

COMPUTER ENGINEERING DIVISION



SEPTEMBER 1982

EDITOR: R. ARVIKAR



DR. EUGENE HULBERT
Chairman, 1981-82

CHAIRMAN'S MESSAGE/REPORT

The second year of our history saw a continuation of the growth in depth and breadth of our activities. It is the primary goal of the CED to identify the computer engineering needs of ASME and to initiate means of communicating to our members all of the developments in this exploding technology. The pursuit of this goal, some of the objectives of the division were presented in our 1981 newsletter. These deserve to be repeated:

- Foreseeing, identifying, and stimulating computer technology applications in mechanical engineering
- Communicating to the ASME membership at large — industrial and academic — the recent developments in computing systems, techniques, and applications
- Providing the necessary vehicles for the exchange of ideas and experiences in the computer field
- Defining needs relating to computer technology
- Developing mechanisms for interaction with the computer industry — including panels, special publications, workshops, short courses, telecommunications, poster presentations, displays
- Informing the membership of new developments in software verification standards, etc.
- Insuring an effective exchange and cooperation on computer technology between ASME's technical division.

As a technical division, and in support of these goals, the Computer Engineering Division is actively organizing technical meetings. Following the International Computer Engineering Conference chaired by Ali Seireg and held in San Francisco as part of the ASME Century 2 Conferences in August, 1980, the CED Technical Conference was held on September 27-30, 1981, in Minneapolis, Minnesota under the chairmanship of Jim Callahan. Although this conference was planned with less than a year's lead time it was both a technical and financial success. The Second International Computer Engineering Conference and Exhibit was held in San Diego on August 15-19, 1982, had a significantly expanded technical session format and included an exhibit for the first time. This conference was organized under the leadership of co-chairmen Irwin Berman and G.D. Gupta, technical program chairman R. Raghavan, and exhibits chairman Jim Callahan.

Planning is underway for the 1983 International Computers

in Engineering Conference and Exhibit to be held in Chicago, Illinois on August 7-11, 1983.

One of the exciting new directions that our division is pursuing in support of our objectives is the creation of a new journal, "Computers in Mechanical Engineering" (CIME). This journal is the brainchild of Ali Seireg who has shepherded it through all the gates from the initial idea to its successful start up. This effort will certainly pay off in helping engineers understand computer applications to their daily practice of engineering on a very practical level. If you haven't subscribed to this journal, I urge you to do so!

The present and future success of the Computer Engineering Division is the direct result of the vision and enthusiasm of many engineers. In addition to the enormous contributions of the individuals cited above, the work done by the members of the executive committee and the operating technical committees has been vital in the functioning of the division. The organizational structure of the division for the year 82-83 is shown on the last page of this newsletter. To all of these individuals, my thanks for all of this work. For me it has been an exciting and challenging year.

I do believe that the best is yet to come. The CED must and will grow to respond to the impact of the new revolution. If you haven't yet joined the division, you are certainly invited to do so. We need your help. Fill in the form on the last page and mail it to ASME headquarters to register your interest in our division.

L. Eugene Hulbert



DR. EWALD HEER
Chairman, 1982-1983

Dr. Heer has been an active member of ASME for more than 15 years. He has served as chairman of the Technical Committee for Robotics and Manipulators, and was on the Executive Committee of the Computer Engineering Division since its formation. Dr. Heer organized and chaired two international conferences on remotely manned systems: in 1972 at the California Institute of Technology, and in 1975 at the University of Southern California. He also organized the NASA Study Group on Machine Intelligence and Robotics in 1977, and is involved in numerous professional committees related to computer science and robotics. In addition to publishing numerous articles, he edits "Robotics and Man-Machine Systems" of **Mechanism and Machine Theory**, and has received several NASA awards and recognitions for the development of new technology.

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Dr. Heer received an Engineer Degree from the School of Architectural Engineering in Hamburg, Germany, in 1953; a B.S. in Physics from the City University of New York in 1959; a M.S. in 1960; and Professional Degree in 1962 in Engineering Mechanics from Columbia University; and a Dr. Eng. Sc. from the Technical University, Hannover, Germany, in 1964. He worked in industry and conducted and managed research and advanced development projects at McDonnell Douglas and General Electric's Space Science Laboratory before joining the Jet Propulsion Laboratory in 1966, where he is R&D Manager for Autonomous Systems and Space Mechanics.

Dr. Heer is also Adjunct Professor of Industrial and Systems Engineering at the University of Southern California, teaching operations research, planning, and decision theory.

Because of the pervading aspects of computers, existing ties to other technical divisions should be strengthened and new ones should be made. In particular, special efforts will be made to join hands with the Design Engineering Division and the Dynamic Systems and Control Division in several areas of common interest. Joint programs will be pursued in the 1983 RAMP short course program in robotics, CAD/CAM, microprocessors, finite difference/finite element techniques.

Outside ASME, the CED is now organizing and contributing to the Engineering Foundation sponsored Conference on **Advanced Automation** to be held at the Miramar Hotel, Santa Barbara, in January 16-21, 1983. For any additional information regarding this Conference, please contact me.

Without any doubt, computers will strongly impact productivity and re-industrialization. We, as mechanical engineers, are perhaps the widest user of computers in all its manifestations in our work. We have the opportunity and the responsibility to help ASME cope with this revolution, and we need all the help you can give us. If you are interested to join a specific committee in CED, or if you have comments on our activities, please let us know. In any case, we hope that you will participate in the work of the Computer Engineering Division.

INCOMING CHAIRMAN'S POLICY STATEMENT

This will be the third year for the Computer Engineering Division (CED). It is a privilege and an honor to assume the chairmanship of an organization that has been well structured and broadly based thanks to my two predecessors and those many members of the Division that have taken an active role in its activities. As a result, the Computer Engineering Division is now the fastest growing division within ASME.

Computers are a dynamic, and rapidly evolving area and are pervading almost every engineering activity. It is, therefore, important that technical communication and information exchanges within CED with other divisions and throughout ASME occur in a timely manner relating to the newest ideas and developments in the field. This is to a large degree accomplished through the technical committees of the Computer Engineering Division (an organization structure is shown in this Newsletter). Anyone interested should contact the respective committee chairman or attend their meetings which are usually held in connection with one of the Computer Engineering Conferences. For an overview of the entire scope of the Division's activity, one should attend a meeting of the General Committee which is held each Summer at the CED sponsored International Computer Engineering Conference. Starting with this year, the General Committee will attempt to conduct its business between the annual meetings through periodic teleconferencing.

The technical committees direct their work primarily to two types of services for the membership: the organization of conferences, and the publication of technical papers. In addition, they contribute to the review process of contributions to the newly launched journal of Computers in Mechanical Engineering (CIME). This hybrid journal includes timely news items, program abstract, and transaction papers of lasting interest. The first edition will appear in August, 1982. It is expected that this journal will be the most important part of the Division's publishing activities. It is therefore especially deserving of membership support. Those interested to contribute publication material should contact the Editor in Chief, Professor Ali Seireg, or one of the associate editors listed in the journal.

In addition to sponsoring the International Computer Engineering Conference and Exhibit, with participation from around the world, each summer, the Division also sponsors various regional and special conferences, and participates in the ASME Winter Annual Meeting and in conferences sponsored by other divisions. Presently scheduled International Computer Engineering Conferences will be held in Chicago, August 7-11, 1983, and in Las Vegas, August 12-16, 1984.

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CED "COMPUTER JOURNAL" UNVEILED AT SAN DIEGO

The ASME hybrid journal *Computers in Mechanical Engineering (CIME)* started publication in August, 1982. The Journal will be published quarterly by the Computer Engineering Division with the first issue being introduced at the Computer Engineering Conference in San Diego, August 15-19, 1982. This will be the first major magazine on the applications of computer-aided design, manufacturing, measurement and control in Mechanical Engineering. Subscription applications and descriptive information can be obtained by writing to:

CIME, Dept. MR, P.O. Box 2297, Grand Central Station, NY 10163

CIME will be edited by Ali Seireg, Professor of Mechanical Engineering at the University of Wisconsin-Madison, who currently also serves as the VP, Systems and Design Technical Group. He is a past chairman of the Design Engineering Division and the first chairman of the Computer Engineering Division when it was founded in 1979. The following is an excerpt from the editorial that appeared in the first issue of CIME.

... "This publication is dedicated to serving the computer information needs of the mechanical engineers in an era where microelectronics is having a profound impact on their work. The major thrust is on fast communication, of world-wide developments in the automation field. Our intention is to keep close watch on what is the state of the art, what are the needs and what are the issues in an effort to help close the ever widening information gap in this vital field.

Computer technology and computer information are growing faster than any individual can assimilate or evaluate them. There is an explosive growth of interactive and personal computing which is drastically altering the environment in the engineer's work place. Microprocessors are beginning to provide a basis for new concepts of the design of machinery. Robotics developments are changing the face of manufacturing. Our expectation is that this publication will address both the technical and human aspects involved in use of these technologies in the entire spectrum of mechanical engineering.

Because of the diversity of the coverage, both in scope and depth, we hope to start a dialogue between the developer of technology and its user. A reader's Forum will publish requests for specific information, hardware or software needs. This activity will be closely monitored in order to help the uninitiated see the way to get started and to provide means by which needs and technology are better matched. We will also welcome short reports on successful as well as unsatisfactory experiences in order for others to benefit or to be alerted to possible pitfalls.

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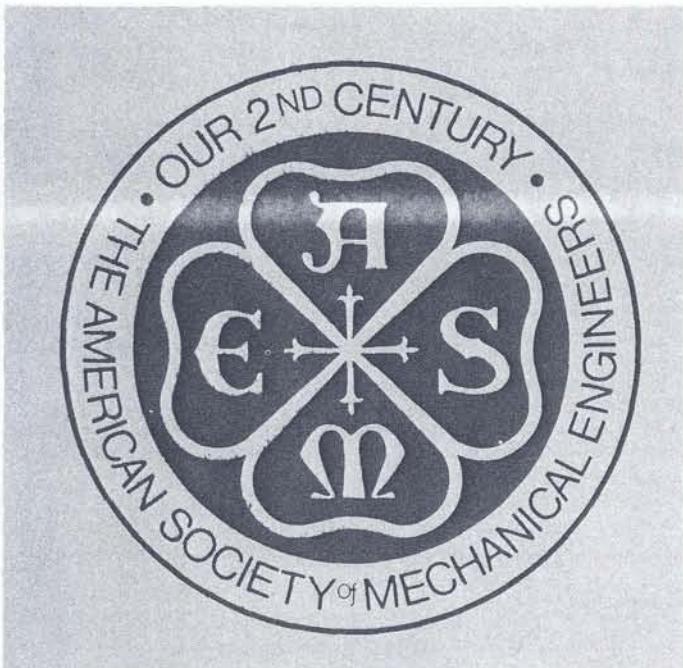
Software development and man-machine communication may be the most important problems in the coming decade. This magazine will place considerable emphasis on publishing short summaries of software for different computing machines from the large mainframe to the pocket computer. The intention is to minimize duplication of efforts in software development and to stimulate the formation of lines of communication between "user's groups" with similar interest. Special international editors will help select and coordinate technical contributions, feature articles and interesting developments from their countries.

A student section will be included to encourage reports from individuals and groups on noteworthy contributions in their use of different types of computers and microelectronic devices.

Although the magazine's emphasis will be on practical application and information transfer, each issue will also carry a special supplement on current theoretical and applied research of long range interest.

This is intended to be a dynamic publication responsive to the reader's input. You, the reader, will be our most important asset. If you are a researcher, a producer of computer technology, an engineering manager, a practicing engineer, an educator or a student, we hope that you will find in this publication some answers to your needs and a stimulus to your interest. We are also counting on your technical contributions, your questions, and your advice for continuous improvement."

Ali Seireg
Technical Editor



The CED Newsletter is published annually prior to the Winter Annual Meeting. News items of interest may be submitted to R. Arvikar, Bell Laboratories (2A-11), 1660 Osgood Street, North Andover, MA 01845 (617-681-6188) for publication.

CALL FOR PAPERS

1983 International Computers In Engineering Conference and Exhibit

August 7-11, 1983

Chicago Marriott Hotel
North Michigan Avenue
Chicago, Illinois

The Computer Engineering Division of the American Society of Mechanical Engineers announces the 1983 International Computer Engineering Conference and Exhibit at the Chicago Marriott hotel in downtown Chicago August 7-11, 1983. Up to 60 panel and paper sessions covering the spectrum of applications of computers to the engineering world are planned. A computer exhibit will be conducted in conjunction with this conference in the exhibit hall of the Marriott hotel.

An opening plenary session is being planned which will address head on what the future world of mechanical engineering may look like in the post industrial age.

Technical sessions will include but will not be limited to the following areas:

- Computer aided design
- Finite element techniques
- Computer in automotive industry
- Interactive graphics
- Computer-aided manufacturing
- Computers in education
- Computers in energy systems
- Computer standards
- Computer perception
- Data base management
- Computer network
- Computer simulation
- Computer system-hardware/software
- Computers in work place
- Software engineering
- Management information systems
- Microprocessors
- Process control
- Robots and Manipulators
- Personal computing
- Desktop business machines
- Statistical modeling and reliability techniques
- Human machine interface
- Computers in developing countries.

Contributions in the form of a full length paper or an extended abstract summarizing research findings, experiences, and problem areas by the participants are solicited. All accepted contributions will be published in a bound volume. Archival type papers will also be reviewed after presentation for possible publication in CIME.

All contributors should submit an ABSTRACT directly to the appropriate Associate Program Chairman in the general areas listed below:

- Computers in Education
T.E. Shoup, Ph.D.
Texas A&M University
204 Zachry Engineering Center
College Station, TX 77843
(713) 749-4459
- Robotics and Automation
Ewald Heer, Ph.D.
Jet Propulsion Laboratories
4800 Oak Grove Drive
Pasadena, CA 91103
(213) 345-3060
- Computer-Aided Design, Manufacturing & Analysis
James Cokonis
General Electric Company
1285 Boston Ave., Mail Code 31EW
Bridgeport, CT 06602
(203) 382-3982

- Engineering Software and Applications
David Dietrich, Ph.D
Swanson Analysis Systems, Inc.
P.O. Box 65
Houston, PA 15342
(412) 746-3304
- Engineering Computer Hardware
R. Arvikar, Ph.D
Bell Laboratories
Lab 321
North Andover, MA 01845
(617) 681-6811

For contributions in areas other than those listed above, contact the Conference Program Chairman:

Dr. V. Tipnis
Tipnis Associates
P.O. Box 42001
Cincinnati, OH 45242
(513) 791-3805

All abstracts must be submitted by October 31, 1982. Three copies of the finished contributions (papers or extended abstracts) should be received no later than January 15, 1983.

1984 INTERNATIONAL COMPUTERS IN ENGINEERING CONFERENCE & EXHIBIT

The 1984 International Computers in Engineering Conference & Exhibit is being planned to be held in Las Vegas, Nevada during August 12-16, 1984 at the Las Vegas Hilton. Following on the heels of the 1984 Olympics in Los Angeles, the conference is expected to draw substantial international participation. It also presents a unique opportunity to mix pleasure with business as the Olympics are being held in the U.S. after a lapse of fifty-two years. A number of technical sessions covering the wide spectrum of Computer Engineering applications along with mini-courses/workshops and computer exhibits are being planned. Trips to the local industries, sightseeing tours of the local famed Las Vegas attractions, student activities will also be featured. If you need additional information, please contact the conference chairman:

Dr. Ewald Heer
Jet Propulsion Laboratories
4800 Oak Grove Drive
Pasadena, Calif. 91103
Tel. (213) 354-3060

COMPUTER ENGINEERING DIVISION

(Founded in 1979)

1982-1983

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(414) 224-7278

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MR. WILLIAM LIVINGSTON
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2 World Trade Center
Eightieth Floor
New York, NY 10048
(212) 839-4017

Computer Systems, Hardware/Software:

DR. H. P. RICHTER
Bechtel Group
Post Office Box 3965
San Francisco, CA 94119
(415) 768-4606

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Programmable Calculators:
DR. W. FAGERSTROM
Senior Engineer
E.I. DuPont
13 E. Louviers Building
Newark, DE 19811
(302) 366-3377

Desktop Personal Computers:

DR. DANIEL B. GOETSCHEL
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Finite Element Techniques:

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Manager, Research Center Section
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(617) 543-8750, Ext. 2038

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1285 Boston Avenue
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Bridgeport, CT 06602
(203) 362-3982

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General Motors
Manufacturing Development
General Motors Technical Center
Warren, MI 48090
(313) 575-0843

Microprocessors:

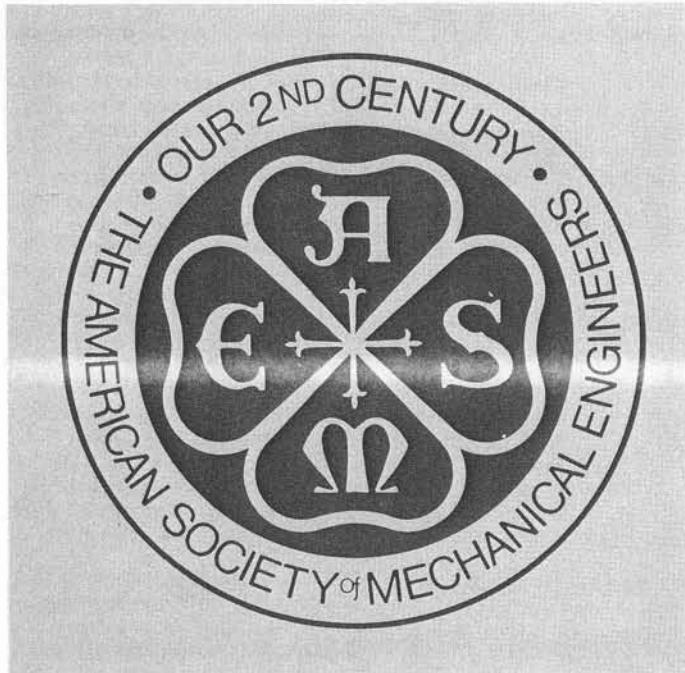
DR. WILLIAM DORNFELD
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(203) 325-2211

1982
SEPTEMBER



THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
345 EAST 47TH STREET
NEW YORK, NEW YORK 10017

DIVISION ENGINEERING COMPUTER



To Change Your Technical Division

Technical Division Interests: Please use the "Key Numbers" shown to the left of each Technical Division name and indicate your interests in the boxes below. Full Members and Executive Affiliates may register their interests in up to five. Associate Members and Affiliates may register in up to three. If you prefer to change your *current* choice of technical interests, follow instructions as outlined and mail this form to the address given below. (Your current membership card indicates *your* division interests at date of issuance.)

108	*	110	*	112	*	114	*	116	*	162	*
Primary	2nd	3rd	4th	5th	T/C						

Mail to: ASME, Data Processing Dept.
345 E. 47th St., New York, N.Y. 10017

Print Name	
M	*
Member Number	
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02 Applied Mechanics	17 Nuclear Engineering
03 Management	18 Rail Transportation
04 Materials Handling	19 Power
Engineering	20 Textile Industries
05 Diesel & Gas Engine Power	21 Plant Engineering & Maintenance
06 Fuels	22 Gas Turbine
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10 Materials	26 Ocean Engineering
11 Heat Transfer	27 Energetics
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13 Production Engineering	29 Solid Waste Processing
14 Design Engineering	30 Solar Energy
15 Lubrication	NEW—31 Computer Engineering—NEW