

Columns: Officers Speak

President's Corner



The state of the AACC is excellent. First, of all the AACC finances are in excellent shape. Our main source of income is the ACC conference, and any financial returns from the conference are distributed back to the member societies in proportion to their participation in the conference. One of the most important developments in the financial arena for AACC is the financial return we get for papers published in the ACC Proceedings through the IEEE Xplore program. This has enabled our treasurer, **Russ Rhinehart**, to create over the past few years a strategic reserve of approximately \$300,000, which ensures that we can weather any unexpected problems in conferences and symposia that we underwrite, while still returning funds of approximately \$100,000 total each year to member societies. In the future, we expect this new source of income to enable us to reduce the cost of ACC participation, especially for students, and to increase our investment in AACC awards.

Our secretary, **Pradeep Misra**, is the glue that holds this virtual organization together, maintaining our web site (www.a2c2.org), overseeing the preparation and distribution of the AACC Newsletter, and organizing and setting the agenda for twice-yearly Board meetings. Recently, Pradeep has worked on improvements to the web site, in addition to getting past ACC Proceedings scanned so that they can be included in the IEEE Xplore program.

Finally, it is noteworthy that the American Control Conference has been successful and vital for a quarter of a century, with about 1000 attendees each year since 1982. The reason for this has been the extraordinary effort by volunteer organizers of the conference to ensure a high-quality technical program and to serve the needs of the community. Recently, there has been some discussion about whether we can call the 2006 ACC the Silver Anniversary ACC, since no ACC was held in 1996. Instead, the AACC hosted the 1996 IFAC World Congress in San Francisco. I suggest that this simply gives us license to celebrate 25 years of ACC twice, both this year in Minneapolis as well as next year in New York City (<http://www.a2c2.org/conferences/acc2007/>).

I thank you all for your participation in past and upcoming AACC events.

A. Galip Ulsoy
President, AACC 2006-2007



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Vice President Invites Feedforward and Feedback Action

Feedforward Action: Many of you may not be aware of the process to select the venue and Operating Committee for an ACC. About five to six years before an ACC, the AACC Board appoints the General Chair for the conference. The General Chair begins the site selection process by first considering



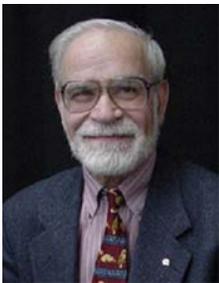
the geographical region of the conference. (Since we engineers have a natural talent for pattern recognition, you may have already noted that the ACC cycles from the West Coast to Central to East Coast locations.) A major constraint is finding conference hotels that can provide enough meeting space (usually 18 parallel sessions) at a reasonable hotel room rate, without requiring too many attendee hotel room-nights in the contract. (There is a sliding scale charge to the ACC if minimum room-nights are not satisfied.) The General Chair selects a Program Chair, who must also be approved by the AACC Board. Over time, a total of 12-13 conference Operating Committee positions are filled. You may have a question about how people are selected for these positions. Several different routes are used. One, the General or Program Chair may invite people that they have worked with during previous conferences. In addition, AACC Directors and Officers often suggest names for the Operating Committee or the Program Committee (which is organized by the Program Chair). If you are interested in being more

involved in the organization and operation of an American Control Conference, I suggest that you contact the AACC Director associated with your main professional society (IEEE, etc.); the contact information for all Directors is available on the website (www.a2c2.org). Alternatively, you may email me (bequette@rpi.edu) to volunteer your efforts.

Feedback Action: One of my primary AACC responsibilities is to chair the ACC Steering Committee meetings, which bring together the General and Program Chairs of past and future conferences to share best practices, and to provide continuity from conference to conference. Each year we also conduct a survey to help improve the ACC from year to year. I encourage you to respond to the ACC surveys and to contact me directly with your ideas and suggestions. Are there new ideas that we should try out at the ACC? Do you have particular cities that you feel would be a good location for an ACC (remembering that our conferences are generally held in June)? Please send me emails providing suggestions to improve ACCs or to volunteer for conference responsibilities.

B. Wayne Bequette
Vice President, AACC 2006-2007

Global Concerns XXXII



It is with trepidation that I write this column following in the footsteps of **Steve Kahne** and **Mike Masten**. Many things happened at IFAC since the last column appeared more than a year ago.

IFAC has been in an excited state under the leadership of President Wook Kwon. On September 15, 2006 the 50th anniversary celebration was held in Heidelberg, Germany. It was organized by **Rolf Isermann** with contributions from our own **Steve Kahne**, **Mike Masten**, and **Janos Gertler**. The celebration ended with fireworks in the court of Schloss Heidelberg. Please refer to the IFAC web site to see the latest pictures from the event.

In 2005, IFAC instituted the Fellow award. The first recipients were awarded during the IFAC Congress in Prague in July 2005. The process now is handled on an annual basis, and this year recipients were honored during the IFAC 50th celebration. Among the honorees were our own **Mike Masten** (who could not attend), **Tom McAvoy**, **Davor Hrovat** (past winner of the AACC CEP award), **Mike Athans** (past winner of the AACC Bellman award), and **Petros Ioannou**. *The deadline for next year Fellow nominations is December 2006.*

IFAC also started a Foundation to assist your control researchers and engineers. All funds in the Foundation will be used to support its mission, while all administrative costs will be borne by the IFAC regular budget. A major contributor to the Foundation (which also served as the spark that started the process) is **IFAC President Kwon** who donated \$500,000.

Another indication of the health of IFAC is the record number of NMOs who submitted proposals to host the IFAC Congress in 2014. There were seven proposals at the Heidelberg Council meeting, and the Council painfully selected two finalists for its decision at the Council meeting in June 29, 2007 in Toulouse, France in conjunction of the IFAC Symposium on Automatic Control in Aerospace.

During the historical review that Steve Kahne presented at the IFAC 50th, it was apparent that some original documents from the past were no longer available. To correct such oversight in the future, IFAC will include a new section on its web site devoted to control timeline and other educational resources in the control field. **Steve Kahne** was appointed Editor-in-Chief for this section of the IFAC web site. I hope all ACC participants will browse the IFAC web site often in order to keep up with all the changes taking place. Please refer to the news section in the IFAC web site (<http://www.ifac-control.org>) for more information on this issue. In particular, please refer to <http://140.78.137.200/ifac50/home.html> to view the control time-line. Any comments and suggestion should be forwarded to **Steve Kahne** (kahne@erau.edu).

Last year the IFAC publisher, Elsevier, decided not to publish any proceedings of IFAC technical meetings. As a solution to this problem, IFAC will design an open source web site for all such papers. The site will be free to users, and the papers will be fully citable and have a unique identifiable number. Details will be provided at a future time.

It is important to remember that the next IFAC Congress is scheduled for July 6-11, 2008 in Seoul, Korea with a deadline for paper submission of September 8, 2007. So you have almost a full year to prepare your contribution to IFAC'08.

The main activity in IFAC is carried out within the Technical Committees. Any persons interested in participating in an IFAC Technical Committee are invited to contact AACC Secretary, **Pradeep Misra** (pmisra@cs.wright.edu). It is important for US control researchers and engineers to be involved with IFAC. Young people are needed so that the relation between IFAC and the US NMO continues to be strong into the future.

Finally, I wish to thank **Mike Masten** for the superb way he represented the US NMO at the IFAC Council.

Abraham Haddad
IFAC Council Member

Asok Ray to serve on PCSF Governing Board



Asok Ray, Distinguished Professor of Mechanical Engineering at Pennsylvania State University, University Park, PA, was elected to represent academe on the Governing Board of the Process Control Systems Forum (PCSF). It is a 2-year appointment, and he was nominated by the AACC.

The PCSF was initiated by the US Dept of Homeland Security in 2004 to accelerate improvements in process control systems to eliminate vulnerabilities to terrorism, failures, abnormal events, vandals, etc. These are equipment, communication, and device management issues as well as control strategy issues; so it is a multidisciplinary initiative. The needs are in education and research as well as equipment development and methods of use, so the ACC participants can become key players. Russ Rhinehart represented academe to the PCSF Board for organization startup, and PCSF held a special session at the 06 ACC. Among other activities, PCSF is working to assemble a team of academics to prepare course material for including security and failure responses in classes, and to shape a national agenda for research that would eliminate vulnerabilities. Because the ACC is an interdisciplinary gathering of academics in all aspects of control, we feel the ACC is a prime venue for PCSF Working Group meetings and activities.



R. Russell Rhinehart
Treasurer, AACC

Award Winners

ALERT: The nomination deadline for the AACC awards is November 1, 2006

In recent years we have not received a sufficient number of nominations for these awards, and we ask for your assistance with this important issue. Please contact your society colleagues, leadership, and society award committees and nominate a colleague today!

AACC Award Honorees



*From left to right: **Back row** - William S. Levine (Past AACC President), B. Wayne Bequette (AACC Vice President), Murat Arcak, Nuno C. Martins, Munther A. Dahleh, Tamas Keviczky; **Front row** - Masayoshi Tomizuka, Tamer Basar, Gary J. Balas, David Bayard, Galip Ulsoy (AACC President); photo taken at the 2006 American Control Conference, courtesy of Pradeep Misra*

Richard E. Bellman Control Heritage Award - Tamer Basar

For fundamental developments in and applications of dynamic games, multiple-person decision making, large scale systems analysis, and robust control

Control Engineering Practice Award - David Bayard

For fundamental and innovative contributions to spacecraft control systems, including technical leadership on the precision pointing system for the Spitzer Space Telescope

Donald P. Eckman Award - Murat Arcak

For outstanding contributions to feedback design of nonlinear systems and networks, and innovative applications to fuel cell technology

John R. Ragazzini Award - Masayoshi Tomizuka

For outstanding contributions to control education by blending and balancing a range of theoretical developments with applications, mentoring many future leaders in academia and industry, and demonstrating leadership in many national and international organizations

O. Hugo Schuck Best Paper Award

- **For Theory:** "Fundamental Limitations of Performance in the Presence of Finite Capacity Feedback," by N.C. Martins and M.A. Dahleh
- **For Practice:** "Flight Test of a Receding Horizon Controller for Autonomous UAV Guidance," by T. Keviczky and G.J. Balas

Congratulations to our 2006 IFAC Fellows

- Michael Athans
- Davor Hrovat
- Petros Ioannou
- Mike Masten
- Tom McAvoy

And to our 2005 IFAC Fellows

- Tamer Basar
- Robert Bitmead
- János Gertler
- Alberto Isidori
- Stephen Kahne
- Petar Kokotovic
- Carl Nett
- William F. Powers
- Gunter Stein

American Control Conference

2006 American Control Conference Report



The 2006 American Control Conference (ACC) was held June 14-16 2006 at the Minneapolis Hilton in Minneapolis, Minnesota. The ACC has been held under the auspices of the American Automatic Control Council (AACC), the U.S. National Member Organization of the International Federation of Automatic Control (IFAC). It brings

together individuals working in control, automation, and related areas from the American Institute of Aeronautics and Astronautics (AIAA), the American Institute of Chemical Engineers (AIChE), the Association of Iron and Steel Technology (AIST), the American Society of Civil Engineers (ASCE), the American Society of Mechanical Engineers (ASME), the Institute of Electrical and Electronics Engineers (IEEE), the International Society for Measurement and Control (ISA), and the Society for Computer Simulation (SCS).

The venue for this conference provided a great environment for interaction among the attendees, and enjoyment of the local attractions and rich culture. The success of this conference is attributed to the attendees, authors, presenters and chairs that made the conference come alive. The logistics in bringing the event together were handled by the enthusiastic operating committee that devoted 3 years of their time and effort into the planning and execution of this conference.

The exciting and diversified technical program was based on excellent material that authors from 38 countries submitted to the conference: 1444 contributed papers, 171 invited papers, and 32 invited session

proposals. The final manuscript acceptance rates were 61% contributed and 81% invited papers, which led to a very high quality program. There were 175 total technical sessions distributed over 3 days of the conference in 20 parallel sessions, that included one interactive and 3 tutorials sessions. There also were 5 special sessions and four industrial special sessions. Each day started with plenary talks, given by **Professors Shankar Sastry**, UC Berkeley (Networked Embedded Systems: Sensor Nets and Beyond), **Dr. John Bay**, ARL (Modeling the World: How to Make Control the Dominant Discipline in Tomorrow's Applications) and **Dr. Pablo Parrilo**, MIT (Sum of Squares Methods in Optimization and Control and the 2005 Eckman awardee). Five special sessions were organized at this ACC: Industrial Academic Interaction; Publication: The Public University and the Public Interest; Biological Control Systems: Endogenous and Exogenous Analysis and Design; A Panel Discussion on Process Control and SCADA Security; and Early Career Development: Role of NSF, NASA, AFOSR, and AACC. Four of the industrial sponsors (Honeywell, United Technologies Research Center, Raytheon, and The Mathworks) held industrial special sessions. Three industry and applications tutorials were held on Wednesday: LabVIEW Graphical Programming for Field Programmable Gate Arrays; Convex Optimization Part II: Duality, Algorithms & More Applications; and Oscillation Diagnosis in Control Loops-Stiction and Other Causes.

The Exhibit, with 16 exhibitors, was integrated with the other events of the conference by holding the exhibit in highly visible foyer area in front of the ballrooms, meeting rooms, and conference registration desk. This setting allowed for animated interaction among the conference attendees and exhibitors. This conference also had the sponsorship of 5 industrial sponsors: Honeywell, United Technology Research Center, The Mathworks, Raytheon and Eaton. Their contributions are greatly appreciated and the funds have been used to provide partial support to graduate students who have requested financial travel support from the conference.

The pre-conference workshops were held on Monday and Tuesday. A total of 8 workshops were held: two 2-day workshops and six 1-day workshops (2 on Monday and 4 on Tuesday). This year the conference offered Continuing Education Units (CEUs) for all the workshops through IEEE.

The social program was one of the highlights of the conference in itself: the traditional ACC Awards Luncheon was held on Thursday at the Minneapolis Hilton, which had a record number of attendees. The paid Special Event took place on Thursday evening at the Minnesota Historical Center, which allowed the attendees to learn about the rich history of Minnesota. The attendees of the special event were also treated with a raffle of books, software and hardware donated by exhibitors. The Closing Reception was held at the Nicollet Island Pavilion, located on an island in the Mississippi River with a great

view of the downtown Minneapolis, with entertainment provided by a wonderful Jazz band.

The American Automatic Control Council (AACC) awards were made at the Awards Luncheon. The awardees this year were **Murat Arca**k for the Donald P. Eckman Award, **David Bayard** for the Control Engineering Practice Award, **Masayoshi Tomizuka** for the John R. Ragazzini Award, **N.C. Martins** and **M.A. Dahleh** for the O. Hugo Schuck Award for Theory, **T. Keviczky** and **G.J. Balas** for the Hugo Schuck Award for Practice, and **Tamer Basar** for the Richard E. Bellman Control Heritage Award. Among the 1151 attendees in this ACC were 273 students, an increasingly important crowd of young participants in this conference. Thanks to funds provided by the AACC, the National Science Foundation (NSF), the Control System Society of the Institute of Electrical and Electronic Engineers (IEEE), the Dynamic Systems and Control Division of the American Society of Mechanical Engineers (ASME), and the industrial sponsors, the conference was able to support the travel of 86 students. Another important activity for the students is the Best Student Paper Competition. The winner this year was **Anurag Ganguli**, with the paper "Distributed Deployment of Asynchronous Guards in Art Galleries". The other finalists, all very strong contenders, were **Andrey Smyshlyaev**, **Shivakumar Kameswaran**, **Nader Motee**, and **Bert Pluymers**.

Thanks to all the authors, session chairs, members of the program committee, numerous anonymous reviewers, paperplaza support team, student helpers, and members of the operating committee. This conference was a tremendous success. We are now looking forward for the 2007 ACC in New York City!

Eduardo A. Misawa
2006 ACC General Chair

Invitation to the 2007 American Control Conference



On behalf of the organizing committee let me invite you to attend the 2007 American Controls Conference on July 11-13, 2007. The conference will cover a broad range of topics relevant to the theory and practice of control and automation. We had a very large number of submissions and are planning an exciting technical program. In addition to a plenary session on Wednesday, we will have two semi-plenary sessions on both Thursday and Friday. The plenary topics are:

1. "Stochastic Control in the Context of Mathematical Finance: Problems, Results and

Challenges," **Ioannis Karatzas**, Department of Mathematics, Columbia University

2. "Feedback and Stability in the Air Transportation System," **R. John Hansman**, Director, MIT International Center for Air Transportation, Massachusetts Institute of Technology
3. "Consummating the Union between Communications and Control," **Andrea Goldsmith**, Department of Electrical Engineering, Stanford University
4. "Structure and Passivity in Large-Scale Network Analysis and Design", **Murat Arca**k, Electrical, Computer, and Systems Engineering Department, Rensselaer Polytechnic Institute
5. "Control Issues and Research Activities in Building Automation and Control Systems," **Steven T. Bushby**, Leader, Mechanical Systems and Controls Group, National Institute of Standards and Technology

In addition to traditional control topics, the 2007 ACC encouraged submissions in three special areas. Sessions concerning these areas will be held according the following schedule:

1. Wednesday, July 11, Control Methods in Finance
2. Thursday, July 12, Control in Transportation Systems
3. Friday, July 13, Control and Integration in Intelligent Building Systems

The Program Committee will meet in December to determine the details of the final technical program.

The 2007 ACC will be held at the Marriott Marquis, which overlooks Times Square and is located in the heart of New York City's Theater District. There are many restaurants within walking distance, a short cab or subway ride away, to appeal to every taste and price range. Central Park is one-half mile north of the conference site. Also within a short distance of the hotel are Rockefeller Center, Radio City Music Hall, Lincoln Center, Carnegie Hall, The Metropolitan Museum of Art, The Museum of Natural History, the Museum of Modern Art and the Guggenheim Museum. Some of the world's most exclusive stores are just a few blocks away. The Marquis has given us an excellent conference rate of only \$186/night plus tax.

If you have questions, visit our website <http://www.a2c2.org/conferences/acc2007/> or email the appropriate Operating Committee member. I am looking forward to seeing many of you in July.

Robert Judd
2007 ACC General Chair

2008 American Control Conference Call for Papers

<http://a2c2.org/conferences/acc2008/>



The AACC will hold its annual ACC Wednesday through Friday, June 11-13, 2008, at the Westin Seattle in Seattle, WA. Papers are solicited in the areas of control, automation, and related areas from AIAA, AIChE, AIST, ASCE, ASME, IEEE, ISA, and SCS.

Deadline: September 15, 2007

Anuradha Annaswamy
2008 ACC General Chair

ACC Policy

Paper Submission Format: All papers submitted to the ACC for review must be prepared in the standard 2-column proceedings format. See the Author's Kit at the conference website for Word and LaTeX style files. For the purposes of review, regular and invited papers are limited to 8 pages and short papers to 3 pages. Papers exceeding these limits will not be reviewed. All submissions for the conference technical program must be done through the IEEE Control Systems Society submission website (<http://css.paperplaza.net>).

Paper Publication: Accepted short papers are limited to 2 pages; regular and all other papers are limited to 6 pages. Papers exceeding these limits will be published in the conference *Proceedings* only after payment for all extra pages is received.

Registration Fee: One regular registration fee at the advance registration rates must be paid by one of the authors before uploading the final version of the paper for inclusion in the conference.

AACC Newsletter Editor Solicits Ideas and Contributions

I invite all AACC constituents to submit articles, announcements, ideas, and suggestions that will enrich the quality of our publication. Please send all submissions to me via e-mail (mthein@cisunix.unh.edu).

I thank you all in advance for your continuing contributions and support for our AACC Newsletter.



May-Win Thein
Newsletter Editor, AACC

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