

Technical Committee on Intelligent Control

This column focuses on the activities of selected technical committees (TCs). In addition to providing information about TC activities, this column is intended to serve as a call for participation by readers with related interests. Please contact Jay Farrell at farrell@ee.ucr.edu for information about joining an IEEE Control Systems Society TC.

The IEEE Control Systems Society (CSS) Technical Activities Board met at the 2008 American Control Conference in Seattle on Wednesday June 11, 2008. In attendance were Richard Braatz, Michael Demetriou, Jay Farrell, Shuzhi Sam Ge, Mustafa Khammash, Daniel Rivera, and Andy Teel. One of the main topics of discussion was the role of the technical committees (TCs) in organizing the technical program of the various CSS conferences. In particular, the TCs have played a significant role in motivating, creating, and organizing the Multiconference on Systems and Control (MSC).

The IEEE MSC provides an organizational structure for the MSC hotel, registration, and financial aspects allowing each individual conference program committee to concentrate on technical excellence in the papers and workshops. The MSC offers TCs the infrastructure within which to rapidly organize meetings, workshops, symposia, and conferences on emerging and existing topics. Registrants to the IEEE MSC can attend and participate in

activities within each subconference, paving the way for greater scientific exchange, exposure to new disciplines, and increased interaction among participants in one centralized location. Under the overarching umbrella of the multiconference, attendees are provided with a consolidated proceedings volume.

The IEEE Conference on Decision and Control (CDC) and the IEEE MSC are the two major conferences organized, sponsored, and governed by the CSS. The first MSC, which was held in 2007, combined the IEEE Conference on Control Applications (CCA) and the IEEE International Symposium on Intelligent Control (ISIC). In 2008, MSC also included the IEEE International Symposium on Computer-Aided Control System Design (CACSD). This article focuses on the role of the Technical Committee on Intelligent Control (TCIC) in organizing these conferences.

INTELLIGENT CONTROL FOCUS

The objectives of TCIC are to make fundamental research contributions in intelligent control, to promote intelligent system development in providing solutions for increasingly complex industrial systems, and to facilitate scientific research and exchange in a vibrant and collegial environment. To achieve these objectives, TCIC is dedicated to addressing the fundamental issues of the present and the future in intelligent control and is organized into ten working groups: 1) adaptive control, 2) distributed control systems, 3) fuzzy systems, 4) neural networks, 5) learning techniques, 6) knowledge-based systems, 7) hybrid intel-

ligent systems, 8) soft computing, 9) architectures of intelligent control systems, and 10) applications of intelligent control systems.

The increasing complexity and sophistication of modern systems calls for intelligent control systems to ensure higher performance in diverse operating conditions, some of which may fall outside of the scope of conventional control. Intelligent control involves the seamless fusion of systems and control, computer science, and operational research, among others, coming together, merging, and expanding in new directions and opening new horizons to address the problems of this challenging and promising area. Intelligent control systems are typically able to perform one or more of the following functions: planning actions at multiple levels of detail, emulation of human expert behavior, learning from past experiences, integrating sensor information, identifying changes, and reacting appropriately.

TCIC members are active in the control research community as indicated by the monographs, journal, and conference publications listed on the TC Web site. In addition to publications, TCIC members also contribute to the control community by serving on control conference committees, serving as editors and associate editors of control and computational intelligence related journals, and leadership of the CSS.

TCIC continues to play an active role in organizing workshops, symposia with international academic organizations, participating in IEEE conferences in areas pertaining to intelligent control system research and design, coordinating academic and

TABLE 1 Summary of ISIC organizational data.

General Chair	Program Chair	Location	Dates
G.N. Saridis	A. Meystel	Troy, New York	August 26, 1985
A. Meystel	J.Y.S. Luh	Philadelphia, Pennsylvania	January 19–20, 1987
H.E. Stephanou	A. Meystel, J.Y.S. Luh	Arlington, VA	August 24–26, 1988
A.C. Sanderson	A.A. Desrochers, K. Valavanis	Albany, New York	September 25–26, 1989
A. Meystel	H. Kwatny, S. Navathe, H. Wechsler	Philadelphia, Pennsylvania	September 5–7, 1990
H.E. Stephanou	A.H. Levis	Arlington, Virginia	August 13–15, 1991
E. Grant	T.C. Henderson	Glasgow, Scotland	August 11–13, 1992
P. Antsaklis	K.M. Passino, U. Ozguner	Chicago, Illinois	August 25–27, 1993
U. Ozguner	L. Acar, M.B. Leahy, Jr.	Columbus, Ohio	August 16–18, 1994
K. Valavanis	L. Acar, M.B. Leahy, Jr.	Monterey, California	August 27–29, 1995
K.M. Passino	J.A. Farrell	Dearborn, Michigan	September 15–18, 1996
Y.I. Stefanopoulos/	K. Ciliz/E. Barbier, U. Ozguner	Istanbul, Turkey	July 16–18, 1997
J. Albus	S. Lee, A. Koivo, A. Meystel, F.-Y. Wang	Gaithersburg, Maryland	September 14–17, 1998
M. Kokar	M. Lemmon	Cambridge, Massachusetts	September 15–17, 1999
P. Groumpos	M. Polycarpou	Patras, Greece	July 17–19, 2000
Daniel Repperger	Thomas Parisini	Mexico City, Mexico	September 5–7, 2001
C. W. De Silva	Fakhri Karray	Vancouver, British Columbia, Canada	October 27–30, 2002
G.G. Yen	S. S. Ge	Houston, Texas	October 5–8, 2003
S.S. Ge	T. Samad	Taipei, Taiwan	September 2–4, 2004
M.M. Polycarpou	T. Parisini	Limassol, Cyprus	June 27–29, 2005
Andras Varga	Derong Liu	Munich, Germany	October 4–6, 2006
Shuzhi Sam Ge (MSC)	Sarangapani Jagannathan	Singapore	October 1–3, 2007
Oscar Gonzalez (MSC)	Kevin Moore	San Antonio, Texas	September 3–5, 2008

research activities, and providing relevant information to interested researchers. Members of TCIC first organized the IEEE International Symposium on Intelligent Control (ISIC) in 1985. The committee now has a 22-year history of successful operations as summarized in Table 1. This symposium has been held jointly with the CCA or CACSD in 1996, 2001, 2004, and 2006. In 2000 and 2005, ISIC was held jointly with the Mediterranean

Conference on Control and Automation. Since 2007, it has been organized under the MSC. At various times, the ISIC has been jointly organized with IFAC and one or more of the IEEE Computer, Industrial Electronics, and Robotics and Automation Societies.

TCIC is dedicated to providing informational forums, conferences for technical discussion, and information over the Web to researchers in the CSS who are interested in the field of intelli-

gent control and its applications. The TCIC newsletter was set up in 2007 to serve this purpose. CSS members who are interested in participating in TCIC are welcome to contact the leader of the working group nearest to their interests. TCIC is currently chaired by Shuzhi Sam Ge. The TC Web site can be found through the CSS Web site or at <http://robotics.nus.edu.sg/tcic/>.

Jay Farrell



Better Is Worse

The engineers of 1868 were puzzled and worried that the unruliness of their steam engines seemed to be getting worse. Looking back to Watt's time and the intervening decades, they saw that the problems were increasing as engines became better engineered, which seemed counterintuitive to them, and seems counterintuitive to those of us today who are not control engineers. The search for astatic performance failed. Truly astatic engines could not be built, and engines that approximated this state—those with reduced dependence of engine speed on load—behaved worse than those with a marked dependence, despite the known offset problem. How could the small, crude engines of the earlier days, with a simple governor borrowed from windmills, behave better than the sleek, carefully manufactured behemoths of 1868?

—M. Denny, *Ingenium: Five Machines That Changed the World*, Johns Hopkins University Press, Baltimore, MD, 2007, pp. 148–149.

