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Beginning the Third Decade of the *Journal of Guidance, Control, and Dynamics*

A YEAR ago I wrote about the progress made during the year toward meeting the goals I had set when I took over as Editor-in-Chief. I will do the same this year as the third decade of the *JGCD* begins. The goals are 1) to maintain the quality of the journal, 2) to increase the number of engineering applications-oriented papers, 3) to minimize the time from submission to publication, 4) to increase the international involvement in the journal, and 5) to listen to and respond to everyone's concerns. Let me discuss each item.

To Maintain the Quality of the Journal

This past year I received over 350 submissions to the journal from around the world—about two every business day. Most papers come in near the maximum length of 36 pages, and my job is to perform a quick technical and editorial review and decide which Associate Editor gets the paper or to send it back to the author. I usually process a paper within a day or two of receiving it, and I continue to monitor the progress of the paper through monthly reports from the Associate Editor. This past year I have had the Associate Editors send me copies of the evaluations of all papers for which publication was declined. This helps me to monitor the quality of the review process, as well as making me more aware of the publishability of papers in the technical disciplines we represent. In a sense, I am raising the threshold for accepting papers into the review process. As I explained in last year's editorial, I have very low tolerance for papers that do not follow the submission requirements printed inside the back cover. Authors should be aware that acceptance into the extensive review process is not automatic. By raising the threshold, we are applying our editorial resources to those papers that deserve our attention.

With respect to the quality of submitted papers, I have two specific comments that I have not expressed before. The first comment is on the use of references. I regularly get papers in which the Introduction begins as follows: "There have been many articles published on optimal design of widgets,[1–20] and this paper extends the widget suboptimal analysis of Ref. 20." What's wrong with this? References should be used to properly place one's own work and give the perspective of how it contributes to the advancement of knowledge in the field. The proper approach would be to identify the contribution of each of the individual references to the advancement of knowledge in the field and then to describe the contribution of the author's work as the latest building block. Good scholarship demands this. (If the building block is a large step, submit a paper; if it is a medium step, write a Note.) However, it is highly unlikely that it would be necessary to cite 20 references. It is more likely that the previous works have been cited by other authors and only the most recent articles need be referenced in the current paper. We do not need to cite every paper that has solved Kepler's equation since the original work in Newton's *Principia.* Let's save some trees! And then there is another extreme, where the author cites only his own previous publications. Some may consider this an indication of the author's lack of interest and knowledge about other work. My thought is that, if the author cites only himself, he is writing only to himself and should therefore keep the paper to himself.

My second comment on quality deals with several items about which editors of journals are very concerned. Most recently, an editorial cowritten by 10 editors in the field of heat transfer appeared in the AIAA *Journal of Thermophysics and Heat Transfer* (Vol. 10, No. 4, 1996, p. 553) and was to appear in nine other heat-transfer-related journals. The items of concern are the simultaneous submission of a single article to multiple journals for review, the publication of articles with only incremental advancement over previously established knowledge, and the publication in multiple journals of articles that are essentially identical. As the heat-transfer editors did, I want to remind our contributors of their moral and legal responsibility to ensure that the work they submit for publication is both original and technically significant. I also recognize the pressure on many individuals to publish, but papers containing small or incremental improvements over existing work, particularly when published by the same author, are clearly not in the best interest of the community, authors, reviewers, or editors. The simultaneous submission or publication of similar papers is against the editorial policies of all journals, and, in addition to being unethical, it is a violation of the copyright statutes and is prohibited by law. I have asked the Associate Editors to keep me informed of any problems in this area; we intend to maintain the highest standard at the *JGCD*.

To Increase the Number of Engineering Applications Papers

One of my goals has been to make the *JGCD* as engineering applications oriented as practical. Member surveys more than 20 years ago, prior to AIAA final approval for the publication of the *JGCD*, showed that, if the *JGCD* were to be established, it should be applications oriented and should provide useful information to the practicing engineer. Our members feel the same today. During the past year we have published several outstanding applications-oriented papers; in this issue, the paper by Paul Savage ("Strapdown Inertial Navigation Integration Algorithm Design") is an excellent example, providing practical design information worthy of archival publication. We also shall continue to ask authors of more theoretical papers to include a realistic numerical example or a detailed discussion of a possible relevant application. Our Associate Editors, International Advisors, and liaisons with AIAA technical committees will continue to solicit engineering applications papers in their communities. If any of our readers want to propose a particular topic for a paper, please contact me to discuss it. We shall continue striving to make the *JGCD* as relevant as possible to the practicing engineer.

To Minimize the Time from Submission to Publication

The *JGCD* staff has continued to meet our goal of decreasing the time it takes to get a paper published. All of our Associate Editors are committed to speedy reviews. Nearly all of the papers published in the November–December 1997 issue, for example, were submitted to us within the prior 12 months. For recent issues, an average of about 14 weeks elapsed between a paper's being sent to the AIAA and its actual publication. For the typical paper, the longest delays have been in waiting for reviewers' comments and authors' revisions. If these two segments of our community were to act more quickly and if the authors were to follow the submission requirements on the inside back cover, the publication process would move even faster.

To Increase the International Involvement in the Journal

Another goal continues to be the improvement in geographical distribution and quality of internationally submitted papers. As a result of efforts by our newly appointed International Advisors, we have many excellent international papers currently in the review process, and so the appointment of advisors in several countries appears to have had positive benefits for the *JGCD*. I plan to continue to use them in the future. In many instances, the papers are the result of abstracts that had been sent to me by the International Advisor for my comments on the subject matter. Increasing the international distribution of the *JGCD* should also help to alleviate one of the main problems of international contributors, the lack of familiarity with current research efforts elsewhere in the *JGCD* community.

To Listen to and Respond to Everyone's Concerns

Finally, I continue to encourage communication between our readers and any member of the editorial board. During the Guidance, Navigation, and Control Conference last August, I had many

interesting conversations with attendees. Generally, they seemed pleased with our progress in speeding up paper publication, found the book reviews organized by Mike Ross to be informative, and were helpful in suggesting topics for survey and historical papers. I believe we did a good job last year in covering the span of interests of our readers, the special issue in November–December on "Nonlinear Dynamical Systems" being a good example. We can do better, and we are willing to listen. Do not hesitate to contact me directly at the e-mail address given below.

Annual Business

I now turn to annual *JGCD* business. On behalf of the AIAA, I want to thank our retiring Associate Editors, Brij Agrawal of the U.S. Naval Postgraduate School and Stephen Rock of Stanford University, for their unselfish contributions of time and expertise to maintain the quality of the *JGCD*. Each Associate Editor is responsible for evaluating one to two papers per month. This includes his own technical and editorial review, as well as soliciting the aid of several peer reviewers. If the review is positive, the author must then be given directions for revisions and the resulting revised paper reviewed. Ultimately, when all is done, the final accepted manuscript is sent by the Associate Editor to AIAA headquarters. These efforts by the Associate Editors need to be conducted in a timely fashion, while the Editors pursue their own professional careers. Thanks again to these two for all of their help as they join the distinguished group of former *JGCD* Associate Editors.

Appointments for three-year terms as continuing or new Associate Editors are as follows: S. N. Balakrishnan, University of Missouri–Rolla, for papers in estimation, guidance, and control; Arun Banerjee, Lockheed Palo Alto Research Laboratory, for papers in dynamics, slewing and vibration control, and multibody control; Robert Bishop, University of Texas at Austin, for papers in spacecraft design, attitude control and momentum management, and guidance, navigation, and estimation; Christopher Hall, Virginia Polytechnic Institute and State University, for papers in spacecraft design, nonlinear dynamics, and controls; Gary Hartmann, Honeywell Technology Center, for papers in flight controls and avionics, estimation, and navigation; Felix Hoots, General Research Corporation, for papers in astrodynamics; Robert Melton, Pennsylvania State University, for papers in astrodynamics, optimization, and spacecraft design; Vivekanand Mukhopadhyay, NASA Langley Research Center, for papers in structural dynamics, aeroelasticity, and stability and control; and Jurek Sasiadek, Carleton University, for papers in robotics, unmanned vehicles, guidance, navigation, and nonlinear control. The entire editorial team is presented in the following pages.

Finally, this is a peer-reviewed archive journal whose very existence depends on the willingness of experts to volunteer their time to anonymously review submitted papers. Thanks to all of you for your contributions. Following the editorial team is a list of reviewers for the period October 1996 through September 1997. I apologize to any reviewers whose names have been inadvertently omitted.

George T. Schmidt
Editor-in-Chief
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GEORGE T. SCHMIDT received his S.B. and S.M. degrees in aeronautics and astronautics from the Massachusetts Institute of Technology (MIT) in 1965 and his Sc.D. in instrumentation from MIT in 1971. Since 1965 he has worked at the Charles Stark Draper Laboratory, Cambridge, Massachusetts, where he is currently Director of the Guidance Technology Center and Associate Director, Guidance Navigation and Control (GN&C). His major activities have been in GN&C system design for missiles, aircraft, and manned spacecraft; Kalman filtering applications; and integration techniques for high-resolution synthetic aperture radars, global positioning systems (GPS), and inertial sensors. Since 1966 he has served the NATO Advisory Group for Aerospace Research and Development in many positions, including as a U.S. member of the Guidance and Control Panel. He has participated in several U.S. Department of Defense committees, the most recent being the Defense Science Board Task Force on GPS. He is also a lecturer in aeronautics and astronautics at MIT. He is a Member of AIAA, the Institute of Electrical and Electronics Engineers, and the Institute of Navigation, and he is an elected member of the Russian Federation, Academy of Navigation and Motion Control. He is author or contributing author of more than 60 technical papers and reports, encyclopedia articles, and textbooks. He has been Editor-in-Chief of the AIAA *Journal of Guidance, Control, and Dynamics* since February 1996.

Associate Editors

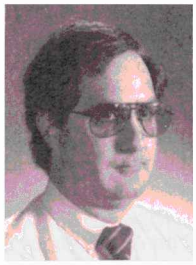
S. N. BALAKRISHNAN is currently an Associate Professor of Aerospace Engineering in the Department of Mechanical and Aerospace Engineering and Engineering Mechanics at the University of Missouri–Rolla (UMR). He received his bachelor's degree in aeronautics at Madras Institute of Technology, India. He received his M.S. and Ph.D. degrees in aerospace engineering at the University of Texas at Austin. Dr. Balakrishnan's professional roles include Lead Engineer, Lockheed Electronics Company, Houston, Texas, where he worked in the space shuttle program; Scientist and Fellow, Center for Space Research, University of Texas at Austin, where he worked on Autonomous Navigation of Multiple Satellites and Multiple Target Estimation; Faculty Research Fellow, Wright Laboratory (Eglin Air Force Base, Florida), where he was involved in Integrated Missile Guidance/Autopilot Design and Automatic Target Recognition; and involvement in the Indian Space Program, where he worked on Flight Mechanics-related topics. He teaches stability and control and advanced control courses at UMR. His research activities focus on neural networks in trajectory optimization, control and design, control of time-varying systems, missile guidance and self-repairing control, and multiple target-multiple sensor problems and estimation. He has authored/coauthored about 45 journal and refereed conference papers in these areas. Dr. Balakrishnan is a Member of the AIAA Guidance, Navigation, and Control Technical Committee and an Associate Fellow of the AIAA.

GARY J. BALAS received his B.S. and M.S. degrees in civil and electrical engineering from the University of California, Irvine, and a Ph.D. degree in aeronautics from the California Institute of Technology in 1990. Since 1990 he has been a faculty member and is currently an Associate Professor in the Department of Aerospace Engineering and Mechanics at the University of Minnesota, and from 1993–1995 he held the McKnight-Land Grant Professorship. He is currently Director of Graduate Studies and Co-Director of the Control Science and Dynamical Systems Center at the University of Minnesota. Dr. Balas is a co-organizer and developer of the MUSYN Robust Control Short Course and the μ-Analysis and Synthesis Toolbox used with MATLAB, and he is the President of MUSYN Inc. His research interests include control of flexible structures, flight control, and use of shape memory alloys for passive and active control, model validation and industrial applications of robust control methods.

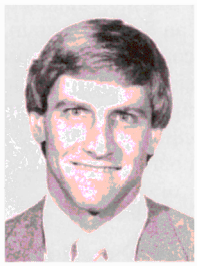
ARUN K. BANERJEE is a Consulting Scientist in the Dynamics and Control Organization at the Lockheed Martin Research Laboratory, Palo Alto. At Lockheed since 1982, his principal work has been in multibody elastodynamics. For his work on motion-induced stiffness of articulated structures, he received the Engineer of the Year award in 1990 from AIAA, San Francisco Chapter, and was invited by the European Space Agency to give a survey lecture in multibody dynamics in 1992. Previously, he worked for Martin Marietta on tethered satellite dynamics and control, and for Northrop on the atmospheric descent of parachuted shuttle boosters. He received a B.S. in mechanical engineering in 1962 from Bengal Engineering College, India, and was a Lecturer from 1964–69 at the Indian Institute of Technology, Kharagpur, where he also received a Ph.D. in mechanical engineering in 1969. Subsequently, he obtained a Ph.D. in engineering mechanics from the University of Florida in 1972 and a Master's in controls from Stanford in 1986. His research interests include computational dynamics, slewing and vibration control, and multibody control. Dr. Banerjee is an Associate Fellow of the AIAA.

HAIM BARUH is an Associate Professor in the Department of Mechanical and Aerospace Engineering at Rutgers University. He received his B.S. degree in mechanical engineering in 1976 from Bogaziçi University in Istanbul, Turkey, and his M.S. and Ph.D. degrees in engineering mechanics in 1978 and 1981, respectively, from Virginia Polytechnic Institute and State University. Prior to joining Rutgers in 1983, he worked as a Visiting Assistant Professor at Virginia Polytechnic Institute and State University. His research interests include modeling of control of flexible spacecraft and robots, parameter identification, control of systems described by constrained coordinates, smart structures, detection of structural damage, and aircraft structural analysis. He is a Member of AIAA and Sigma Xi, and he currently serves as Education Officer in the AIAA Princeton Section.

ROBERT H. BISHOP holds the Myron L. Begeman Fellowship in engineering in the Department of Aerospace Engineering and Engineering Mechanics at the University of Texas at Austin. He received his B.S. and M.S. degrees in aerospace engineering from Texas A&M University and his Ph.D. in electrical and computer engineering from Rice University. Dr. Bishop spent ten years as a practicing engineer with the Charles Stark Draper Laboratory, including six years as an on-site resident at NASA Johnson Space Center. He was twice a Faculty Fellow of the NASA Jet Propulsion Laboratory and a Welliver Fellow of The Boeing Company. His current research focuses on various aspects of spacecraft and missile design and includes nonlinear attitude control and momentum management of spacecraft, adaptive estimation using mixture-of-experts hierarchies with application to interplanetary navigation, and development of GN&C systems for autonomous planetary precision landing for future manned missions. The author or coauthor of a number of books, Dr. Bishop has served on the AIAA Guidance, Navigation, and Control Technical Committee and currently serves on the AAS Spaceflight Mechanics Technical Committee. He is a Senior Member of AIAA and is active in AAS, IEEE, and ASEE.



EUGENE M. CLIFF was awarded the B.S. degree by Clarkson University in 1965 and the Ph.D. by the University of Arizona in 1970. He served on the faculty at Arizona for two years and moved to Virginia Polytechnic Institute and State University in 1971. Currently, he is the Reynolds Metals Professor in the Aerospace and Ocean Engineering Department. His research interests center on optimal control and optimization with applications to trajectory shaping, optimal design, and control of distributed parameter systems. He is an Associate Fellow of AIAA.



N. GLENN CREAMER received his B.S. degree from Texas A&M University in aerospace engineering (1981), his M.S. degree from Virginia Polytechnic Institute and State University in engineering science and mechanics (1982), and his Ph.D. from Virginia Tech in engineering science and mechanics (1987). Dr. Creamer worked at General Dynamics from 1982 to 1983 in the Composite Structures Group and at General Research Corporation from 1987 to 1988 in the field of orbital mechanics. Since 1989 he has been at the Naval Research Laboratory in the Spacecraft Engineering Department, where he has worked on numerous spacecraft programs in the areas of attitude determination and control, Kalman filtering, and smart structures technology. Dr. Creamer is a Member of AIAA and ASME and a current Member of the AIAA Guidance, Navigation, and Control Technical Committee.

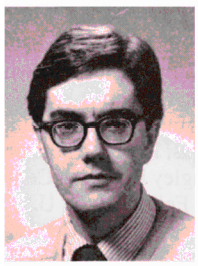
CHRISTOPHER D. HALL is an Assistant Professor of Aerospace and Ocean Engineering at Virginia Polytechnic Institute and State University. Before assuming his present position in 1997, he taught for five years in the Department of Aeronautics and Astronautics at the Air Force Institute of Technology. He earned his B.S. in aerospace engineering from Auburn University (1984), his M.S. in systems engineering at the Air Force Institute of Technology (1988), and his Ph.D. in theoretical and applied mechanics from Cornell University (1992). His research interests include spacecraft attitude dynamics and control, space systems design, and nonlinear oscillations. He is a member of the Phi Kappa Phi, Sigma Gamma Tau, and Tau Beta Pi Honorary Societies, and the recipient of a Tau Beta Pi Outstanding Professor Award in 1993, the Colonel Charles A. Stone Leadership Award in 1996, and the Ralph R. Teetor Educational Award in 1997. He is an Associate Fellow of AIAA and is currently serving on the AIAA Astrodynamics Technical Committee, as well as its subcommittee on education.

GARY L. HARTMANN is a Principal Research Fellow in the Control and Navigation Department of Honeywell's Technology Center in Minneapolis, Minnesota. He received a M.S. in electrical engineering from Iowa State University (1967) and has completed his Ph.D. course work in control sciences at the University of Minnesota. Since joining Honeywell in 1968, he has served as an individual contributor and managed R&D programs. His major activities have been the design of flight control laws with modern control techniques for a variety of developmental and production aircraft, development of avionics architectures for flight critical applications, and design of Kalman filters. His current interests include aided navigation systems, modeling and design of flight and propulsion control systems, and flight management systems architectures that provide new CNS/ATM functions. Mr. Hartmann is a Member of IEEE and a Senior Member of AIAA.

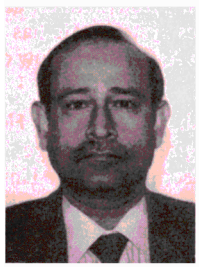
FELIX R. HOOTS received his B.S. in physics (1969) and his M.S. in mathematics (1971) from Tennessee Technological University and his Ph.D. in mathematics (1976) from Auburn University. He began his professional career in civil service as a mathematician for the 14th Aerospace Force headquartered in Colorado Springs, Colorado. His research there involved development of analytical models for satellite orbit prediction with atmospheric drag, ground site visibility, and satellite close approach prediction. In 1986 he joined GRCI and now serves as the Director of the Decision Support Programs. Dr. Hoots has published papers in the leading technical journals, has reviewed numerous papers for these journals, and has taught both short courses and full semester courses in Astrodynamics, Engineering Mathematics, and Partial Differential Equations for the University of Colorado. He is an Associate Fellow of AIAA, has served on its Astrodynamics Technical Committee, and has served as General Chairman for the annual Astrodynamics Conference. He is a member of the American Astronautical Society (and currently serves on its Space Flight Mechanics Technical Committee), Kappa Mu Epsilon (Mathematics Honor Society), and Phi Kappa Phi (Scholastic Honor Society).

K. KRISHNAKUMAR is an Associate Professor of Aerospace Engineering and the Director of the Intelligent Control Laboratory at the University of Alabama, Tuscaloosa. Dr. KrishnaKumar is currently responsible for teaching and coordinating courses in Intelligent Control, Flight Dynamics and Control, Optimal Control, and Spacecraft Dynamics and Control. His research interests include immunized artificial neural systems, intelligent control methods and their application to aircraft and spacecraft control, structural control, flight simulation, and training. He has organized several tutorial workshops and short courses on Evolutionary Algorithms, Fuzzy Logic, and Neural Networks and their applications. He is the Chairman of the AIAA Artificial Intelligence Technical Committee and a Member of the SAE Information Sciences Technologies Committee and the *Journal of Aircraft* editorial board. Dr. KrishnaKumar is a Senior Member of AIAA and a member of IEEE, INS, and IFSA.

PING LU is presently an Associate Professor of Aerospace Engineering and Engineering Mechanics at Iowa State University. He received his Bachelor's degree from the Beijing Institute of Aeronautics and Astronautics, China, in 1982, and his M.E. and Ph.D. degrees in aerospace engineering from the University of Michigan in 1984 and 1988, respectively. He worked as a Postdoctoral Research Fellow from 1988 to 1989 at the University of Michigan. Since 1990, he has been with Iowa State University. His research interests include nonlinear control theory and applications, trajectory optimization, and guidance. He is an Associate Fellow of AIAA and currently a member of the AIAA Technical Committee on Guidance, Navigation, and Control.



ROBERT G. MELTON received his B.S. in physics from Wake Forest University in 1976 and his M.S. in physics (1979) and Ph.D. in engineering physics (1982) from the University of Virginia. He joined the Aerospace Engineering Department of the Pennsylvania State University as Assistant Professor in 1981 and became Associate Professor in 1987. His research has involved attitude control of multibody spacecraft, optimal detumbling of space stations, dynamics of gyro-controlled spacecraft via conjugate momentum methods, control of flexible space structures using embedded fiber optic sensors, error analysis for finite burn ascent trajectories, perturbation analysis of low-thrust orbital transfers, and the dynamics and control of large articulated spacecraft in low Earth orbit. An Associate Fellow of AIAA, he has served on its Astrodynamics Technical Committee and on the *Journal of Guidance, Control, and Dynamics* Applications Advisory Board. He is a member of the American Astronautical Society (and currently serves on its Space Flight Mechanics Technical Committee) and Sigma Pi Sigma (Physics Honor Society).



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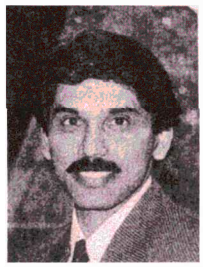
STEPHEN OSDER is currently an independent consultant in guidance, controls, and avionics systems design, having retired from McDonnell Douglas Helicopter Systems, where he was a Corporate Fellow. He has a B.E.E. from the City College of New York and an M.S. in electrical engineering from Johns Hopkins University. He joined McDonnell Douglas in 1985 as Chief Scientist for Controls and Avionics and was responsible for advanced development in rotorcraft flight control, fire control, navigation, and related avionics. He spent many years at Sperry Flight Systems (now Honeywell), where he was Director of Research and Development. His contributions have been in guidance and control systems for transports, fighters, bombers, helicopters, missiles, re-entry vehicles, spacecraft, and UAVs. He has published many papers on fly-by-wire systems, fault tolerant computer technology, avionics architectures, and guidance and navigation, and he holds 16 patents in related areas. He is an Associate Fellow of AIAA and a member of IEEE and AHS, and he has been Associate Editor of the *Journal of Guidance, Control, and Dynamics* since the *Journal*'s inception.



I. MICHAEL ROSS obtained his doctorate in aerospace engineering in 1990 from Pennsylvania State University and thereafter joined the U.S. Naval Postgraduate School (NPS) as an Adjunct Professor in the Department of Aeronautics and Astronautics. Since 1992 he has held a joint appointment with NPS' Space Systems Academic Group as an Assistant Professor. His research interests are in the applications of singular optimal control theory to spacecraft trajectory design and guidance, synergetic maneuvers, and the stability of dual-spinners. As the Project Lead of PANSAT, a small communications satellite being built at NPS, his work is also involved in the systems engineering of a low-cost spacecraft. He is a member of the AIAA Astrodynamics Technical Committee and the AAS Spaceflight Mechanics Technical Committee. He is also a Senior Member of AIAA and a Member of AAS, SIAM, and Sigma Xi.

JUREK Z. SASIADEK is a Professor of Aerospace Engineering in the Department of Mechanical and Aerospace Engineering at Carleton University, Ottawa, Ontario, Canada. He received his M.Sc. (1972), Ph.D. (1975), and D.Sc. degrees from the Technical University of Wroclaw, Wroclaw, Poland. His research interests focus in two main areas. The first is robotics, especially space robotics and unmanned autonomous vehicles (UAV). The second area involves guidance, navigation, and control, especially spacecraft and aircraft control and nonlinear control. In 1989–1991 Dr. Sasiadek was with the Canadian Space Agency in Ottawa, and in 1985–1987 he was a Technical Director for Alberta Research Council, Calgary, Alberta. He has authored/coauthored over 100 journal and refereed conference papers. Professor Sasiadek is a member of the AIAA Guidance, Navigation, and Control Technical Committee. An Associate Fellow of AIAA, he was a Program Chair of the 1994 AIAA Guidance, Navigation, and Control Conference in Scottsdale, Arizona.

SAHJENDRA N. SINGH received the B.Sc. in electrical engineering (1965) from the Patna University, India, the M.E. in applied electronics and servomechanism (1968) from the Indian Institute of Science, Bangalore, and the Ph.D. in electrical engineering (1972) from the Johns Hopkins University, Baltimore, Maryland. He is currently a Professor of Electrical Engineering at the University of Nevada, Las Vegas. Prior to joining the University of Nevada, Las Vegas, in 1986, he worked at the Indian Space Research Organization, Trivandrum, and at the NASA Langley Research Center, Hampton, Virginia. Dr. Singh did research as an ONR Distinguished Faculty Fellow at the U.S. Naval Air Warfare Center, Warminster, Pennsylvania, and the U.S. Naval Undersea Warfare Center, Newport, Rhode Island, in the areas of control of aircraft and turbulence control, and also as an AFOSR Faculty Fellow at Edwards Air Force Base, California. He has 24 years of teaching and research experience in the areas of nonlinear system and control theory, differential games, gyrodynamics, aircraft and spacecraft control, large space structures, and control of elastic robotics systems. He has published 90 journal papers in these areas. He is a senior member of IEEE and an Associate Fellow of AIAA.

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DONALD T. WARD is a Professor and Interim Head in the Aerospace Engineering Department at Texas A&M University. He received his B.S. in aeronautical engineering from the University of Texas, an M.S. in astronautics from the Air Force Institute of Technology, and a Ph.D. from Mississippi State University (1974), with a dissertation that explored the use of a sailplane as a poststall research and training vehicle. This subject still reflects his primary interest in aircraft flight mechanics and flight test, especially those topics related to nonlinear flight regimes and the related stability and control issues. Dr. Ward is an experimentalist, by both inclination and professional experience, having spent 16 of his 23 years in the Air Force as an Experimental Test Pilot. His first book, *Introduction to Flight Test Engineering*, was published in 1993. In recent years he has conducted research aimed at better understanding of the wing rock phenomenon. Currently, he is collaborating on an interdisciplinary team from electrical engineering, industrial engineering, and local industry in the development of a fuzzy logic-based advisory system for general aviation pilots. His responsibilities in this development are to generate the engineering simulator and to plan/conduct the flight evaluation of the expert system meant both to make general aviation safer and to make proficiency training more efficient. He and his graduate students are also exploring the use of neural networks as part of the inference engine for this kind of pilot advisory software.

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