ASME International

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Dynamic Systems and Control Division Newsletter

Bruce Wilson, Editor *Spring 1999*

Chairman's Corner

Where in ASME is DSCD?

Nazim S. Nathoo

The Dynamic Systems and Control Division (DSCD) is nested in the Systems and Design Group of ASME. In this same group are Computers and Information in Engineering, Design Engineering, Electrical and Electronic Packaging, Fluid Power Systems and Technology, Information Storage and Processing Systems. A total of 39 divisions like our DSCD reside under 8 Technical Groups. An operating board, chaired by a Vice President, supervises and coordinates the activities of the technical divisions and technical subdivisions that make up each technical group. The Council on Engineering, under the direction of the ASME's Board of Governors, oversees the activities and matters of concern to technical groups and divisions. Currently, John Wesner is the Vice President of the Systems and Design Group. Starting in June, our very own Larry Hoberock will take the helm.

DSCD has a track record of working with other ASME divisions, be they in the Systems and Design Group or elsewhere, as well as working with other Societies such as IEEE. This includes joint technical sessions at the IMECE with other divisions, cosponsoring of national and international conferences, and having a major presence at the Automatic Control Conference (ACC) - just to name a few. Two new journals, IEEE/ASME Transactions on Mechatronics and Journal of Microelectromechanical Systems, have roots in our Division. There is no doubt that, no matter where we happen to find ourselves nested (officially), we have strayed from the roost to explore all options available to us.

All these efforts have strengthened DSCD over the years. But it has required its members to take many initiatives with patient follow-up to turn ideas into reality. The Executive Committee continues to get requests for sponsoring symposia, workshops and other events where our members are playing an active role. DSCD's custodial funds can also be (and have been) used to support such initiatives. The most recent request came for sponsoring a focused Workshop on the Integration of Modeling and Control for Automotive Systems following the ACC in June of this year. These efforts serve to encourage others in the division to look for similar opportunities to grow professionally while helping their fellow members as well.

I can think of many ways in which our membership can get much more involved than it may be. Participating in our Technical Panels is a start. Taking the helm of these panels over time puts you in a starting position to look outside for collaborative efforts. Once you have established a technical footing, becoming an Associate editor for the Journal provides a front line view of the new research in your area of interest.

Organizing technical sessions is another outreach opportunity to share current developments with other members. As you look around DSCD and other divisions, you are bound to see something that will capture your interest and cause you to become more active. This is an essential ingredient for the future well-being of our discipline. And, please, do

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1999 IEEE/ASME International conference on Advanced Intelligent Mechatronics (AIM '99)

will be held September 19 – 22, 1999 in Atlanta, GA. The AIM'99 is co-sponsored by IEEE Industrial Electronics Society (IES), IEEE Robotics and Automation Society (RAS), and American Society of Mechanical Engineers (ASME). For information on the requested topics and how to submit a paper, please refer to: http://www.me.gatech.edu/AIM99/

Topics suggestions for panel sessions are also welcome. If you have any questions, please contact Prof. Kok-Meng Lee, George W. Woodruff School of Mechanical Engrg., Georgia Institute of Technology, Atlanta, GA 30332-0405, (404) 894-7402, (404) 894-9342 (fax), E-mail: kokmeng.lee@me.gatech.edu.

Excerpt from "Better Living Through Dynamic Systems"

Each of us follows a career somewhat like an adventurous journey. We are not sure where the journey will take us, but we try to follow some kind of game plan or theme.

In my second year of graduate school, I began to formulate my theme. Although it did not have a name for it at the time, I later termed it "Better Living through Mathematics". I wanted to work with mathematics the way many engineers work with physics. I wanted to use mathematics to help make a better world. It was an idealistic goal, typical of young graduate students. But it was the outline of my personal game plan.

In graduate school I took a great deal of mathematics. I looked at it as equipping myself, packing my bags for my journey. I did not take control theory, even though Prof. Franklin at Stanford offered a wonderful course, for I did not expect to work in that area.

Dr. Luenberger Receiving 1998 Oldenberger Award

However, it turned out that the area of control was the first that I did encounter. My research advisor was Prof. William Linvill, and he arranged for a few of us to go to Westinghouse Research Labs in Pittsburgh for several months each year. Westinghouse was interested in designing a computer-based control system for electric power plants. The team at Westinghouse was quite knowledgeable about control theory, but this was 1961. Innovative methods based on state space were just emerging and Westinghouse allowed a few of us Stanford students to consider state space methods for the design. The group began by developing a few state space models of a steam power plant. Some of these had 21 state variables, and some had more. But typically there were only about seven measurements: temperature, pressure, water level, and so forth.

During this project I studied control theory, reading the breakthrough papers of Rudy Kalman, published in the Journal of Basic Engineering, part of the ASME Transactions, as well as other breakthrough works by Bellman and Pontryagin. These were truly inspirational times. These papers contained several ideas for designing control systems in which the control was a function of the state vector. But of course, we did not have the entire state available for a power plant. That is what led me to the idea of an observer. Such an observer constructs an approximate state vector based on continuous observations of the available outputs. Watching the outputs over time essentially gives more equations from which the state can be determined. The observer concept became my Ph. D. dissertation; and I realized that I had had my first professional adventure. I found that an important part of my theme was "Better Living through Dynamic Systems," and it was a theme that I returned to several times in my career.

David G. Luenberger

Chairman's Corner

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not overlook any and all opportunities to invite new members (be they new faculty, new staff in companies, and even students) into our fold and encourage them to attend our open Executive Committee meetings - the next one will be at the ACC in San Diego June 2-4, 1999.

I want to take this opportunity to thank all of our members who volunteer for the many assignments - big and small - that constantly make our nest stronger thereby allowing all of us to soar.

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1999 American Automatic Control Council

The American Automatic Control Council (AACC) will hold the 18th American Control Conference (ACC) Wednesday through Friday, June 2–4, 1999 at the Hyatt Regency San Diego, on the San Diego Bay, California. Held in cooperation with the International Federation of Automatic Control (IFAC), this conference will bring together people working in the fields of control, automation, and related areas from the American Institute of Aeronautics and Astronautics (AIAA), American Institute of Chemical Engineers (AIChE), Association of Iron and Steel Engineers (AISE), American Society of Civil Engineers (ASCE), American Society of Mechanical Engineers (ASME), International Society for Measurement and Control (ISA), Society for Computer Simulation (SCS), and the IEEE.

The ACC99 will cover a range of topics relevant to theory and practical implementation of control and automation. Topics of interest include but are not limited to: 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. A paper proceedings will be published and will be available after the conference (at a reduced rate for attendees) while all registrants will receive the entire proceedings on CD ROM.

We would like to encourage you to attend the ACC99 for an excellent technical program and a chance to visit San Diego, one of the most exciting meeting destinations in the United States.

The deadline for submission has passed. For complete information and details on the conference, see the WWW home page:

www.marquette.edu/acc1999/

or contact:

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2000 American Control Conference Call for Papers

http://che.vill.edu/acc2000/acc.html

The American Automatic Control Council (AACC) will hold the 19th ACC June 28–30, 2000 at the Hyatt Regency Hotel in Chicago, Illinois. Papers relevant to the theory and practical implementation of control and automation are being solicited for the 2000 ACC. Since we are moving into the 21st century, invited sessions and contributed papers providing historical perspectives on the development of automatic controls as a discipline in the 20th century are particularly encouraged.

Contributed Papers: Prospective authors of regular papers must submit five copies of the manuscript and a Manuscript Submission Form (MSF) to the appropriate Society Review Chair by September 15, 1999. For short papers, five copies of the manuscript along with a MSF must be submitted to the Program Vice-Chair for Contributed Papers.

Invited Sessions: Potential organizers of invited sessions should submit five copies of the session proposal, including a clear summary and motivation for the session, with a 1000 word summary of each paper, along with a single Invited Session Form and one MSF for each summary in the session, to the Program Vice-Chair for Invited Sessions by September 1, 1999.

Industry and Applications: The AACC is particularly interested in enhancing the applications and industrial perspective of the ACC. Prospective authors from industry are encouraged to submit manuscripts. For more information, contact the Vice Chair for Industry and Applications.

Some of the other relevant deadlines are:

September 15, 1999: Submission of Proposals for pre- and post-conference workshops to the Workshops Chair.

Mid-January 2000: Author notification and author's kits distributed.

March 1, 2000: Final manuscript submission for the proceedings.

Further information, including the addresses of Society Review Chairs, the Manuscript Submission and Invited Session Forms, and addresses of the Workshops Chair and other organizing committee members, can be obtained from the 2000 ACC web page listed above or by contacting

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News in Brief

DSCD Awards Dinner

The DSCD Awards Dinner was held during the 1998 IMECE in Anaheim. The distinguished individuals who were honored at the dinner included:

Devendra Garg, who received the DSCD Leadership Award, given biannually to a DSCD member who has demonstrated sustained outstanding leadership contributions to the DSCD, to ASME, and to fields of interest of the DSCD.

Haruhiko (Harry) Asada, who was awarded the DSCD Outstanding Investigator Award, given biannually go a DSCD member who has demonstrated sustained outstanding research contributions, either basic or applied, as a mechanical engineering professional to fields of interest to the DSCD.

Daniel Whitney, who received the DSCD Innovative Practice Award, given biannually to a DSCD member for either excellent sustained contributions or for an outstanding major, singular contribution in innovative applications of dynamic systems, measurement, or control in engineering practice.

W. C. Sun & K. A. Stelson, received the 1997 JDSMC Best Paper Award for their paper, "System Identification and Adaptive Control of the Multiaxis Bending and Twisting Process."

Robert Christiansen, received the 1998 Best Student Paper Award for his paper, "Inertial Force Feedback for a Locomotion Interface."

David Luenberger, who received the Rufus Oldenburger Award in recognition of significant contributions and outstanding achievements in the field of automatic control. Such achievements may be, for example, in the areas of education, research, development, innovation, and service to the field and profession (See article on page 2.)

Dr. Devendra Garg, who recently finished his appointment at NSF, receiving the DSCD Leadership Award.

University of Wisconsin-Madison Receives Award for Powertrain Innovations

At the 1998 Global Powertrain Congress held at Cobo Hall in Detroit, members of the Powertrain Control Research Laboratory at the University of Wisconsin-Madison have received one of two awards presented annually for best powertrain innovations. The first "Powertrain Excellence Award" was presented to Honda R&D (Japan) for their ULEV (Ultra-Low Emission Vehicle) emission reduction research program. The second "Powertrain Excellence Award" was presented to PCRL members John J. Moskwa, Guy R. Babbitt, and Steven P. Seaney for their research and development of the "Very-High Bandwidth Transient Engine Dynamometer (400 Hz)." This system is the highest bandwidth transient engine dynamometer of its size in the world, and has been under development for approximately 6 years. In addition to those named on the award, other key contributors to this project include Darren Bisaro, Rich Bonomo, Rob Pape and Pat Scharf, and Ford Motor Company's support of PCRL laboratory development (Messrs. John Huston, Robert Bisaro, Wayne Johnson, and Howard Voigt).

The presentation of awards was made by Dr. Emanuele Leveroni, Chief Executive Officer of Fiat Auto R&D USA, and the Chairman of the Global Powertrain Congress Award Committee. Two awards are presented anually for powertrain innovation at the Global Powertrain Congress, and this year the recipients were chosen by an international panel of 17 experts in the field. These include vice-presidents, directors and chief engineers from corporations such as Volvo, Bosch, Nissan, Honda R&D, Ford, General Motors, DaimlerBenz, Fiat R&D, Manetti Marelli, and Puegot Citreon. At the award presentation Dr. Leveroni indicated that eleven technologies were identified as potential candidates, with the top four very close in the final voting. The next Global Powertrain Congress will be held in October 1999 in Stuttgart, Germany.

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Comments Upon a Transition in the Journal of Dynamic Systems, Measurement, and Control (JDSMC)

As the Technical Editor of the Journal of Dynamic Systems, Measurement, and Control for the past five years, it has been my honor to manage the review process and content selection. The writing of this column coincides with a transition that has only happened six times in the thirty year history of the Journal: the changing of Technical Editors. On January 1, 1999, Professor Galip Ulsoy of the University of Michigan follows in the line of seven previous Editors (Yasundo Takahashi, Mike Rabins, Karl Reid, Lowen Shearer, Dave Auslander, Masayoshi Tomizuka and Wayne Book) to commit considerable time and effort to the Editorship. On this occasion it is appropriate to provide you with some facts as well as my interpretation of those facts as an indication of the health of the Journal.

The Journal of Dynamic Systems, Measurement, and Control continues to fare well with respect to submissions (and steadily increasing) subscriptions (about steady), and quality (selected for additional coverage in the Science Citation Index). To judge this it important to define whom the Journal serves.

The JDSMC is published for its readers, of course, but also for its authors. Most authors are also readers and reviewers. I believe this is entirely appropriate since we must attract authors as well as readers. For academic authors this becomes crucial to careers. Unfortunately we have no similar attraction for authors in industry. Author, reader, reviewer, editor; many find themselves in two or more roles in the life of the Journal. The price the author must pay for publication is to assist in review. Too often this debt is paid grudgingly and with unfortunate delay.

The organizational and technical climate for our journal has and is changing rapidly. The internet and CD ROMs provide new media for distributing the result of our research. All journals are being forced to rethink what they provide as a service to their customers.

Clearly, the journal that views itself as periodically providing bound printed paper to libraries and individuals has an archaic and obsolete view of technical publishing, a view that may lead to its extinction. Even the view of the service we provide and who we publish for, who is our customer, must be rethought. Value is added largely through the process of collecting, reviewing and disseminating research and development results. The review process attempts to determine, in a timely manner, if a submission is relevant to our mission, if it is valuable to our readers, and if it is valid as a research result. The JDSMC has a mission to disseminate results of engineering and scientific investigation in the fields that correspond to our scope. As our journal title indicates our scope is fairly large. Perhaps only one out of fifty papers is explicitly rejected because it is not relevant to our mission, either because it is in a technical area we don't consider within our scope or because it is of a commercial nature and not an investigation.

Most reviewers see their job as primarily a determination of validity of the paper's method and conclusion. Validity is not exactly the same as correctness, since valid methods can be described and appropriate conclusions reached which are still incorrect. Experimental results are often impossible for a reviewer to duplicate. The valuable service provided by the expert reviewer is a judgement of validity, but value to the reader must be judged too. Long papers that report small or modest advances must be judged today as poor use of a limited resource, i.e. budgeted pages. Perhaps this will be alleviated by the technology of electronic publishing, but in today's climate I must judge how to provide the maximum value in 800 pages per year to best serve our readers and our authors. In the long term the number of accepted pages must equal the number of pages published. A long backlog of papers makes it impossible to present results in a timely manner. Increasing the page budget given to a journal can reduce a long backlog. ASME was unwilling to increase pages published for several years due to financial concerns. The pricing policy to libraries has since been modified and has eliminated the deficit that journals ran for some time. In the mean time the JDSMC worked to reduce its average paper length which was the second longest of all ASME Journals. The JDSMC and most other ASME journals are now operating at a slight surplus.

ASME and the JDSMC must incorporate technologies that help journals achieve their missions. The risk, the investment, and inertia make these changes difficult. Experiments are underway with web based publication enhancement, such as reprint retrieval and past tables of contents. Within JDSMC we have maintained a web site for author and reader information for about four years. The elimination of paper for archival publications may happen in time. The JDSMC can be even more effective with new techniques if we move wisely into them and remember the mission as described above. As I leave the post of Technical Editor I want to acknowledge the assistance of numerous people, including the Associate Editors and ASME Staff you see on the inside cover of the Journal and reviewers who are listed yearly. You probably do not see the names of Journal Secretaries who have been essential and unrecognized. Three I must recognize are the current secretary Gail Payne, and previous secretaries Mary Jo Klein and Bonnie Diaz.

Wayne Book

NSF Workshop on New Directions in Control Engineering Education

On October 2nd and 3rd, 1998, the National Science Foundation (NSF), the IEEE Control Systems Society and the Coordinated Science Laboratory of the University of Illinois at Urbana-Champaign co-sponsored a unique workshop focused on control engineering education. Several leaders in the field of controls gathered from academia, industry, and government to discuss the state of the art in control engineering education as well as outline possible future directions. The workshop showed institutional diversity in its organization with Prof. Mark Spong (UIUC), Prof. Tamer Basar (UIUC), Prof. Harris McClamroch (University of Michigan), Prof. Steve Yurkovich (The Ohio State University) and Prof. Panos Antsaklis (University of Notre Dame) spearheading the effort. Additionally, there was a great deal of academic variety on the part of the workshop participants including notable international contributors.

The motivation of the workshop was to identify new directions in control engineering education and to recommend new NSF initiatives that could support these directions. It was the consensus of the workshop that the time is ripe for major changes in how control engineering is taught in most universities. The needs of industry for well-trained control engineers are changing due to marketplace pressures. The background of students is changing; including nontraditional backgrounds. Additionally, there is a need to prevent the control engineer in industry from becoming obsolete in the rapidly changing and evolving field of controls.

The workshop spanned two days and included plenary lectures, presentations, and focused discussion groups. Drs. Art Sanderson and Kishan Baheti of NSF began the event by giving an overview of the Foundation's view on "The Integration of Research and Education." This was followed by Karl Astrom's plenary on "Real and Virtual Laboratory Processes" encompassing the vast changes that had taken place during the time he had been associated with control engineering education. The rest of the workshop included lectures by control engineers on a variety of topics related to education. These talks covered a wide spectrum including the huge impact that information technology and the Internet are having on education in general and controls in particular. Another component of the workshop were the extensive

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NSF Workshop

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laboratory tours highlighting the UIUC College Control Laboratory networks. The final component of the workshop involved the group of over 40 participants being divided into several focus sessions designed to seriously address some of the concerns associated with Control Engineering Education. After reaching some initial conclusions, the groups were charged with reporting back to the entire workshop on their findings. Examples of the discussion topics included

Undergraduate Laboratory Issues

What are examples of successful control experiments? Why?

How can labs better prepare students for industry?

Undergraduate Curriculum Issues

Is the traditional core control curriculum (principally SISO) still adequate for the present and future?

What would constitute a list of core topics? (still teach Routh-Hurwitz?)

Continuing Education and Lifelong Learning

Are current continuing ed. opportunities for control engineering adequate?

Graduate Curriculum Issues

Is the traditional graduate control curriculum (built mostly around mathematical techniques) still adequate for the present and future?

There were several other topics and issues that made for extremely lively discussion. A full description of them can be found at the web site listed at the end of this article.

There were several themes that continued to surface during the course of the workshop. Two of them that were notable had to do with Information Technology and the role of complexity in control education. It was clear that the Internet is a vital tool in all facets of 21st century education. Controls is no exception. There is a large amount of information and advanced educational tools that have been developed to aid the students in their learning; either university students or continuing education students. The ability to learn asynchronously has greatly increased the availability of knowledge to those who wish to pick it up. There was a strong call for the continued development, refinement and dissemination of tools that would help all levels of students, even K-12, better understand the central role that feedback plays in their lives and how to analyze it. The other notable topic to be mentioned in this brief article was the notion of complexity and how it is a missing component in many universities' control curricula. Most of the focus, particularly in undergraduate courses, is on the SISO loop closures. However, controls is being used in ever more complex situations with many different systems operating in a highly interrelated fashion. The tools given for SISO systems, and even some MIMO systems, don't easily scale to large manufacturing operations or other industrial operations involving several components. The 21st century control engineer should have some notion of the challenges associated with these problems. While these two themes are mentioned here, the reader is encouraged to consult the web site listed below for much more detailed reports on several of the topics under discussion. There were a few preliminary conclusions that were reached during the short span of the workshop. First, cooperative efforts between the NSF and professional societies should continue to be encouraged; particularly in the educational arena. There is a very good opportunity to institute positive change on a large scale by combining these resources. Secondly, universities should encourage and support interdepartmental cooperation in control education wherever possible. There should be a synergistic leveraging of resources including cross listing and interdepartmental laboratories (i.e. at the College level). Since controls is so broad and interdisciplinary, the cooperation of controls faculty within different departments should be quite natural.

Finally, introductory undergraduate control courses, either junior or senior level, should be revised to provide a broader view of systems and control concepts. NSF should support creative proposals for development of new courses, new textbooks, new Information Technology tools, etc. that would seed these efforts. The professional societies should then use their publications and conferences to provide maximal visibility for these efforts.

Overall, the workshop was considered a success. Anyone wishing further information is encouraged to see the Workshop Web Site at:

http://robot0.ge.uiuc.edu/~spong/workshop

The Dynamic Systems and Control Division Newsletter is published twice annually (Spring & Fall). Please submit your items for publication, by e-mail; contact us for more details:

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NSF Focus: Allison Flatau's First Communication

Hello. As the new director of the National Science Foundation (NSF) Dynamic Systems and Control Program I'd like to introduce myself and invite you to please do the same. If you have questions about NSF programs, proposal submission and review, or just want to introduce yourself, please get in touch with me either by phone (703-306-1362) or e-mail:

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I look forward to working with you in the future.

Next, I'd like to recognize that I've got big shoes to fill, as Dev Garg has done an excellent job with leading the Program, with involvement in your community and with getting word out as to the NSF activities and new funding initiatives at the NSF. Thank you Dev for six years of invaluable service!

For a bit on my background, I come to the NSF from the Aerospace Engineering and Engineering Mechanics department at Iowa State University, and over four years of industry experience prior to my academic position. My background is largely in experimental vibrations, acoustics, transduction and smart structures. Some of the highlights of my technical experience include work on wind turbine vibration problems as a test engineer for Rockwell International at the National Small Wind Systems Test Center in Colorado (now part of the National Renewable Energy Laboratory), work on acoustic combustion instabilities in the space shuttle solid rocket motors for Thiokol Corporation, and most recently, work with students and industry on modeling, design, development and testing of magnetostrictive transducers for smart structure applications.

Since arriving at the NSF in September as "a rotator" (a full time faculty member who is "on loan" to the government for at least one two-year tour), I have learned of the plans for funding emphasis along Engineering Directorate-wide and even NSF-wide strategic themes. Dev Garg had written columns to this newsletter summarizing some of these, such as the Knowledge and Distributed Intelligence (KDI) funding Initiative. Below I've summarized three of the newer initiatives.

http://www.nsf.gov/cgi-bin/getpub?nsf9968

Wireless Information Technology and Networks

The coming generation of tetherless (terrestrial wireless and satellite) communications technology promises a leap forward in information accessibility with an attendant increase in economic yield simi-

lar to that stimulated by the Internet in the 1990s. Researchers face many technical challenges, but data rates of tens of megabits per second (enabling broadband Internet access, for example) are apparently a realizable goal early in the 21st century. In just 20 years, wireless personal communications services have grown from a vague concept to an important global telecommunications service with over 300 million subscribers, or 40% of the World's installed wired telephone base. Current trends point to a revolution in wireless mobile information technology within the next couple of decades that will completely modify the way we work, learn, play, seek services, and purchase products, providing complete freedom of location to the individual. Clearly, this mobile component of the information infrastructure (i.e., the interconnected series of telecommunications networks and computer based services) will continue to develop in importance as people demand more and more flexibility in their day-to-day activities, whether work or recreation related, as we move into the 21st century.

http://www.nsf.gov/cgi-bin/getpub?nsf9956

Engineering Sciences for Modeling and Simulation-Based Life-Cycle Engineering

This is an announcement for a collaborative research program to be funded by the National Science Foundation (NSF) and Sandia National Laboratories (Sandia). Sandia has the responsibility to provide solutions to a wide range of engineering problems pertinent to national security and other national issues. This responsibility spans the "life cycle" of a variety of engineered systems, where "life cycle" for the system includes defining its requirements, establishing the concepts to meet the requirements, proposing designs, verifying that the design satisfies the requirements, manufacturing the system, operating and maintaining the system, and finally dismantling and disposing of the system. With the advent of teraflop-class, massively parallel computers, Sandia is moving toward an engineering process in which decisions will be based heavily on computational simulations that are experimentally validated. These simulations are of a magnitude unprecedented in computational size, scope of technical issues, spatial and temporal resolution, complexity in terms of coupled multiphysics phenomena, and comprehensiveness in terms of parameter-space that is being explored. The NSF mission is to advance the fundamental science and engineering base of the United States, including a commitment to the further development of engineering processes using validated computer modeling and simulation. The two organizations have entered into a collaborative program to fund research projects that are focused on advancing the fundamental knowledge needed to support advanced computer simulations.

http://www.nsf.gov/cgi-bin/getpub?nsf9931

Engineering Microsystems: XYZ on a Chip

The Engineering Directorate of the National Science Foundation (NSF) announces a research initiative on Engineering Microsystems: "XYZ on a Chip." The focus is on non-electronic applications that make effective use of the fundamental aspects of the technology of microelectronics by adding new functions, processes, or capabilities. The initiative is intended to encourage development of novel applications, exploration of non-electrical processes at micro-scale, extension of lithographic "printing" methods to non-electrical processes, architectural and design issues of "wet" chips that interface to biological or chemical processes, materials and layering problems, and rapid prototyping. The initiative has a strong emphasis on non-traditional applications. Proposals are encouraged to integrate electronics with non-electronic processes to enhance functions and capabilities, but the processing of electrical signals in itself is not a focus of this initiative. The initiative will encourage cooperative and interdisciplinary activities, as well as the use of shared facilities and access to federally supported laboratories and resources to undertake any experimental and computational phases of the proposed research. This is the first year for this initiative and we received roughly 350 pre-proposals, which has been down-selected to roughly 75 PIs who have been asked to submit full proposals.

ASME Journal of Dynamic Systems Measurement and Control Has a New Editor and a New Journal Office

Between Christmas and New Year boxes were being packed at the Journal Office at Georgia Tech as Technical Editor Wayne Book and Journal Secretary Gail Payne were preparing to transfer operations to Galip Ulsoy (the new Technical Editor) and Linda Jeffrey (new Journal Secretary) at the University of Michigan. The actual transfer has taken place, and the new Journal Office can now be reached by contacting:

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Make Your Plans to attend the

1999 ASME International Mechanical Conferences & Exhibition

Register for the ASME "Congress" early! See full 1999 "Congress" on the *new* ASME Website:

http://www.asme.org

6th International Conference on Mechatronics and Machine Vision in Practice (M2Vip'99)

September 1-3, 1999

Middle East Technical Univ.
Ankara, Turkey

This conference will be a forum of presentations which demonstrate various applications of mechatronic principles and machine vision technology to the development of innovative products, systems and processes, at least to an experimental stage.

Topics of interest of M2Vip'99 include but are not limited to: Mechatronics in product applications and Intelligent products; mechatronics and Machine Vision in non-industrial applications such as agriculture, surgery and medicine; distributed control systems in mechatronics; intelligent control and computation in mechatronics; novel sensors and actuators for mechatronic infrastructure; robots including mobile robots and telemanipulators, service robots, and medical robots; vision for real time control of machines and processes; mechatronics and machine vision in biotechnology; vision guidance for indoor and outdoor applications; applications of neural networks and fuzzy logic in mechatronics and machine vision; visual recognition in manufacturing processes including quality control and sorting; sensory control of robots; mechatronics education.

Detailed conference information including abstract format, review process and registration is available at:

http://design.me.metu.edu.tr/m2vip.

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