

2011 IEEE CSS Awards

Every year the IEEE and the Control Systems Society recognize the outstanding contributions of individuals belonging to our technical community by giving a number of awards. Each award is handled by a corresponding committee or subcommittee for whose work we are very appreciative.

The 2011 IEEE CSS awards subcommittee chairs were:

- Steve Morse: George S. Axelby Outstanding Paper Award
- Richard D. Braatz: IEEE Transactions on Control Systems Technology Outstanding Paper Award
- Bonnie H. Ferri: Control Systems Magazine Outstanding Paper Award
- Paul Houpt: Control Systems Technology Award
- L. K. Mestha: Transition to Practice Award
- P. R. Kumar: Antonio Ruberti Young Researcher Prize
- Sandra Hirche: CDC Best Student-Paper Award
- Warren Dixon: MSC Best Student-Paper Award

More details about awards, the nomination process and past winners can be found on the IEEE CSS web site (<http://www.ieeecss.org/main/awards/award-programs>).

CSS Distinguished Member Awards

CSS also annually confers Distinguished Member Awards to selected members of our community who have made significant technical contributions as well as having provided outstanding long-term service to the Control Systems Society. We are pleased to recognize two Distinguished Member Awards in 2011:

- *Maria Elena Valcher*, of the Universita' di Padova, is recognized for scientific contributions in the areas of multidimensional linear systems, behavior theory, fault detection, delay systems, switched systems, positive systems, and outstanding service to the Control Systems Society through conference and membership related activities.
- *Theodore E. Djaferis*, of the University of Massachusetts Amherst, is recognized contributions to robust control theory, parametric robustness and algebraic systems theory; and outstanding service to the Control Systems Society in conference organization, revitalization of the CSS conference-related structures, and society governance (in Board of Governors, Vice President and President roles).

Outstanding Chapter Award

The Outstanding Chapter Award recognizes a chapter for demonstrating a high level of activity, innovation, or growth. The Vice-President of Member Activities, Shuzhi Sam Ge, was responsible for this award. The 2011 Award went to the Malaysia Section CSS Chapter, chaired by Mohd Nasir Taib, for recognizing its continuous effort in promoting technical meetings in year 2011.

CDC Best Student-Paper Award

The CDC Best Student Paper Award recognizes excellence in a paper presented at the IEEE Conference on Decision and Control whose primary author is a student member of the IEEE. The student finalist for CDC 2011 are:

- Finalist: Na Li
Advisor: Jason Marden
Paper Title/Authors: "Designing Games for Distributed Optimization," by Na Li and Jason R. Marden
- Finalist: Takashi Tanaka
Advisor: Cedric Langbort
Paper Title/Authors: "Symmetric Formulation of the Kalman-Yakubovich-Popov Lemma and Exact Losslessness Condition," by Takashi Tanaka and Cedric Langbort
- Finalist: Jing Wang
Advisor: Nicola Elia
Paper Title/Authors: "A Control Perspective for Centralized and Distributed Convex Optimization," by Jing Wang and Nicola Elia
- Finalist: Roberto Tron
Advisor: Rene Vidal
Paper Title/Authors: "Average Consensus on Riemannian Manifolds with Bounded Curvature," by Roberto Tron, Bijan Afsari, and Rene Vidal

The winner will be announced at the Award Ceremony.

CSM Outstanding Paper Award

The IEEE Control Systems Magazine Outstanding Paper Award is given for an article or column published during the two calendar years prior to the year of the award, based on impact and benefit to CSS members. The 2011 Award was given to Zachary Dydek, Anuradha Annaswamy and Eugene Lavretsky for their paper "Adaptive Control and the NASA X-15-3 Flight Revisited," *IEEE Control Systems Magazine*, vol. 30, no. 3, pp. 32–48, June 2010.

TCST Outstanding Paper Award

The IEEE Transactions on Control Systems Technology Outstanding Paper Award is given for a paper published during the two calendar years prior to the year of the award, based on originality, relevance of the application, clarity of exposition, and demonstrated impact on control systems technology. The 2011 Award was given to Massimo Canale, Lorenzo Fagiano, and Mario Milanese for their paper "High Altitude Wind Energy Generation Using Controlled Power Kites," *IEEE Transactions on Control Systems Technology*, vol. 18, no. 2, pp. 279–293, March 2010.

George S. Axelby Outstanding Paper Award

The George S. Axelby Outstanding Paper Award is presented for papers published in the IEEE Transactions on Automatic Control during the two calendar years prior to the year of the award, and is based on originality, clarity, potential impact on the theoretical foundations of control, and practical significance in applications. The 2011 award was given to Adolfo Anta and Paulo Tabuada for their paper: "To Sample or Not to Sample: Self-triggered Control for Nonlinear Systems," *IEEE Transactions on Automatic Control*, vol. 55, no. 9, pp. 2030–2042, September 2010.

Control Systems Technology Award

The Control Systems Technology Award recognizes outstanding contributions to control systems technology either in design and implementation, or in project management. This award can be conferred on an individual or a team. The recipients of this year's award are Michael Clune and Christos G. Cassandras, who are recognized for "for the design and commercial development of SimEvents, a discrete event and hybrid system simulator."

Transition to Practice Award

The Transition to Practice Award recognizes outstanding collaborative scientific interactions between industry or research laboratories and academic communities that transition basic controls and system theory to practical systems for the benefit of society at large. Individuals and teams are eligible. The recipient of the 2011 CSS Transition to Practice Award is Richard D. Braatz who is recognized "for significant contribution to the control of crystallization processes in the pharmaceutical industry." The Transition to Practice Award comes with an invitation to deliver a plenary lecture at the 2012 IEEE Multiconference on Systems and Control, one of the two annual CSS conferences.

Antonio Ruberti Young Researcher Prize



The Antonio Ruberti Young Researcher Prize recognizes distinguished cutting-edge contributions by a young researcher to the theory or application of systems and control. The 2011 Prize was given to Pablo Parrilo "for fundamental contributions to optimization theory and its applications." Pablo A. Parrilo is a Professor of Electrical Engineering and Computer Science at the Massachusetts Institute of Technology. He is currently an Associate Director of the Laboratory for Information and Decision Systems (LIDS) and is also affiliated with the Operations Research Center (ORC). Past appointments include Assistant Professor at the Automatic Control Laboratory of the Swiss Federal Institute of Technology (ETH Zürich), Visiting Professor at the California Institute of Technology, as well as short-term research visits at the University of California at Santa Barbara (Physics), Lund Institute of Technology (Automatic Control), and University of California at Berkeley (Mathematics). He received an Electronics Engineering undergraduate degree from the University of Buenos Aires, and a PhD in Control and Dynamical Systems from the California Institute of Technology. His research interests include optimization methods for engineering applications, control and identification of uncertain complex systems, robustness analysis

and synthesis, and the development and application of computational tools based on convex optimization and algorithmic algebra to practically relevant engineering problems. Prof. Parrilo has received several distinctions, including a Finmeccanica Career Development Chair, the Donald P. Eckman Award of the American Automatic Control Council, and the SIAM Activity Group on Control and Systems Theory (SIAG/CST) Prize. He is currently on the Editorial Board of the MOS/SIAM Book Series on Optimization.

Hendrik W. Bode Lecture Prize



The Hendrik W. Bode Lecture Prize recognizes distinguished contributions to control systems science or engineering. The recipient delivers a plenary lecture at the CDC, evaluating a significant contribution to control systems science or engineering. The 2011 Award went to John Baillieul. John Baillieul's research deals with robotics, the control of mechanical systems, and mathematical system theory. His PhD dissertation, completed at Harvard University under the direction of Roger W. Brockett in 1975, was an early work dealing with connections between optimal control theory and what came to be called "sub-Riemannian geometry." After publishing a number of papers developing geometric methods for nonlinear optimal control problems, he turned his attention to problems in the control of nonlinear systems modeled by homogeneous polynomial differential equations. Such systems describe, for example, the controlled dynamics of a rigid body. His main controllability theorem applied the concept of finiteness embodied in the Hilbert basis theorem to develop a controllability condition that could be verified by checking the rank of an explicit finite-dimensional operator. Baillieul's current research is aimed at understanding decision making and novel ways to communicate in mixed teams of humans and intelligent automata. He received a IEEE Third Millennium Medal in 2000, and he has held many positions in the Control Systems Society including that of fortieth President. John Baillieul has also held a number of leadership positions in both the Technical Activities Board and the Publication Services and Products Board of the IEEE. He is past IEEE Vice President of Publication Services and Products. John Baillieul is Professor of Mechanical Engineering at Boston University and is a Fellow of IEEE, SIAM, and IFAC.

IEEE Control Systems Technical Field Award



The IEEE Control Systems Award is given for outstanding contributions to control systems engineering, science or technology. The 2011 recipient was Eduardo D. Sontag who was recognized "*for fundamental contributions to nonlinear systems theory and nonlinear feedback control.*" Eduardo D. Sontag's contributions to nonlinear feedback for control and signaling systems opened the floodgates to creativity in nonlinear designs, benefiting a wide range of engineering disciplines. Dr. Sontag's control Lyapunov function (CLF), input-to-state stability (ISS), and related concepts help in the design of stable nonlinear feedback systems. Dr. Sontag presented the CLF concept in 1989 and it quickly pervaded the control literature. CLF's provides control practitioners with the ability to make appropriate feedback control choices. Also in 1989, Dr. Sontag's ISS concept helped tackle the difficulties presented by uncertainty in nonlinear systems. With ISS, he showed how to capture the effect of persistent disturbances in

nonlinear systems, which has enabled engineers to solve many robust stabilization problems. An IEEE Fellow, Dr. Sontag is a Professor in the Department of Mathematics at Rutgers University, Piscataway, N.J., where he is also in the graduate faculty of the Computer Science and the Electrical and Computer Engineering Departments.

IEEE Fellow Award

The grade of Fellow recognizes unusual distinction in the profession and is conferred only by invitation of the IEEE Board of Directors on a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. The accomplishments honored by the grade of Fellow contribute significantly to the advancement of engineering science and technology. In 2011 the following individuals were elected fellows as evaluated by the Control Systems Society: Andrzej Banaszuk, for contributions to active and passive control of flow instabilities in aerospace systems; Patrizio Colaneri, for contributions to periodic and switching control; Lino Guzzella, for contributions to automotive control systems to reduce pollution emission and fuel consumption; Jay H. Lee, for contributions to model-based predictive control applications; John Lygeros, for contributions to hybrid and stochastic systems and applications; Jan Maciejowski, for contributions to system identification and control; Lalit Mestha for contributions to digital printing systems control; S. O. Reza Moheimani, for contributions to control of nanopositioning systems; Thomas Parisini, for developments in neural network learning approaches; Si-Zhao Joe Qin, for contributions to model predictive control technology and fault diagnosis in industrial processes; Roy S. Smith, for contributions to robust model validation and advanced control system applications; Claire Tomlin, for contributions to hybrid control systems with applications to Air Traffic Management, Unmanned Aerial Vehicles, and Systems Biology; and Petros Voulgaris, for contributions to decentralized, distributed, and multiobjective control. The following CSS members were elected IEEE Fellows, with the evaluation society indicated in parenthesis: Qing-Hua Wu (PE), Pierre Dupont (RA), Leyuan Shi (RA), Masaru Uchiyama (RA), Louis Whitcomb (RA), and Guoping Liu (SMC).