



CIE

Computers and Information in Engineering Division Newsletter

Ahmed A. Busnaina, Editor

Spring 1997

Message From the Division Chair

CIE Division 2nd Largest in the Systems & Design Group



Ahmed A. Busnaina

The Systems and Design Technical (SDT) Group has the largest primary membership of all divisions, with 18% of all ASME membership. The bar chart on the right shows the growth of the division over the last sixteen years. The total membership (including secondary and other memberships) is steadily growing but the primary membership growth has been flat for the last five years. Our division is trying to increase the secondary and other membership participation through more interaction among the members.

SDT Group and CIE Division Makeup

The bulk of the membership of the SDT Group and the CIE Division committees comes from academia. Most of the conference participants and attendees are also from academia. This has been the trend for the last few years. The CIE Division is taking steps to increase participation from

industry. Our annual conference represents the best vehicle for establishing this goal. I invite all the members of the SDT and CIE from industry to increase their participation. I also invite them to suggest, based on their experience, the best approach to attract more members from industry and have them contribute to the division activities. To expand and maintain steady industrial membership growth, I believe that the CIE division and the SDT group have to make attending the conference more cost-effective for the industrial members. One approach is to increase tutorials and panel sessions that address new or current technologies (software and hardware) that are of immediate need and interest to the industry. This will make it easier for the members to justify the expense of attending the conference to their management. Tutorials should also be conducted during the week to appeal to industry. Industrial members' suggestions regarding location and date for the conference are always welcome. For

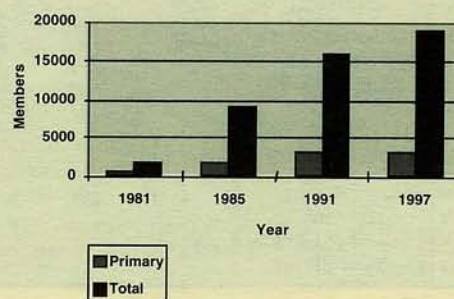
example, we need feed back on questions such as whether having the conference at a major city is essential and should the conference be held in the summer or early fall? The executive committee would appreciate hearing from all members regarding how industrial participation can be expanded. There will be a panel discussion during the 1997 CIE meeting to address these issues.

To generate more interest among members from industry, new technical programs within the division are being initiated and tailored to meet the current needs in the industry. This is reflected in this year's program summary and the 1998 call for papers in this newsletter. All interested members and nonmembers of the division are encouraged to propose to the executive committees any new technical areas that would meet the above criteria. The division is always looking for members, specially from industry, to propose and organize new technical areas.

Currently, the consolidation of the Engineering Information Management Program with the CIE Division is in the advanced stages of being formed. The joining of the EIM Program with the CIE division will help promote our common goals and interests more efficiently. The decision to consolidate was mutual.

Another important issue that I would like to share with you is the change in the current name of the division. A new name that complements and reflects more accurately the current technical areas and activities of the division has been adopted. The new name, Computers and Information in Engineering (CIE), would

CIE Division Membership



allow the division to keep the current acronym and, more importantly, bring the engineering information management program to a more prominent position within the division. The formal change in the name is now being finalized.

Interest in participating in the CIE division activities should be directed to the division chair, vice chair, any member of the executive committee or technical committee chair. All the executive committee members and technical committee chairs' addresses and telephone numbers are listed in this newsletter.

CIE Upcoming Conferences

1997 Seventeenth ASME International Computers in Engineering Conference (held in conjunction with the) Design Engineering Technical Conference, Hyatt Regency, Sacramento, CA, September 14-17, 1997.

Conference Chair

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The 1997 CIE conference is planning 30 sessions including two tutorials. An entertaining luncheon presentation is planned. Robert Peterson, a mechanical engineer with Pixar Animation Studios in Richmond, California, who was responsible for the graphics and animation in the Disney movies "Toy Story", will be our luncheon speaker.

In addition, the 1997 Computers in Engineering Conference showcases developments in computer hardware and software that support the engineering enterprise. Technical areas include: CAD/CAM/CAE/CIM, concurrent engineering, feature-based design and manufacturing, AI in engineering, virtual environments for product development, rapid prototyping and manufacturing, finite element methods, computational fluid dynamics, engineering analysis, simulation, graphical user interfaces and multimedia, engineering information management, and computers in engineering education.

Additionally, the 1997 Design Engineering Technical Conferences will include a joint symposium track co-sponsored by CIE, Design Automation Committee, and Design for Manufactur-

ability, on topics such as: internet-aided design, manufacturing and commerce, internet-based CAD/CAM/CAE, monitoring and control applications; representation schemes and data models; rapid modeling, analysis and decision-making methodologies; system and user-interfaces (WWW, Java, VR, etc.); system integration issues for collaborative design, manufacturing and new product development; New paradigms for customer-vendor interaction; implications on supply chain operations (e.g., outsourcing, vendor selection, RFQ processing and bidding, order entry, etc.)

In addition, the CIE and Design conferences have their own World Wide Web site, where information for the authors and attendees is available. The Web site address for the 1997 Design and CIE conference is <http://www.detc.engr.ucdavis.edu/detc97>.

1995 & 1996 CIE Conferences Reports

Reports are prepared by the technical program chair of each conference.

1995 Fifteenth ASME International Computers in Engineering (CIE) Conference, Boston, MA

The 1995 fifteenth CIE conference was held at the Hynes Convention Center in Boston. The conference chair was Gary Gabriele and the technical program chair was Ahmed Busnaina. The conference's theme was engineering software for the 21st century. The conference was held in conjunction with the ASME 1995 Design Technical Conference, which was celebrating the 50th anniversary of the Design Engineering Division. Holding the CIE conference in conjunction with the Design Technical Conference was adopted by the CIE Division in 1984 when the conferences were held jointly for the first time. This allowed the two conferences to share expenses and make it easier for

members of both divisions to participate in both conferences. The conference attendance increased compared to the last three years. The conference program committee organized 27 sessions, tutorials and panels. The sessions included contributions of 116 papers. The keynote address entitled "CFD: Past, Present and Future," was given by Dr. Michael Engelman, President of Fluid Dynamics International. He gave a very informative background about how computational fluid dynamics (CFD) started thirty years ago and how it made its giant strides to the present where it is widely used by researchers and industry alike. He also talked about his vision for the future of computational fluid dynamics in the 21st century. He suggested that the CFD potential is still largely untapped. He pointed out that the key to realizing this is moving CFD from the desk of the analyst to the desk of the design engineer. Copies of the keynote address slides are available upon request from the division chair.

The conference organized two informative panels on: *Virtual Reality for Engineering Applications-Hype versus Reality*; and *Feature-based Design and Manufacturing: Industry Perspective*. In addition the conference organized two tutorials: *Finite Element Applications: Practical Modeling and Analyses*; and *CFD on Personal Computers*.

1996 Sixteenth ASME International Computers in Engineering (CIE) Conference, Irvine, CA

The 1996 sixteenth CIE conference was held at the University of California, Irvine Campus. The conference chair was Fatih Kinoglu and the technical program chair was Yong Se Kim. The conference was held in conjunction with the ASME 1996 Design Technical Conference. The conference program committee organized 24 sessions, tutorials and panels including contributions of 86

CIE Executive Committee

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Incoming Member

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papers. The keynote address, entitled "Automotive Information Integrated Engineering," was given by Bill Powers of Ford Motor Company. His talk illustrated the application and integration of emerging information technologies to the total automotive business, utilizing the typical automotive business time line. The conference luncheon speech was given by Ms. Susan Bonds of Walt Disney Imagineering. The exciting talk demonstrated how engineering and innovation can be combined to generate fun and suspense at Disney.

The conference organized two informative panels on: *CAE in the Age of the Internet*; and *Visual Environments in Engineering: Roadblocks and Technical Issues*.

The AI (Artificial Intelligence)/Feature-based Design and Manufacturing technical area had 23 papers and 4 panels on: object-oriented feature modeling, assembly features and systems, feature recognition, feature-based process planning, geometric reasoning for manufacturing, knowledge-based and non-traditional computing systems, computer-integrated industrial design, and computer-aided engineering in the age of the internet.

The CAD/CAM/CIM area had 7 papers on: geometric modeling and analysis; and on computer-aided engineering and concurrent engineering. The Computers in Engineering Education Committee had two sessions on: CAD in higher education; and on PC-based data acquisition in classroom with 10 papers.

The FEM and Computational Mechanics area had 20 papers in 5 sessions on: innovative application of finite element analysis, recent developments in shell and solid finite elements, new advances in computational solid mechanics, and topics in computational mechanics. The Fluid Mechanics and Energy Systems Committee presented 12 papers in sessions on: modeling of fires, combustion and particulate, flow and heat transfer simulation, numerical analysis and flowfield simulation.

The Simulation and Fuzzy Logic area presented five papers; the Virtual Systems and Environments area had two papers on: virtual prototyping systems; and on virtual environments for design and manufacturing with 3 papers each, and a panel session on: virtual environments in engineering; roadblocks and technical issues.

The 1996 conference also marked a new milestone, where all the conference proceedings (consisting of eight thick volumes) were put on a CD-ROM. This allowed the authors to expand the size of papers from six to twelve pages as well as the inclusion of color figures and photographs. This also allowed every attendee to obtain all volumes at a fraction of the price of past conference proceedings. Along with the CD-ROM, a book of extended abstracts was also provided for all registered attendees. In addition, the CIE and Design conferences had their own World Wide Web site where information for the authors and attendees was available. This trend will continue for all future CIE and Design conferences.

To Earn \$\$\$ for You and Your Section

When you ask a colleague to join ASME, you not only help your Society get stronger, you earn prizes for yourself and your Section.

New members strengthen ASME to provide new and expanded programs for all members. The ideas and vitality that new members bring will enhance local activities and expand our global network for peers helping each other.

Recruiting is easier than you think . . . Many of our sponsors find that their friends and colleagues are glad to be approached and are surprised to learn about the variety of benefits offered by ASME. For example access to group rate insurance, employment assistance, and discounts on technical publications and short courses. Many members have said that the savings on personal and professional benefits more than pay their dues.

Active MGAM sponsor, Gary Krishnan says "typically I recruit new members at work. I talk to them about the benefits of membership and what THEY will get out of being a member of ASME. Not only am I giving something back to my professional society, I'm helping my colleagues advance in their careers. I keep a few applications around all the time. You never know when you might meet a potential member."

If you get involved, you will be rewarded for your efforts. Every ASME member who participates will receive five MGAM dollars for each dues-paid member enrolled. MGAM dollars, which are

valid for one year, can be applied toward membership dues, ASME conference and short-course registration fees, publications, and other ASME products. The top recruiter will win \$500 cash and two runners-up will win \$300 and \$100.

Your Section/Chapter will win too. Besides increased local participation, the section/chapter will receive \$5 cash for each dues-paid recruit you enroll. Plus, a \$500 cash bonus will be awarded to the overall top growing Section/Chapter and Technical Division.

The drive ends June 30, 1997. It's not too late to sponsor a new member! To receive applications for recruiting new members, contact Julia Crislip, Manager, Membership Development, Tel: (212) 705-7742, Fax: (212) 705-7437, or E-mail: crislipj@asme.org

Did You Know?

The Technical Interest Profile, an ASME survey of 60,000 members (excluding student members), indicated that the Computer In Engineering was ranked twice in the top five technical interest categories (second and fifth). There have been 55,901 domestic and 4,099 international members surveyed to date. The Top Five Technical Interest Categories overall were:

Note: Categories are listed by their: (Survey Interest Category); (Related Technical Division); (Percentage of Responses per Interest Areas)

1. Project & Program Management; (MANAGEMENT); (19.4%)
2. Computer-Aided Design, Engineering, & Manufacturing; (COMPUTERS IN ENGINEERING); (19.0%)
3. Cogeneration & Small Power Producers; (POWER); (14.3%)
4. Quality; (MANAGEMENT); (13.1%)
5. Finite Elements & Analysis Software; (COMPUTERS IN ENGINEERING); (13.0%)

The total number of members who have responded, to date, is 13,916 (23.2%).

Congratulations to New CIE ASME Fellows

Ahmed A. Busnaina has recently been promoted to the grade of ASME Fellow. Ahmed has been very active in research and education since 1979. He is a professor of mechanical engineering and director of the Microcontamination Research Laboratory at Clarkson University. He joined Clarkson University in 1984. He currently serves as the CIE division chair and the 1997 CIE conference chair.

1997 International Mechanical Engineering Congress & Exhibition November 16-21, 1997, Wyndham Anatole, Dallas, Texas

The 1997 ASME "Congress" will be back in Dallas, Texas this November. This year will feature over 300 sessions, panels, and speakers. There will also be a large exhibition, along with all the tutorials, short courses, banquets, award presentations, and important committee meetings that go towards making the Congress the "Must Attend" ASME event of the year. Check with ASME Meetings and Technical Affairs staff for meetings you may want or need to attend, plus all the myriad details for participating in this annual event.

CALL FOR PAPERS

1998 Eighteenth ASME International Computers in Engineering Conference to be held in conjunction with the Design Engineering Technical Conference, Atlanta, GA, September 20 - 23, 1998

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The Computers in Engineering Conference showcases developments in computer hardware and software that support the engineering enterprise. Papers are solicited for presentation and discussion on:

CAD/CAM/CAE/CIM, concurrent engineering, feature-based design and manufacturing, AI in engineering, virtual environments for product development, rapid prototyping and manufacturing, finite element methods, computational fluid dynamics, engineering analysis, simulation, graphical user interfaces and multimedia, engineering information management, and computers in engineering education.

Joint symposiums co-sponsored by CIE, DAC, and DFM will cover topics in the areas of: internet-aided design, manufacturing and commerce, internet-based CAD/CAM/CAE, monitoring and control applications; representation schemes and data models; rapid modeling, analysis and decision-making methodologies; system and user-interfaces (WWW, Java, VR, etc.); system integration issues for collaborative design, manufacturing and new product development; new paradigms for customer-vendor interaction; implications on supply chain operations (e.g., outsourcing, vendor selection, RFQ processing and bidding, order entry, etc.)

Send papers on **feature-based design and manufacturing, process and production planning, intelligent design environments, knowledge-based systems, and AI in engineering** to:

Dr. David Rosen
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david.rosen@me.gatech.edu

Send papers on **virtual environments for engineering, virtual reality applications, virtual manufacturing process models, product models for virtual environments, and virtual prototyping** to:

Dr. S. Jayaram
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201 Sloan Hall
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jayaram@mme.wsu.edu

Send papers on **computer-aided engineering, CAD/CAM/CIM, concurrent engineering, and geometric modeling** to:

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(512) 471-3030, Fax (512) 471-7682,
rhc@mail.utexas.edu

Send papers on **computers in energy systems, computational fluid mechanics, computational heat transfer, energy, thermofluids and environment, modeling of waste thermal destruction systems, and pollution** to:

Dr. Ashwani K. Gupta
Dept. of Mechanical Engineering
University of Maryland
College Park, MD 20742 USA
(301) 405-5276, Fax (301) 31409477,
akgupta@eng.umd.edu

Send papers on **finite element techniques and computational mechanics** to:

Dr. Kamyar Haghighi
Dept. of Agricultural and Biological Engineering
Purdue University
West Lafayette, IN 47907-1146 USA
(317) 494-1182, Fax (317) 496-1115,
haghighi@ecn.purdue.edu

Send papers on **computers in the classroom, CAD and robotics in higher education, mechatronics and data acquisition, and software tools in the classroom** to:

Dr. Mohammad Khosrowjerdi
Dept. of Mechanical Engineering
Western New England College
Springfield, MA 01119 USA
(413) 782-1337, Fax (413) 782-1746, mkhosrow@wnecc.edu

Send papers on **non-traditional computing and simulation, fuzzy logic in control, fuzzy sets and systems, and artificial neural networks** to:

Dr. Dean B. Edwards
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Moscow, ID 83843 USA
(280) 883-5531, Fax (208) 885-9031,
dedwards@uidaho.edu

Send papers on **topics in the area of internet-aided design, manufacturing and commerce** to:

Dr. Raj Veeramani
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The conference technical committee is soliciting interest in a new technical area for the CIE Conference on embedded and ubiquitous computing. This Area is intended to address engineering issues that arise as computing becomes pervasive (e.g. embedded processors) and opportunities for generating, manipulating, and visualizing information from numerous sources become available (ubiquitous).

Disciplines involved include mechanical and electronic engineering and computer science. Topics covered range from condition-based monitoring for reliability prediction to design strategies for networks of smart appliances. Please contact Dr. David Rosen, the 1998 CIE Technical Program Chair, if you are interested in participating in this new area.

Small Business Forum: Where Technology Meets Business

The Small Business Committee of the Management Division will be holding a Small Business Forum in September of 1997 which will be jointly sponsored by the Stanford University Engineering and Business Schools. Join us on campus at Stanford University and listen to prominent executives share their experiences on issues impacting technology based businesses.

Learn how to integrate your engineering skills and your business acumen to successfully grow a technology based business. Participate in interactive discus-

sions with a panel of experienced entrepreneurs and experts covering all aspects of small business from marketing to technology implementation, to management and legal issues. This forum is designed to provide a unique networking and information exchange for the small business owner, the employee, and the new entrepreneur. Don't miss this opportunity to get feedback and advice from the entrepreneur panel and session speakers.

For more information on the upcoming event contact Gloria Guerra at 212-705-7055; fax 212-705-7671; email guerrag@asme.org.

LIABILITY INSURANCE AVAILABLE

An important member benefit is available. ASME has developed a professional liability insurance program geared specifically toward self-employed engineers and small engineering firms.

The program is underwritten by one of the Reliance Insurance Companies and is being administered by Kirke Van Orsdel, Inc.

Coverage is subject to plan approval in your state or country.

If you are interested in obtaining more information, you may call KVI at 1-800-435-7931 or 1-800-THE-ASME.