



Dynamic Systems and Control Division Newsletter

May-Win Thein, Editor; James B. Dabney, Associate Editor

Winter 2001



Dr. Jeffrey L. Stein

Chairperson's Corner

A Time to Participate: Commit and Make a Difference.

Since the events of September 11, 2001 our lives have been inexorably altered. We deeply sympathize with all those whose lives have been directly affected by this tragedy. We view the world and our way of life through different eyes. We have thought about how important our families, friends and neighbors are and perhaps asked how does our profession contribute in a positive way to the world we live in.

DSC is a home and a community for us and has been since 1943. A community based on common professional interests

and a goal to improve our world and ourselves by exchanging ideas. We help our young members mature, we help our old members stay young and we help the profession by sharing our challenges – inviting others to become involved. In this way we become better engineers who can contribute more effectively to better our way of life.

DSC's active members are striving to create a stronger more committed community of engineers. We invite and welcome you to be an active member and are trying to make it easier for you to do so. One way in which we have done this is that we have significantly upgraded our web site (<http://www.asme.org/divisions/dscd/>) to provide more timely and accurate information. In particular, detailed information about specific activities along with contact information for getting involved. For example, the site helps you review the activities of each of the Division's technical panels and it invites you to contact the current technical panel leadership so you can become involved in panel of interest to you.

Have your own ideas? Want to start your own technical panel? Want to see the Division broaden it areas of interests? Contact people through the web site. You do not have to know the person or know someone important to have impact. You just have to make the commitment to get involved and carry your idea through.

Want to meet members? Attend our Executive Committee Meetings and

Awards Dinner which are open to all. The Executive Committee Meeting, where all the "movers and shakers" in the Division go to discuss their ideas, takes place at the ASME IMECE and the American Control Conference. The Awards Banquet is a great place to meet many of the active members in a relaxed atmosphere as well as an opportunity to help recognize the contributions made by some of our most creative, and hard working members. The Dinner takes place just at the IMECE. The exact times and places are listed on our web site.

Want a starting point? You can get involved with DSC in many ways. Some of the common activities members help with are: organizing technical sessions, workshops, panel discussions; reviewing papers; and, finally, running conferences and the Division. There are so many things to be done, and always the need for people to help and to create new activities.

So help keep DSC the active growing community it has been.

Commit and make a difference. ■

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David Auslander (photo courtesy Tomi Tomizuka)

2001 American Control Conference Held in Crystal City, Virginia

The 2001 American Control Conference began at 6:30pm, June 24, with a memorable Welcoming Reception. Due to a power outage, the Grand Ballroom at the Crystal Gateway Marriott in Arlington, Virginia, was illuminated with only a few auxiliary emergency lights during most of the evening. But this didn't seem to dim the spirits of the attendees who enjoyed a sumptuous spread of hors d'oeuvres in preparation for the upcoming three days of technical sessions.

The 2001 ACC followed the familiar format with a few variations. The over 1000 attendees used a new Web-based system for registration, both before and during the conference. The technical sessions were scheduled on Monday through Wednesday, rather than the traditional Wednesday through Friday, with Workshops on Sunday and Thursday. The usual two-hour sessions of oral presentations were complemented by parallel poster sessions in the main foyer outside the meeting rooms. And for the first time, LCD projectors were available for laptop computer presentations in all sessions.

The technical sessions began Monday morning with a plenary talk by Professor Christos Cassandras of Boston University with the provocative title, "Let's Control Everything." Professor Cassandras presented recent research that is pushing the methods and perspectives of feedback control into new domains with significant successes. On Tuesday morning, Dr. Tariq Samad of Honeywell Laboratories continued the theme of new vistas for control in

his plenary presentation titled, "Enterprise Optimization in the Process Industries--and Beyond." The Wednesday morning plenary presentation, titled "Challenges, Theory, and Applications in Process Control, by Professor Richard D. Braatz from the University of Illinois at Urbana-Champaign, focused on recent theoretical and experimental results in the control of crystallization processes. This research is having significant impact on the production of microelectronic devices and pharmaceuticals.

Attendees were treated to an additional special plenary session each day. Dr. Kishan Baheti of the National Science Foundation organized a special plenary session on Monday focusing on National Research Initiatives. In this session, Drs. Ruzena Bajcsy and Sohi Rastegar, both of the National Science Foundation, made presentations on new broad initiatives in the areas of nanotechnology and biotechnology. The Tuesday special plenary session, organized by Professor Linda Bushnell of Washington University, featured Dr. Otto Mayr, a well-known historian of technology who spoke on the history of feedback con-

sions in the ACC. This year's ACC featured a full track of nine industry-tutorial sessions covering topics ranging from fault tolerant control to modeling and control of economic systems.

The 2001 ACC also hosted the Council of the International Federation of Automatic Control (IFAC). The American Automatic Control Council (AACC) was pleased and honored that the IFAC Council accepted the invitation to hold its annual meetings in conjunction with the 2001 ACC. This brought to the conference many international leaders in control, who participated in the technical and social sessions throughout the week.

As always, a highlight of the 2001 ACC was the presentation of several awards. At the special plenary session on Monday, the Richard E. Bellman Control Heritage Award was presented to Professor A. V. Balakrishnan of the University of California at Los Angeles, recognizing his distinguished career and his many contributions to the theory and applications of control engineering. At the Awards Luncheon on Tuesday, Professor Dawn M. Tilbury, University of Michigan, received the Donald P.



ACC Award recipients

control. The Wednesday special plenary session, also organized by Dr. Baheti, was titled "From Theory to Wall Street." This session featured three well-known control theorists who are also entrepreneurs-- Stephen Boyd of Barcelona Design, Jack Little of The MathWorks and Thomas Kailath of Numerical Technologies--who shared candid perspectives on what it takes to turn theory into practice.

The 2001 ACC continued the recent tradition of having special industry-tutorial sessions, comprising a one-hour tutorial on a topic of particular current interest, followed by four fifteen-minute presentations on real-world applications. These sessions have become some the most popular ses-

sions in the ACC. This year's ACC featured a full track of nine industry-tutorial sessions covering topics ranging from fault tolerant control to modeling and control of economic systems. The 2001 ACC also hosted the Council of the International Federation of Automatic Control (IFAC). The American Automatic Control Council (AACC) was pleased and honored that the IFAC Council accepted the invitation to hold its annual meetings in conjunction with the 2001 ACC. This brought to the conference many international leaders in control, who participated in the technical and social sessions throughout the week. As always, a highlight of the 2001 ACC was the presentation of several awards. At the special plenary session on Monday, the Richard E. Bellman Control Heritage Award was presented to Professor A. V. Balakrishnan of the University of California at Los Angeles, recognizing his distinguished career and his many contributions to the theory and applications of control engineering. At the Awards Luncheon on Tuesday, Professor Dawn M. Tilbury, University of Michigan, received the Donald P.

Two best paper awards were also presented at the Awards Luncheon. The O.Hugo Schuck Best Paper Award, given for the two best papers presented at the 2000 ACC, was presented to: L. Zaccarian, A. R. Teel, and J. J. Marcinkowski, for the

paper "Anti-windup for an Active Vibration Isolation Device: Theory and Experiments"; and R. Yedavalli, for the paper "A Necessary and Sufficient Extreme Point Solution for Checking Robust Stability of Polytopes of Matrices." Mark A. Lau was the winner of The Best Student Paper Award for his paper, "Comparison of input shaping and time-optimal control of flexible structures," co-authored with his Ph.D. advisor, Lucy Pau at the University of Colorado at Boulder.

Sincere appreciation and gratitude is extended to the many people who made the 2001 ACC a success. We look forward to continuing the tradition next year in Anchorage, Alaska. ■

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Dawn Tilbury receives Eckman award at ACC

Katsuhiko Ogata Retires From University Of Minnesota After 45 Years Of Service

Professor Katsuhiko Ogata joined the faculty of the University of Minnesota in 1956 to teach and do research in the field of control systems. Professor Ogata is a household name for students of system dynamics and control, as he has authored seven textbooks in the field, three of which have been published in multiple editions. His writing philosophy has been that undergraduate engineering students should not spend too much time just deriving or verifying mathematical equations in control engineering. He included in his books all necessary derivations and proofs so that the student can understand the materials of the books without struggling with mathematics.

This approach was accepted quite well by the controls community throughout the world. As a result, most of his books were

translated into foreign languages, such as Spanish, Portuguese, Japanese, Polish, Korean, Indonesian, Chinese, and Bahasa Malaysian. Thus far, twenty-four foreign editions of his books are published, and nearly one million students worldwide have studied system dynamics and control from them. Based on this fact, K. Ogata was honored with the 1999 John R. Ragazzini Education Award of the American Automatic Control Council.

Prof. Ogata was born in Tokyo, Japan. He obtained a B.S. degree in Mechanical Engineering from the University of Tokyo. After receiving his B.S. degree, he spent three years as a research assistant at the Scientific Research Institute in Tokyo, followed by two years of industrial experiences at the Nippon Steel Tube Company, Japan. In 1952 he received a Fulbright Travel Grant to come to the United States for academic study. He obtained an M.S. degree in Mechanical Engineering from the University of Illinois and a Ph.D. degree in Engineering Science from the University of California, Berkeley. ■

2002 IEEE International Symposium On Intelligent Control (ISIC)

This conference will be held in Vancouver, Canada during 27-30 October 2002. We solicit high-quality papers containing original contributions in all areas of theory and applications of control systems, specifically those related to knowledge-based and intelligent systems, software, hardware, and techniques. Authors are encouraged to submit their papers electronically through the following web site.

<http://pami.uwaterloo.ca/~isic02/isic02.html>

Also, we solicit proposals for invited sessions within the technical scope of the conference. Information on invited sessions is available at http://guppy.mpe.nus.edu.sg/isic02_invited. Panel discussions, tutorials, workshops, exhibits, and social programs are planned as well. If you have specific questions regarding the conference please contact the General Chair:

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Second IFAC Conference on Mechatronic Systems to be Held in California

The second IFAC Conference on Mechatronic Systems will be held in Berkeley, California on December 9-11, 2002. The conference is sponsored by the

American Automatic Control Council (AACC), Engineering Systems Research Center of the University of California, Berkeley, the UC Berkeley Extension Continuing Education in Engineering, and in cooperation with IEEE and ASME.

The deadline for submissions (in full draft) is February 28, 2002. DSCD Members are asked to check the Conference webpage for updates on paper submissions at

<http://www.unex.berkeley.edu/eng/mech/>

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ASME Journal of Dynamic Systems Measurement and Control (JDSMC) – Update

The ASME Journal of Dynamic Systems Measurement and Control (JDSMC) continues to do quite well. The journal is successful by a number of very important measures. For example based on 1999 data, the journal has 2.11 subscribers per page published, compared to 2.07 average for all ASME transactions.

The JDSMC has over 6,000 subscribers, placing it sixth of eighteen ASME transactions. Furthermore, the JDSMC ranks sixth in number of citations. Among its competitors in the controls area and based on 1997 data, JDSMC ranked third in number of

citations behind IEEE Transactions on Automatic Control, and Automatica, and ahead of Control Engineering Practice. Based on this same 1997 data the JDSMC ranked tenth in terms of the Immediacy Index (measure of how quickly the average article in a journal is cited) and ranked thirteenth in terms of the Impact Factor (measure of the frequency with which the average article is cited) among the eighteen ASME Transactions Journals.

Information about the journal is available on the website

<http://www.asme.org/pubs/journals/dynsys/dynsys.html>, and the journal is now also available to subscribers in an on-line edition.

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Robotics Technical Panel Call for Nominations

The Robotics Technical Panel of the ASME Dynamic Systems and Control Division would like to receive nominations for new members. Member activities include participation in the organization and review process of robotics related symposia and special sessions in conferences sponsored by the ASME DSCD such as IMECE, ACC (American Control Conference) and AIM (Advanced Intelligent Mechatronics).

Please send nominations by email to:
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2002 American Control Conference May 8-10, 2002 William A. Egan Civic & Convention Center Anchorage Hilton Hotel Anchorage, Alaska, USA

The American Control Conference (ACC) is an annual, 3-day event, presenting about 800 papers, with over 1200 participants from the measurement and automation communities. This premier conference and associated workshops focus on advances in the theory and practice associated with automatic control. This is an excellent opportunity to learn what is new in controls and interact with the leaders of the area. Topics include: industrial applications, robotics, manufacturing, guidance and flight control, power systems, process control, measurement and sensing, identification and estimation, signal processing, modeling and advanced simulation, fault detection, model validation, multivariable control, adaptive and optimal control, robustness, intelligent control, expert systems, neural nets, control engineering education, and computer aided design.

For more information about the 2002 ACC, please visit the conference web-site at <http://www.ent.ohiou.edu/~acc2002/>. The conference is sponsored by the American Automatic Control Council (AACC), and topics span the scope of the eight member societies of AACC: AIAA, AIChE, AISE, ASCE, ASME, IEEE, ISA, and SCS. The 2002 ACC is being held in cooperation with IFAC (the International Federation of Automatic Control) and SICE (the Society of Instrument and Control Engineers).

TCST Outstanding Paper

DSCD members Rajesh Rajamani, Han-Shue Tan, Boon Law and Wei-Bin Zhang won the 2001 TCST Outstanding Paper Award for "Demonstration of integrated longitudinal and lateral control for the operation of automated Vehicles in Platoons." The award is given annually for the best paper appearing in the journal IEEE Transactions on Control Systems Technology.

DSCD People

The DSCD Executive Committee establishes policy and manages the affairs of the Division. It meets twice a year at the IMECE and at the American Control Conference (ACC). Currently it is the comprised of the following people:

Chair – Jeffrey Stein

Vice-Chair – Suhada Jayasuriya

Past-Chair – Clark Radcliffe

Member – Clarence W. deSilva

Member – Giorgio Rizzoni

Secretary – Eduardo Misawa

A full listing of the all the DSCD office bearers, Technical Panel Chairs, and their coordinates can be found at the DSCD web site at:
<http://www.asme.org/divisions/dscd/>

Important Websites

ASME Dynamic Systems and Control Division (DSCD):
<http://www.asme.org/divisions/dscd/>

American Society of Mechanical Engineers: <http://www.asme.org/>

American Automatic Control Council (AACC): <http://www.a2c2.org/>

ASME Journal of Dynamic Systems, Measurement, and Control (JDSMC):
<http://www.asme.org/pubs/journals/dynsys/dynsys.html>

IEEE/ASME Transactions on Mechatronics:
<http://www.ieee-asme-mechatronics.org/>

The Dynamic Systems and Control Division Newsletter is published twice annually (Spring & Fall). News items, Call for Papers, conferences, as well as other items of interests are welcome from all DSCD Members. Please submit your items for publication by e-mail. For further information, contact:

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