

Election to the grade of IEEE Fellow acknowledges outstanding contributions and exceptional professional distinction. We are pleased to present the IEEE Control Systems Society Members who have been accorded this honor for 2004.

Er-Wei Bai

University of Iowa, Iowa City, USA

For contributions to system identification and parameter estimation.

Er-Wei Bai was educated at Fudan University, Shanghai Jiaotong University, and the University of California at Berkeley. He is a professor of electrical and computer engineering at the University of Iowa where he teaches and conducts research in system identification, controls, and their applications. Prof. Bai participates in IFAC and IEEE Control Systems Society activities and is author and coauthor of 100 journal papers.



Gary J. Balas

University of Minnesota, Minneapolis, USA

For contributions to robust control techniques for aerospace vehicles.

Gary Balas is a professor of aerospace engineering and mechanics, director of graduate studies, and codirector of the Control Science and Dynamical Systems Department at the University of Minnesota. He received his B.Sc. and M.S. from the University of California, Irvine, in 1982 and 1984, respectively, and his Ph.D. from the California Institute of Technology in 1989. His research interests are in robust control, real-time system, flight control, and industrial application of robust control methods. Prof. Balas held a McKnight-Land Grant Professorship at the University of Minnesota from 1993–1995, received the Outstanding Young Investigator Award from the ASME Dynamic Systems and Control Division in 1999, and the Institute of Technology George Taylor Distinguished Research Award, University of Minnesota, in 2003. He is a coorganizer and developer of the MUSYN Robust Control short course and the μ -Analysis and Synthesis Toolbox, and president of MUSYN, Inc. He is an associate fellow of the AIAA.





Edwin K.P. Chong

Colorado State University, Fort Collins, USA

For contributions to communication networks and discrete event systems.

Prof. Edwin K.P. Chong received the B.E. degree from the University of Adelaide, South Australia, in 1987, and the M.A. and Ph.D. degrees in 1989 and 1991, respectively, from Princeton University, where he held an IBM Fellowship. He joined the School of Electrical and Computer Engineering at Purdue University in 1991, where he was named a university faculty scholar in 1999. Since August 2001, he has been a professor of electrical and computer engineering and of mathematics at Colorado State University.

Prof. Chong's research interests are in communication networks and optimization methods. He coauthored the book *An Introduction to Optimization*, (second edition, Wiley-Interscience, 2001). He received the NSF CAREER Award in 1995 and the ASEE Frederick Emmons Terman Award in 1998. He was a coauthor of the 2003 Best Paper in the journal *Computer Networks*. He was founding chairman of the IEEE Control Systems Society Technical Committee on Discrete Event Systems, and he served as an IEEE Control Systems Society Distinguished Lecturer. Prof. Chong has served on the editorial board of *IEEE Transactions on Automatic Control*, and he is currently on the editorial board of *Computer Networks*. He was the Conference chair for the Conference on Modeling and Design of Wireless Networks, part of SPIE ITCOM 2001.



Bart L.R. De Moor

Katholieke Universiteit Leuven, Belgium

For contributions to algebraic and numerical methods for systems and control.

Bart De Moor obtained a master's degree (1983) and a Ph.D. (1988) in electrical engineering at the Katholieke Universiteit (KU) Leuven, Belgium, and was a visiting research associate at Stanford University (1988–1990). Currently, he is a professor in the Department of Electrical Engineering of at KU Leuven. His research interests are in numerical linear algebra and optimization, systems theory, control and identification, quantum information theory, data mining, information retrieval, and bioinformatics. He has authored and coauthored more than 400 papers and three books. His work has won several scientific awards, including the Leybold-Heraeus Prize (1986), the Leslie Fox Prize (1989), the Guillemin-Cauer best paper award of the *IEEE Transactions on Circuits and Systems* (1990), the Laureate of the Belgian Royal Academy of Sciences (1992), the biannual Siemens Award (1994), the best paper award of *Automatica* (IFAC, 1996), and the IEEE Signal Processing Society Best Paper Award (1999).

From 1991–1999 Prof. De Moor was the chief advisor on science and technology for the Belgian Federal and the Flanders Regional Governments. He serves on the boards of three companies, of the Flemish Interuniversity Institute for Biotechnology, and the Study Center for Nuclear Energy. Since 2002 he has regularly appeared on the Belgium television science show "Hoe?Zo!"

Arie Feuer

Israel Institute of Technology, Israel

For contributions to adaptive control and signal processing.

Arie Feuer is a professor in the Electrical Engineering Department at the Israel Institute of Technology (Technion), where he has been since 1983. He received his B.Sc. and M.Sc. from the Technion in 1967 and 1973, respectively, and his Ph.D. from Yale University in 1978. From 1967 to 1970 he worked in industry on automation design, and from 1978 to 1983 he worked at Bell Labs in Holmdel, New Jersey.

Prof. Feuer served as the president of the Israel Association of Automatic Control from 1994–2002 and is currently a member of the IFAC Council. For the last 15 years he has been visiting the Electrical Engineering and Computer Science Department at the University of Newcastle. His research focus is in adaptive systems in control and signal processing. In recent years his interests have evolved into multidimensional sampling and reconstruction with applications in image and video processing. He coauthored, with Graham Goodwin, the book *Sampling in Digital Signal Processing and Control* (Birkhauser).



Alexander Lvovich Fradkov

*Institute for Problems of Mechanical Engineering,
Russian Academy of Sciences, St. Petersburg, Russia*

For contributions to adaptive and nonlinear systems.

Alexander Fradkov received his Diploma degree in mathematics from St. Petersburg State University (Department of Theoretical Cybernetics) in 1971, Candidate of Sciences (Ph.D.) degree in engineering cybernetics from Leningrad Mechanical Institute (now Baltic State Technical University, BSTU) in 1975, and the Doctor of Sciences degree in control engineering in 1986 from St. Petersburg Electrotechnical Institute. From 1971 to 1987 he occupied research positions, and in 1987 became professor of computer science at BSTU. Since 1990 he has been the head of the Control of Complex Systems Lab of the Institute for Problems of Mechanical Engineering at the Russian Academy of Sciences. He is also a professor at St. Petersburg State University in the Department of Theoretical Cybernetics.

Prof. Fradkov's research interests are in nonlinear and adaptive control, control of oscillations and chaos, and cybernetical physics. Dr. Fradkov has coauthored 350 journal and conference papers, ten patents, and 15 books and textbooks, including *Introduction to Control of Oscillations and Chaos* (World Scientific, 1998), *Nonlinear and Adaptive Control of Complex Systems* (Kluwer, 1999), *Selected Chapters of Automatic Control Theory with MATLAB* (Nauka, 1999, in Russian), and *Cybernetical Physics* (Nauka, 2003, in Russian).

Dr. Fradkov has been vice president of the St. Petersburg Informatics and Control Society since 1991, and he is currently a member of the Russian National Committee of Automatic Control. He organized and cochaired the 1st–10th International (Baltic) Student Olympiades on Automatic Control in 1991–2004, the First and Second International IEEE-IUTAM Conference Control of Oscillations and Chaos in 1997 and 2000, the Fifth IFAC Symposium on Nonlinear Control Systems (NOLCOS'01), and the First IEEE-IUTAM-EPS conference Physics and Control 2003. He was an associate editor of the *European Journal of Control* (1998–2001) and a member of the IEEE Control Systems Society Conference Editorial Board (1998–2004). Dr. Fradkov was awarded the William Girling Watson Scholarship (University of Sydney, 1995) and the JSPS Fellowship (Japan, 1998–1999). Between 1991–2003 he gave invited lectures at 65 universities in 20 countries.





Minyue Fu

University of Newcastle, Australia

For contributions to robust control and signal estimation.

Minyue Fu received his B.S. degree in electrical engineering from the China University of Science and Technology, Hefei, in 1982, and his M.S. and Ph.D. degrees in electrical engineering from the University of Wisconsin-Madison in 1983 and 1987, respectively. He joined the Department of Electrical and Computer Engineering, the University of Newcastle, Australia, in 1989, where he was the head of the department from 1998 to 2001. Currently, he is a chair professor in electrical engineering. From 1983 to 1987 he held a teaching and research position at the University of Wisconsin-Madison. From 1987 to 1989 he was an assistant professor in the Department of Electrical and Computer Engineering, Wayne State University, Detroit, Michigan. He held visiting professor positions at the University of Iowa in 1995–1996 and at the Nanyang Technological University, Singapore, in 2002. Prof. Fu's main research interests include control systems, signal processing, and their applications in communications. He has been an associate editor for *IEEE Transactions on Automatic Control* and the *Journal of Optimization and Engineering*.



J. William Helton

University of California, San Diego, USA

For contributions to frequency-domain design of robust control systems.

Bill Helton received his B.S. degree in mathematics from the University of Texas, Austin, in 1964, and his M.S. and Ph.D. degrees in mathematics from Stanford University in 1966 and 1968, respectively. From 1968 to 1973 he was at the State University of New York, Stony Brook. In 1974 he joined the University of California, San Diego, as an associate professor, where he is currently a professor of mathematics.

Dr. Helton is a recipient of a Guggenheim fellowship and an Outstanding Paper Award from *IEEE Transactions on Automatic Control* in 1986. He has delivered plenary addresses at the annual meeting of the AMS, the EECTD, and the International Symposia on the Mathematical Theory of Networks and Systems. He is currently associate editor of several journals and book series. His earlier articles concern circuit theory, distributed systems, and aspects of the theory of operators on Hilbert space that come from circuits, systems, differential and integral equations, and noncommutative differential geometry.

Christopher V. Hollot

University of Massachusetts, Amherst, USA

For contributions to robust control, reset control, and Internet congestion control.

C.V. Hollot is a professor of electrical and computer engineering at the University of Massachusetts, Amherst. He received his B.S.E.E. from West Virginia University in 1974 and worked for General Electric from 1974–1979. He received his M.S.E.E. from Syracuse University in 1980 and his Ph.D. from the University of Rochester in 1984, when he joined the faculty at the University of Massachusetts. Prof. Hollot has held visiting positions at the DLR, Oberpfaffenhofen, Germany; the Automatic Control Labs at Louvain-la-Neuve, Belgium; and the ETH, Zurich, Switzerland.

Prof. Hollot received the Presidential Young Investigator Award and a NATO Senior Guest Fellowship. He has been associate editor for *IEEE Transactions on Automatic Control*, *Automatica*, and *Systems and Control Letters*. He is past chair of IFAC's Technical Committee on Robust Control. His research interests are in the theory and application of feedback control.



Masao Ikeda

Osaka University, Suita, Japan

For contributions to the theory of large scale systems and decentralized control.

Masao Ikeda is a professor of mechanical engineering at Osaka University. He received his B.Eng., M.Eng., and D.Eng. degrees from Osaka University in 1969, 1971, and 1975, respectively. He joined the Systems Engineering Department of Kobe University in 1973 and became professor in 1990. He returned to Osaka University in 1995. He has held visiting positions at Santa Clara University and the National Aerospace Laboratory of Japan.

Prof. Ikeda's research interests include control theory for large-scale systems, nonlinear systems, time-varying systems, time-delay systems, and descriptor systems. His interests include vibration isolation systems, attitude control of large space structures, dynamic measurement of moving vehicles, and pneumatic actuators. Prof. Ikeda has served as associate editor for *Systems and Control Letters* and *Automatica* and as member of the Board of Governors for IEEE Control Systems Society. He is currently chair of the Asian Control Professors Association (ACPA), a vice president of the Society of Instrument and Control Engineers (SICE), a vice chair of the IFAC Technical Committee on Large-Scale and Complex Systems, a regional editor of *Nonlinear Dynamics and Systems Theory*, and a member of the Editorial Advisory Board for the *International Journal of Control, Automation, and Systems*.





George W. Irwin

Queen's University, Belfast, Ireland

For contributions to the application of modern control design methods.

George Irwin holds a chair in control engineering at Queen's University, Belfast, where he is director of the University Virtual Engineering Centre. He received his B.Sc. in electrical and electronic engineering in 1972, his Ph.D. in engineering mathematics in 1976, and his D.Sc. in 1998, all from Queen's University. He was a faculty member in engineering mathematics at Loughborough University of Technology, U.K., before joining Queen's in 1980.

Prof. Irwin's research interests lie in industrial applications of learning system technologies, nonlinear identification and control, condition monitoring, and multivariable statistical process control. He is a former director of Anex Ltd. and an honorary professor at Harbin Institute of Technology, China (1999). He has 300 research publications, including six books. Awards include Kelvin (1984), Heaviside (1986), Mather (1990), Hartree (1996), Premiums from the IEE, a Honeywell Prize (1995), a Honeywell International Medal from the Institute of Measurement and Control, and a Best Paper award from the Czech Academy of Sciences (1997). Prof. Irwin is a Fellow of the U.K. Royal Academy of Engineering (2002) and a member of the Royal Irish Academy (2002). He is the chair of the U.K. Automatic Control Council and until 2002 was editor-in-chief of the *IFAC Journal of Control Engineering Practice*. He is a Chartered Engineer, a fellow of the IEE, and a Fellow of the Institute of Measurement and Control.



Mrdjan Jankovic

Ford Research and Advanced Engineering, USA

For contributions to nonlinear control theory and automotive technology.

Mrdjan Jankovic received his B.S. degree from the University of Belgrade in 1986 and his M.S. and Ph.D. degrees from Washington University, St. Louis, in 1989 and 1992, respectively. He held postdoctoral teaching and research positions with Washington University and the University of California, Santa Barbara. He joined Ford Research Laboratory in 1995, where he is currently a technical leader in the Powertrain Controls Research and Advanced Engineering department. His responsibilities include project management, mentoring and supervision of technical staff, and direct technical contribution to the engine control and development process.

Dr. Jankovic's research interests include automotive engine control systems, nonlinear estimation and control, and time-delay systems. He has coauthored numerous technical reports and papers, the book *Constructive Nonlinear Control* (Springer-Verlag, 1997) and 17 U.S. patents. Dr. Jankovic is a recipient of the Ford Research Technical Achievement Award (2001), several patent usage awards, and IEEE Transactions on Control Systems Technology Outstanding Paper Award (2002). He has served on the editorial board of *IEEE Transactions on Control Systems Technology* since 1997.

John (Jack) N. Little

The MathWorks, Natick, Massachusetts, USA

For leadership in the development of engineering software for technical computing.

Jack Little received his B.S. degree in electrical engineering and computer science from MIT in 1978 and an M.S.E.E. degree from Stanford University in 1980. From 1980 to 1984, he worked at Systems Control Technology, an engineering consulting firm based in Palo Alto, CA, where he analyzed, designed, and implemented signal processing and automatic control systems. Currently, he is president and CEO of The MathWorks, developers of the MATLAB and Simulink technical computing software. Jack and Cleve Moler founded The MathWorks in 1984 to develop and market the MATLAB software package. Jack programmed PC-MATLAB for the IBM PC in the C language; he was responsible for the technical architecture, graphics, and all language extensions from the original Fortran MATLAB; and he created the toolbox concept, leading the development of the Control System Toolbox and the Signal Processing Toolbox. He also initiated the development of Simulink, a block diagram program for simulating dynamic systems. A trustee of the Massachusetts Software Council, Jack writes and speaks about engineering software and entrepreneurship.

**Richard M. Murray**

California Institute of Technology, Pasadena, USA

For contributions to the theory of nonlinear control and its applications to robotics, flight control, and fluid systems.

Richard M. Murray received his B.S. degree in electrical engineering from California Institute of Technology (Caltech) in 1985 and his M.S. and Ph.D. degrees in electrical engineering and computer sciences from the University of California, Berkeley, in 1988 and 1991, respectively. He is a professor of mechanical engineering and chair of the Division of Engineering and Applied Science at Caltech. Prof. Murray's research is in the application of feedback and control to mechanical, information, and biological systems. Current projects include integration of control, communications, and computer science in multiagent systems, information dynamics in networked feedback systems, analysis of insect flight control systems, and synthetic biology using genetically encoded finite state machines. Prof. Murray is currently developing a new course aimed at teaching the principles and tools of control to scientists and engineers, with emphasis on applications in biology and computer science.





Bradley Paden

University of California, Santa Barbara, USA

For contributions to nonlinear control theory and control system design for mechanical systems.

Brad Paden received his Ph.D. in electrical engineering from the University of California, Berkeley, in 1985. He is a professor at the University of California, Santa Barbara, in the Mechanical Engineering Department, with a joint appointment in the Electrical and Computer Engineering Department. His research interests focus on nonlinear control theory and its application to electromechanical systems. He was a visiting fellow in the Department of Mathematics at the University of Western Australia in 1988. In 1993 Prof. Paden received the Best Paper Award from the *ASME Journal of Dynamic Systems, Measurement, and Control*, and he received the IEEE Control System Society Technology Award in 2001. In 2002 he was a distinguished foreign visitor and plenary speaker at the Brazilian Control Conference. He was the recipient of the 2001 James Yorke Red Sock Award at the SIAM Conference on Applications of Dynamical Systems and the 2000 Best Paper Award at the Western Snow Conference. He has consulted for industry on the design and control of magnetic bearings, and the design of medical devices. He has served as an associate editor for the *Journal of Robotic Systems*, and he is cofounder and president of LaunchPoint Technologies.



Kevin M. Passino

Ohio State University, Columbus, USA

For contributions to stability analysis and biomimicry for control.

Kevin Passino is a professor of electrical and computer engineering at the Ohio State University. He received his B.S. from Tri-State University, Angola, Indiana, in 1983, and his M.S. and Ph.D. degrees from the University of Notre Dame, Indiana, in 1985 and 1989, respectively. His research interests are in control-theoretic analysis of biological systems, distributed networked feedback systems, and cooperative control for networked vehicles. He is currently director of the Collaborative Center of Control Science at the Ohio State University.

Prof. Passino has been an associate editor for *IEEE Transactions on Automatic Control*, vice president for Technical Activities of the IEEE Control Systems Society, and member of the IEEE Control Systems Society Board of Governors. He was program chair for the IEEE Conference on Decision and Control in 2001. He is currently an IEEE Control Systems Society Distinguished Lecturer and the faculty advisor for the Ohio State University student organization Engineers for Community Service. His book, *Biomimicry for Optimization, Control, and Automation*, is in press with Springer-Verlag.

George Rizzoni

Ohio State University, Columbus, USA

For leadership in automotive control systems.



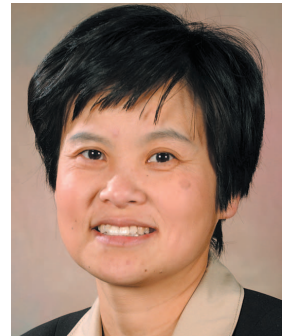
Giorgio Rizzoni is a professor of mechanical and electrical engineering and the Ford Motor Company Chair in Electro Mechanical Systems at the Ohio State University. He received his B.S. in 1980, his M.S. in 1982, and his Ph.D. in 1986, all in electrical engineering, from the University of Michigan, Ann Arbor. Between 1986 and 1990 he served as lecturer and assistant research scientist at the University of Michigan, prior to joining the Ohio State University in 1990. In 1999 he was appointed director of the Ohio State University Center for Automotive Research. He has held visiting positions at the Università di Bologna, Italy, and the Swiss Federal Politechnic Institute (ETH), Zürich.

Prof. Rizzoni is a recipient of the 1991 National Science Foundation Presidential Young Investigator Award, the 1992 SAE Ralph R. Teeter Educational Award, and the 1996 Stanley Harrison Award for Excellence in Engineering Education. He has been an associate editor for *IEEE Transactions on Vehicular Technology* and *ASME Transactions, Journal of Dynamic Systems, Measurement and Control*. His book *Principles and Applications of Electrical Engineering* (McGraw-Hill) is in its fourth edition and has been translated into five languages. Prof. Rizzoni's research focuses on system dynamics, and control and fault diagnosis with application to automotive systems, with special interest in future ground vehicle propulsion systems.

Jing Sun

University of Michigan, Ann Arbor, USA

For contributions to systems theory and automotive powertrain control.



Jing Sun is an associate professor in the Naval Architecture and Marine Engineering Department, with a joint appointment in the Electrical Engineering and Computer Science Department, at the University of Michigan. She received her B.A. and M.S.E. degrees from the University of Science and Technology of China in 1982 and 1984, respectively, and her Ph.D. from the University of Southern California in 1989. From 1989–1993 she was an assistant professor in the Electrical and Computer Engineering Department at Wayne State University. She joined Ford Research Laboratory in 1993, where she worked as a staff technical specialist and a project leader in the Powertrain Control Systems Department. She joined the University of Michigan in September 2003.

Prof. Sun's research interests include adaptive control, nonlinear control, and system theory, and their applications to automotive control, marine propulsion systems, and fuel cell systems. Prof. Sun has received several awards for her work on automotive powertrain control, including the 2003 IEEE Control System Technology Award, the Ford Technical Achievement Award, and Ford Technology Innovation Awards (1997, 1998, 2000, 2001, 2002, 2003). She holds over 30 U.S. patents, has coauthored a textbook *Robust Adaptive Control* (Prentice Hall, 1996) and published numerous journal and conference papers. She also received a Research Initiation Award from NSF and was an associate editor for *IEEE Transactions for Automatic Control*.

