

Computers and information in Engineering Division Newsletter

Simon Szykman, Editor

Spring 2002

Greetings from the Division Chair



Professor David Rosen

On behalf of the CIE Executive Committee, I would like to thank all of you, the CIE members, for your support of, and interest in, the Division. The CIE Division continues in its active role as an advocate of computing and information technology in mechanical engineering. Our vision is to provide a forum for enhancing the practice of engineering by understanding the application of emerging technologies that impact critical engineering issues of representation, product design and product development, exchange,

management and integration of information throughout the entire engineering product and process life-cycle. We will accomplish this by the generation and dissemination of emerging technology and knowledge that will enhance the integration of Mechanical Engineering, Software Engineering, and Computer Engineering.

I am very pleased to continue the good work of my predecessors, Rich Crawford and Yong Se Kim, as Chair of the CIE Division. Our membership is stable, our activities are exciting and dynamic, and our finances are in order. Our new journal, JCISE, is finishing its first year with an incredible set of high quality papers. Thanks to Jami Shah for leading our journal.

Nonetheless, we can always improve. This year I want to focus on improving the Division's operations for our primary activity, the CIE Conference. Improving and standardizing the operations of Technical Committees across the Division may not be the most exciting thing in the world, but it provides a solid foundation for building the Division's activities into the future. From here, we will develop Division assessment and improvement programs to evaluate how well we are doing, then identify specific new programs to improve our value to you, our members.

As most of you know, each year our primary event, the Computers and Information in Engineering Conference is held in September, in conjunction with the Design Technical Conferences (DETC). We look forward to an exciting and productive

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Editor's Corner:

Are you Currently not a Member of CIE?

Consider this an introduction! The CIE division is interested in strengthening ties with the various communities within ASME's divisions, as well as individual ASME members whose work or professional interests span the domains of mechanical engineering and information technology. As a result, a notice regarding this newsletter is being sent out to members of several ASME divisions who have not listed Computers and Information in Engineering as their primary or secondary division/technical area of interest.

Perhaps you think of "CIE" as the old Computers in Engineering Division and think that computers alone are too ubiquitous to form a meaningful basis for a technical division. If this is the case, you've missed the division's reinventing itself into one that focuses on information technology (IT) in engineering. Or perhaps it's been some time since you first specified your ASME technical areas of interest, at a point when the state of the profession or your work was different from what it is now.

In any event, the engineering world has changed dramatically over the past few years, and the CIE Division is working to evolve in response to a changing world. We'd like to extend an invitation to other ASME members to come and join the CIE

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Get Involved with CIE

Here are some activities through which you can get involved in the CIE Division:

- Submit a paper, or just attend the Computers and Information in Engineering Conference, held annually in conjunction with the Design Engineering Technical Conferences.
- Participation is not limited to active researchers—members also come to give or attend tutorials, or to serve on special panel sessions (many of which are industry panels). Volunteer session organizers are always welcome.
- Join one of CIE's Technical or Standing Committees (see list at bottom of page)
- Contribute to CIE's presence at the International Mechanical Engineering Congress and Exposition by organizing a panel session or participating in a technical track
- Subscribe to the ASME Journal of Computing and Information Science in Engineering (JCISE), and learn more about the latest research in your field.
- Contribute to JCISE; the journal has an applied flavor to it, and welcomes application papers, technical briefs, as well as software and book reviews.
- Organize an event (meeting, tour, technical exchange) for your local ASME chapter.

These are just a few ideas; we welcome any other suggestions. Do not hesitate to contact the CIE Division Chair, or other members of the Executive Committee, with your thoughts. Let's work together to improve the vitality and relevance of the CIE Division to our members.

Greetings from the Division Chair

(Continued)

DETC/CIE Conference in Montreal beginning on September 29, 2002. Read more about this upcoming conference in the Technical Program Chair's report.

Let me introduce the newest addition to the CIE Executive Committee, Dr. Imre Horvath, from the Technical University of Delft in The Netherlands. This marks the first time that the CIE Division has had an Executive Committee member from an overseas institution. Congratulations and welcome aboard!

At the 2002 ASME Technical Executives Conference (TEC), it was announced that ASME is striving to remake itself into a knowledge-based organization. As a result, it is likely that the Council on Engineering (the set of ASME's 36 Technical Divisions and 8 Groups) will be reorganized into a different set of Units. Rather than prescribe the results of the reorganization, ASME wants the Divisions to take the lead and propose a new set of alliances among Divisions and Groups that will enable a larger ASME audience to become better served. As the plans have not been officially adopted yet, it is not clear precisely what will happen and when. However, the winds of change are blowing through ASME, so be on the lookout for some reorganizations and changes.

This is a great opportunity to get involved; you can affect positive change for the entire mechanical engineering profession!

Editor's Corner

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Division, becoming active members of the division and regular participants in our various activities (see sidebar at left).

The division has already worked to bring in views from a broader cross-section of its constituents through diversity in leadership. The division's Executive Committee is not composed solely of university researchers, but contains several representatives from industry and government as well. While diverse views make a difference, we think that more can be done.

If information technology plays a significant role in your work or your professional interests, then you are a member of the community that the CIE Division views as its customer. If you believe you are a member of that community but don't feel that the CIE Division is relevant to what you do, join the division and tell us what we can do to better serve our community.

As was mentioned above, because many ASME members may not be aware of the significant changes that have recently taken place within the CIE Division, we made special arrangements for a notice regarding this newsletter to go out members of several other divisions. However, as in the past, division newsletters are only mailed out to members who list a division as one of their first two divisions/ technical areas of interest. If you wish to stay up to date regarding the role of CIE and its activities, or would like to become more involved, please consider updating your ASME profile (see back page of newsletter). We look forward to hearing from you.

Computers and Information in Engineering Division Organization

CIE Division Executive Committee

Chair: David W. Rosen, Georgia Institute of Technology,
david.rosen@me.gatech.edu

Vice-Chair: Ashwani K. Gupta, University of Maryland College
Park, ak Gupta@eng.umd.edu

CIE Conference Executive: David E. Lee, TRW Space and
Electronics Group, david.e.lee@trw.com

Secretary: Simon Szykman, National Institute of Standards and
Technology, szykman@nist.gov

Member: Plamen Bliznakov, Parametric Technologies Corp.,
plamen@ptc.com

Incoming Member: Imre Horvath, Technical University of Delft,
i.horvath@io.tudelft.nl

Past Chair: Richard Crawford, The University of Texas at Austin,
rhc@mail.utexas.edu

CIE Technical Committees

- Enterprise Information Management
- Computer-Aided Product Development
- Internet-aided Design, Manufacturing and Commerce
- Virtual Environments and Systems
- Embedded and Ubiquitous Computing
- Non-Traditional Computing
- Energy Systems
- Computational Technologies and Finite Elements
- Computers in Education

CIE Standing Committees

- Administrative Committee
- Communication Committee
- Finance Committee
- Honors and Awards Committee
- Nominating Committee
- Review Committee

For more information, visit us online at <http://www.asme.org/divisions/cie/>

ASME Journal of Computing and Information Science in Engineering

A committee within the Computers and Information in Engineering Division was hard at work in 2000, assembling a proposal for a new ASME Transactions Journal. The proposal was approved by ASME, and in the first quarter of 2001, the first issue of the ASME Journal of Computing and Information Science in Engineering went to press with Professor Jami Shah serving as Technical Editor. Because of a broad relevance and interest among cross-disciplinary researchers, the Association for Computing Machinery (ACM) has since joined ASME as a co-sponsor of the journal.

JCISE publishes archival research results and advanced technical applications in the areas of Internet-Aided Design and Manufacturing, Virtual Reality Environments and Systems, Information Models/Ontologies for Engineering Applications, AI/Knowledge Intensive CAD/CAM, Engineering Simulation and Visualization, Computer aided Product Development, PDM/Enterprise Information management, Embedded Computing, and technology aspects of computers in engineering education. In addition to full-length research papers, JCISE has a separate application track that features software and technology reviews, software/data exchange standards updates, and innovative applications of computing and information technology in mechanical product development.

Submissions to the journal are welcome. The journal features an all-electronic review process, which results in a review cycle time that is better than most.

Subscriptions to the journal are only \$50 for individual members (\$75 international rate). Access to the online edition of the journal is free for subscribers.

For more information about subscriptions, submissions, journal scope, etc., see the journal web site located at: <http://www.asme.org/pubs/journals/infosci/>

Enhancing CIE's Participation in IMECE

Participation by the CIE Division at the International Mechanical Engineering Congress and Exposition has traditionally be rather small in comparison to many of the other ASME Technical Divisions, mainly due to the fact that much of

the division effort goes into organizing the CIE Conference which is held separately from the Congress.

However, information technologies have increasing relevance to and impact on technical areas beyond those traditionally covered at the CIE Conference, and spanning problems and application domains associated with many of ASME's other Technical Divisions. With a change in IMECE organization to a track-based structure, and with a new CIE Division emphasis on information technologies in engineering, the division is actively looking at ways to increase its participation in IMECE.

Although much of the organization for this year's Congress has already taken place, ideas for expanding CIE activities at IMECE 2003 are welcome. Please contact the CIE Division Chair, David Rosen (Email: david.rosen@me.gatech.edu) with any suggestions.

Conference Reports

2001 CIE Conference

The 2001 Computers and Information in Engineering Conference was held on September 9-12 in Pittsburgh, PA, in conjunction with the Design Engineering Technical Conferences. At CIE 2001, over 100 papers were presented in 26 sessions. In addition to the papers sessions, four panel sessions were held and were very well attended. The CIE Division also hosted two of the tutorials that were offered on the Sunday prior to the start of the main conference.

IMECE 2001

IMECE 2001 was held November 11-16, in New York, NY. The CIE Division co-sponsored a panel session on "Current and Future Trends of CFD Modeling in Combustion Systems" at the 2001 Congress. The session was organized in conjunction with the Fuels and Combustion Technologies and Heat Transfer divisions. This is the first time that the CIE Division has organized a joint session with other divisions at the Congress.

The panelists in the session were Professor David Lilley (Oklahoma State University), Dr. Aki Runchal (ACRi), Dr. Steve Crocker (CFD Research Corporation), Dr. John Smith (John Zink Company) and Dr. D. Choudhury (Fluent Inc). The panel session was well attended and very well received. The topics ranged from historical perspectives to the latest trends in CFD modeling. Discussions also covered technologies used in the industry to solve practical problems.

Conference Calendar

Upcoming Events and Calls for Participation

2002 ASME Design Engineering Technical Conferences and Computers and Information in Engineering Conference

Join us at the 2002 CIE Conference, being held in conjunction with the Design Engineering Technical Conferences September 29 - October 2, 2002, Montreal, Canada. The 22nd CIE Conference will particularly reflect the technical maturity of computing in engineering and the emergence of the fundamental role of computers and information in engineering. The DETC/CIE schedule features traditional paper sessions as well as panel sessions and several tutorials. See <http://www.asme.org/conf/detc02/> for more information and a preliminary conference program.

2002 International Mechanical Engineering Congress and Exposition

The 2002 Congress will be held on November 17-22 in New Orleans, LA. The CIE Division plans on co-sponsoring a cross-division session at the 2002 IMECE similar to that run at the 2001 Congress (see Conference Reports elsewhere in this newsletter). If you wish to participate in this session please contact one of the session organizers: Dr. Cary Presser (Email: cary@micf.nist.gov) or Dr. Ashwani K. Gupta (Email: akgupta@eng.umd.edu).

2003 ASME Design Engineering Technical Conferences and Computers and Information in Engineering Conference

The 23rd Computers and Information in Engineering Conference will be held (along with the ASME DETC, as usual) on September 2-6, 2003, in Chicago IL. A preliminary Call for Papers can be found at <http://www.me.uic.edu/detc2003/>. Suggestions for panel sessions or other special symposia are welcome, and can be sent to the Technical Program Chair for the 2003 conference: Simon Szykman (Email: szykman@nist.gov).

About the Computers and Information in Engineering Division

CIE Vision

The Computers and Information in Engineering Division will provide a forum for enhancing the practice of engineering by understanding the application of emerging technologies that impact critical engineering issues of representation, product design and product development, exchange, management and integration of information throughout the entire engineering product and process life-cycle.

CIE Mission

The Computers and Information in Engineering Division will enhance the practice of engineering through the dissemination of emerging technology knowledge which will help optimize the integration of Mechanical Engineering, Software Engineering, and Computer Engineering.

More on CIE 2001

Those who attended the 2001 CIE Conference will remember it for an infamous reason: September 11th fell right in the middle of the conference schedule. Many of us will long remember gathering at the big screen television in the hotel lobby, watching incredulously as events unfolded. Most of us stayed in Pittsburgh longer than planned, and ended the trip with alternate travel plans. Despite these events, the conference was clearly a success. Most papers were presented as scheduled, and panels were conducted with some panelists missing due to travel problems.

The Technical Program Chair, David Lee, did a marvelous job of assembling the program. A brief report appears elsewhere in this newsletter, but I want to highlight a few events. Our keynote speaker was Dr. Bijan Khatib-Shahidi of Ford Motor Co., who opened the conference by sharing his thoughts on the role of CAE in product development, a theme that echoed through the conference all week. Dr. Randy Pausch of Carnegie Mellon University's Entertainment Technology Center entertained and educated us at the CIE luncheon with a discussion of his collaboration with the Walt Disney Imagineering Virtual Reality Studio to develop a virtual water ride.

Best Paper awards were given in three categories. In the category of Theoretical Contributions, the recipients of the Best Paper Award were Y. Song, Dean Edwards, and V. S. Manoranjan, for their paper entitled "Fuzzy Cell Mapping Applied to Autonomous Systems." Charlie C. L. Wang and Matthew M. F. Yuen received the Best Paper Award in the category of Computational Methods for their paper entitled "Sketch Based Mesh Extrusion with Remeshing Techniques." And finally, in the Applications category, the Best Paper

Award went to Hong Gu, Thomas R. Chase, Douglas Cheney, Thomas Bailey, and Douglas Johnson for their paper "Identifying, Correcting, and Avoiding Errors in Computer-Aided Design Models Which Affect Interoperability."

As Past-Chair of the Division and Conference, I want thank all of you who help CIE succeed. Please heed Dave Rosen's call for participation, and I look forward to seeing you in Montreal this year.

- Richard Crawford, Past Chair of CIE

Recognize your Peers— Nominate a Fellow

The CIE Division would like to support the recognition of its members by encouraging the nomination of deserving and eligible members to the level of ASME Fellow. The title of ASME Fellow is the highest elected grade of membership within ASME, and is a recognition of exceptional engineering achievements and contributions to the engineering profession.

In order to be eligible for nomination, an ASME member must also have had 10 or more years of active practice and 10 or more years of continuous membership in ASME, or 20 or years of active practice and 5 or more years of continuous membership in ASME. In addition, a nominee must be sponsored (recommended) by at least five sponsors, at least two of which must be ASME Fellows or Members.

Criteria for significant engineering achievement fall into any of several categories: industrial leadership, project management, engineering product application, design, research and development, educational leadership, technical publications, inventions and patents, consulting, contri-

butions to ASME, and a final category for other contributions.

Elevation to the grade of ASME Fellow is an honor and a recognition of a member's contributions to the profession. If you know somebody who deserves this recognition, please nominate them today. Additional information about Fellow grade, evaluation criteria, nomination forms, and more can be found at <http://www.asme.org/member/fellow/> or can be requested from Lourdes Rivera at (212) 591-7066.

CIE Annual Meeting: An Open Invitation

The Computers and Information in Engineering Division holds an Annual Meeting every year. For logistical reasons, this meeting is typically held on an evening during the annual Computers and Information in Engineering Conference, which will be held in Montreal, Canada this year and in Chicago, IL next year. Although the Annual Meeting coincides with the CIE Conference, the meeting is not limited to conference attendees but is open to all ASME members.

Current or prospective CIE Division members are always welcome to attend. Come meet the CIE Division Executive Committee and fellow ASME members who have an interest in Computers and Information in Engineering. If you are not a regular CIE Conference attendee but live in or near a city where the conference will be held, contact the Conference Chair or Technical Program Chair for that year's CIE Conference; either one will be happy to provide details regarding meeting time and location.

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