar Johannsen Laboratory for Man-Machine Systems (FB 15) University of Kassel (GhK) P.O. Box 10 13 80, D-3500 Kassel, FRG
7th IFAC/IFIP/IMACS Symposium Digital Computer Application to Process Control	Sept. 17 — 20	Vienna, A	—	Dr. P. Kopacek O P W Z Postfach 131 1014 Vienna, Austria
4th IFAC Workshop Safety of Computer Control Systems (SAFECOMP '85)	Oct. 1 — 3 1985	Como I	not yet known	Dr. E. DeAgostino Senior Research Engineer ENEA — Dip. Reattori Termici, CRE-Casaccia Via Anguillarese 301 I-00060 Rome, Italy
IFAC/IFORS Symposium Systems Analysis Applied Water and Related Land Resources	Oct. 2 — 4	Lisbon, Portugal	Nov. 15, 1984	Prof. Luis Valadares Tavares APDIO Av. Rovisco Pais 1000 Lisbon, Portugal
IFAC Symposium Robot Control	Nov. 6 — 8	Barcelona, E	—	Secretariat of SYROCO '85 Institut de Cibernetica Diagonal, 647 E-080828 Barcelona, Spain
IFAC Workshop Automatic Control in Petroleum, Petrochemical and Desalination Industries	Nov. 18 — 20 1985	Kuwait	not yet known	Dr. Jaafar Assiri c/o Dr. Samir Kotob TED/ASD Kuwait Institute for Scientific Research P.O. Box 24885, Safat, Kuwait
IFAC Symposium Modelling and Control of Biotechnological Processes	Dec. 11 — 13	Noordwijker- hout, NL	Oct. 1, 1984	Prof. Dr. A. Johnson Lab. voor Fysische Technologie Prins Bernhardlaan G 2628 BW Delft The Netherlands

INVITATION FOR CONTRIBUTION TO SIMULETTER

If you are interested in having your or your institution's activities known by over 2000 SIGSIM members, please feel free to send any contribution to Prof. T. I. Ören at:

(until end of June 1985)

IIASA
SDS
A-2361 Laxenburg
Austria

(after June 1985)

Computer Science Dept.
University of Ottawa
Ottawa, Ont. K1N 9B4
Canada

SUGGESTIONS FOR CONTRIBUTIONS

- Articles
- Technical notes
- Letters to Chairman/Editor
- Technical reports
- Books (review copies or reviews)
- Proceedings (review copies or reviews)
- Conferences (announcements or post-conference write-ups)
- Simulation software (microcomputer software or write-ups)
- Films/videos on simulation
- Dissertations
- Theses
- Simulation associations (aims & overall activities, meetings, publications)
- Simulation periodicals (copies or tables of contents)
- Problems
 - for academic use
 - for benchmarking