

1981 Journal of Guidance and Control Index

Note: A Cumulative Index, referencing all of the papers published during 1980 and 1981 in the AIAA journals and the *Progress in Astronautics and Aeronautics* books, will be offered for sale early in 1982.

How to Use the Index

In the Subject Index, pages 664-667, each technical paper is listed under a maximum of three appropriate headings. Note the number in boldface type following each paper title, and use that number to locate the paper in the Chronological Index. The Author Index, pages 667-668, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index. The Chronological Index, pages 668-672, lists all papers by their unique code numbers. This listing contains titles, authors and their affiliations, and volume, issue number, and page where the paper appeared. It also gives the AIAA paper number, if any, on which the article was based, as well as the "CP" or conference volume number if the paper was published in a bound collection of meetings papers. Comments, Replies, and Errata are listed directly beneath the paper to which they refer. If the paper to which they refer was published prior to 1981, that paper also will appear in both the Subject and Chronological Indexes. Authors of Comments also are listed in the Author Index.

Subject Index

Aircraft Technology, Conventional, STOL/VTOL

Aerodynamics

Subsonic Free-Flight Data for a Complex Asymmetric Missile **G81-009**

Avionics Systems

Eighty Years of Flight Control: Triumphs and Pitfalls of the Systems Approach (History of Key Technologies) **G81-058**

Deceleration Systems

Effect of Reduced Visibility on VTOL Handling Quality and Display Requirements **G81-029**

Flight Operations

Airplane Performance Sensitivities to Lateral and Vertical Profiles **G81-105**
Airborne Method to Minimize Fuel with Fixed Time-of-Arrival Constraints **G81-055**

Guidance and Control

Linear Optimal Guidance for an AIM-9L Missile **G81-113**

Strapdown Attitude Algorithms from a Geometric Viewpoint **G81-112**

Experimental Evaluation of a Perspective Tunnel Display for Three-Dimensional Helicopter Approaches **G81-107**

Output Predictive Algorithmic Control: Precision Tracking with Application to Terrain Following **G81-080**

Expanded Third-Order Markov Undulation Model **G81-079**

Origins of Inertial Navigation (History of Key Technologies) **G81-074**

Optimal Control via Mathematical Programming **G81-071**

Pole Placement with Output Feedback **G81-070**

Automatic Control of a 0.3 m Cryogenic Test Facility **G81-068**

Frequency Response of Digitally Controlled Systems **G81-067**

Control Law Synthesis for Flutter Suppression Using Linear Quadratic Gaussian Theory **G81-066**

Numerical Computation of Optimal Atmospheric Trajectories **G81-065**

Singular Perturbation Techniques for On-Line Optimal Flight-Path Control **G81-064**

Effect of Acceleration Switching During INS In-Flight Alignment **G81-062**

Digital Estimation and Control of a Seismic Isolation Platform **G81-061**

Airborne Method to Minimize Fuel with Fixed Time-of-Arrival Constraints **G81-055**

"Direct" Wiener-Hopf Solution of Filter/Observer and Optimal Coupler Problems **G81-052**

Four-Dimensional Helical Approach of Aircraft in an Air Traffic Control Environment **G81-041**

Fuel-Conservative Guidance System for Powered-Lift Aircraft **G81-040**

Developments in the Field of Automatic Guidance and Control of Rockets (History of Key Technologies) **G81-038**

Adaptive Orthogonal Filters for Compensation of Model Errors in Matrix-Second-Order Systems **G81-036**

H-Dot Automatic Carrier Landing System for Approach Control in Turbulence **G81-030**

Special Cubic Solution Function **G81-015**

DC-9-80 Digital Flight Guidance System Monitoring Techniques **G81-007**

Deformable Mirror Surface Control Techniques **G81-005**

Capturability in a Two-Target "Game of Two Cars" **G81-003**

Rendezvous of Controlled Systems with Time-Delay **G81-002**

Handling Qualities, Stability and Control

- Experimental Evaluation of a Perspective Tunnel Display for Three-Dimensional Helicopter Approaches G81-107
- Investigation of Control, Display, and Crew-Loading Requirements for Helicopter Instrument Approach G81-106
- Robust Flight Control: A Design Example G81-104
- Pole Placement with Output Feedback G81-070
- Frequency Response of Digitally Controlled Systems G81-067
- Eighty Years of Flight Control: Triumphs and Pitfalls of the Systems Approach (History of Key Technologies) G81-058
- A Method for Measuring the Stability of a Full-Scale Rotor Control System G81-043
- Use of Cramer-Rao Bounds on Flight Data with Colored Residuals G81-035
- Effect of Reduced Visibility on VTOL Handling Quality and Display Requirements G81-029

Helicopters

- Experimental Evaluation of a Perspective Tunnel Display for Three-Dimensional Helicopter Approaches G81-107
- Investigation of Control, Display, and Crew-Loading Requirements for Helicopter Instrument Approach G81-106
- A Method for Measuring the Stability of a Full-Scale Rotor Control System G81-043
- Effect of Reduced Visibility on VTOL Handling Quality and Display Requirements G81-029

Landing Dynamics

- Fuel-Conservative Guidance System for Powered-Lift Aircraft G81-040
- H-Dot Automatic Carrier Landing System for Approach Control in Turbulence G81-030

Lighter-than-Airships

- Digital Estimation and Control of a Seismic Isolation Platform G81-061

Military Missions

- Linear Optimal Guidance for an AIM-9L Missile G81-113
- The Variable-Speed Tail-Chase Aerial Combat Problem G81-051
- Capturability in a Two-Target "Game of Two Cars" G81-003

Navigation, Communication, and Traffic Control

- Strapdown Attitude Algorithms from a Geometric Viewpoint G81-112
- Identity Between INS Position and Velocity Error Models G81-092
- Expanded Third-Order Markov Undulation Model G81-079
- Evaluation of the Navigation Performance of Shipboard VTOL Landing Guidance Systems G81-069
- Digital Estimation and Control of a Seismic Isolation Platform G81-061
- Airborne Method to Minimize Fuel with Fixed Time-of-Arrival Constraints G81-055
- Four-Dimensional Helical Approach of Aircraft in an Air Traffic Control Environment G81-041
- The Kalman Filter: Its Recognition and Development for Aerospace Applications (History of Key Technologies) G81-001

Performance

- Airplane Performance Sensitivities to Lateral and Vertical Profiles G81-105
- Singular Perturbation Techniques for On-Line Optimal Flight-Path Control G81-064
- Fuel-Conservative Guidance System for Powered-Lift Aircraft G81-040
- H-Dot Automatic Carrier Landing System for Approach Control in Turbulence G81-030

Simulation

- Output Predictive Algorithmic Control: Precision Tracking with Application to Terrain Following G81-080
- Developments in the Field of Automatic Guidance and Control of Rockets (History of Key Technologies) G81-038

Subsystem Design

- Deformable Mirror Surface Control Techniques G81-005

Testing, Flight and Ground

- A Method for Measuring the Stability of a Full-Scale Rotor Control System G81-043
- Use of Cramer-Rao Bounds on Flight Data with Colored Residuals G81-035
- Subsonic Free-Flight Data for a Complex Asymmetric Missile G81-009

Energy**Cryogenics**

- Automatic Control of a 0.3 m Cryogenic Test Facility G81-068

Fluid Dynamics**Nozzle and Channel Flow**

- Spin Jet Damping of Rocket-Assisted Projectiles G81-056

Interdisciplinary Topics**Aerospace Technology Utilization**

- Linear Optimal Guidance for an AIM-9L Missile G81-113

Analytical and Numerical Methods

- Strapdown Attitude Algorithms from a Geometric Viewpoint G81-112
- Error and Sensitivity Analysis Scheme of a New Data Compression Technique in Estimation G81-081
- Output Predictive Algorithmic Control: Precision Tracking with Application to Terrain Following G81-080
- Robust Collocated Control for Large Flexible Space Structures G81-077
- Optimal Control via Mathematical Programming G81-071
- Frequency Response of Digitally Controlled Systems G81-067
- Numerical Computation of Optimal Atmospheric Trajectories G81-065
- Singular Perturbation Techniques for On-Line Optimal Flight-Path Control G81-064
- Inversion of a Class of Complex Matrices G81-057
- "Direct" Wiener-Hopf Solution of Filter/Observer and Optimal Coupler Problems G81-052

- Modal Truncation for Flexible Spacecraft G81-046
- Parameter Plane Analysis for Large Flexible Spacecraft G81-045
- Instrumented Drop Tests of a Slowly Rolling Parachute Payload G81-042
- Singularities in Optimization of Deterministic Dynamic Systems G81-039
- Adaptive Orthogonal Filters for Compensation of Model Errors in Matrix-Second-Order Systems G81-036
- Special Cubic Solution Function G81-015
- Three-Axis Attitude Determination from Vector Observations G81-011
- Subsonic Free-Flight Data for a Complex Asymmetric Missile G81-009
- The Kalman Filter: Its Recognition and Development for Aerospace Applications (History of Key Technologies) G81-001

Astrodynamics

- A New Method for Optimizing Multiple-Flyby Trajectories G81-103
- Celestial Mechanics: Never Say No To A Computer (History of Key Technologies) G81-099
- Navigation Accuracy Analysis for an Ion Drive Rendezvous for an Ion Drive Rendezvous with Comet Tempel 2 G81-093

Celestial Mechanics

- Celestial Mechanics: Never Say No To A Computer (History of Key Technologies) G81-099

Computer Communications, Information Processing and Software

- Error and Sensitivity Analysis Scheme of a New Data Compression Technique in Estimation G81-081
- Minimum-Variance Design of Constant-Gain Filters Subject to Stability Constraints G81-053
- Design of a Verifiable Subset for HAL/S G81-013
- Sequential Estimation Algorithm Using a Covariance Factorization G80-057

Computer Software

- Celestial Mechanics: Never Say No To A Computer (History of Key Technologies) G81-099
- Design of a Verifiable Subset for HAL/S G81-013

Computer Technology

- Effect of Acceleration Switching During INS In-Flight Alignment G81-062
- Distributed Fault-Tolerant Switch for Use in Modular Redundancy G81-023
- DC-9-80 Digital Flight Guidance System Monitoring Techniques G81-007
- Flight Languages: Ada vs HAL/S G81-006

Law, History, Policy, and Sociology

- Origins of Inertial Navigation (History of Key Technologies) G81-074

Reliability, Maintainability, and Logistics Support

- An Improved Approach to Predicting Pilot Rating Behavior G81-084
- Reliability and Accuracy Prediction for a Redundant Strapdown Navigator G81-083
- Distributed Fault-Tolerant Switch for Use in Modular Redundancy G81-023

Research Facilities and Instrumentation

- Automatic Control of a 0.3 m Cryogenic Test Facility G81-068
Effect of Acceleration Switching During INS In-Flight Alignment G81-062

Satellite Communication Systems (including Terrestrial Stations)

- Operational Experience on OTS-2 G81-087

Sensor Systems

- Re-entry Vehicle State and Aerodynamic Coefficient Estimation from Dual Accelerometers G81-100
Error and Sensitivity Analysis Scheme of a New Data Compression Technique in Estimation G81-081
Expanded Third-Order Markov Undulation Model G81-079
Strapdown Attitude Reference Systems: Preliminary Design and Performance Analysis G81-063

State Estimation

- Navigation Accuracy Analysis for an Ion Drive Rendezvous for an Ion Drive Rendezvous with Comet Tempel 2 G81-093
Time-Varying Weights for Optimal Control with Inequality Constraints G81-091

Launch Vehicle and Missile (LV/M) Technology**Aerodynamics**

- Roll Resonance Control of Angle of Attack for Re-entry Vehicle Drag Modulation G81-108
Re-entry Vehicle State and Aerodynamic Coefficient Estimation from Dual Accelerometers G81-100
Symmetric Missile Dynamic Instabilities G81-075

Configurational Design

- Optimal Air-Breathing Launch Vehicle Design G81-086

Dynamics and Control

- Roll Resonance Control of Angle of Attack for Re-entry Vehicle Drag Modulation G81-108
Re-entry Vehicle State and Aerodynamic Coefficient Estimation from Dual Accelerometers G81-100
Optimal Air-Breathing Launch Vehicle Design G81-086
Symmetric Missile Dynamic Instabilities G81-075
Numerical Computation of Optimal Atmospheric Trajectories G81-065
Spin Jet Damping of Rocket-Assisted Projectiles G81-056
Combined Optimal/Classical Approach to Robust Missile Autopilot Design G81-050
Instrumented Drop Tests of a Slowly Rolling Parachute Payload G81-042
Design of Guidance and Control Digital Autopilots G81-022
Discrete-Time Disturbance-Accommodating Control Theory with Applications to Missile Digital Control G81-021
Comparison of Optimal Control and Differential Game Intercept Missile Guidance Laws G81-020
A New Look at Classical vs Modern Homing Missile Guidance G81-012
Instability of Controlled Projectiles in Ascending or Descending Flight G81-010

Guidance

- Identity Between INS Position and Velocity Error Models G81-092
Time-Varying Weights for Optimal Control with Inequality Constraints G81-091
Combined Optimal/Classical Approach to Robust Missile Autopilot Design G81-050
Design of Guidance and Control Digital Autopilots G81-022
Discrete-Time Disturbance-Accommodating Control Theory with Applications to Missile Digital Control G81-021
Comparison of Optimal Control and Differential Game Intercept Missile Guidance Laws G81-020
A New Look at Classical vs Modern Homing Missile Guidance G81-012
Instability of Controlled Projectiles in Ascending or Descending Flight G81-010

Missile Systems

- Time-Varying Weights for Optimal Control with Inequality Constraints G81-091
Origins of Inertial Navigation (History of Key Technologies) G81-074
Combined Optimal/Classical Approach to Robust Missile Autopilot Design G81-050
Design of Guidance and Control Digital Autopilots G81-022
Discrete-Time Disturbance-Accommodating Control Theory with Applications to Missile Digital Control G81-021
Comparison of Optimal Control and Differential Game Intercept Missile Guidance Laws G81-020
A New Look at Classical vs Modern Homing Missile Guidance G81-012

Testing, Flight and Ground

- Instrumented Drop Tests of a Slowly Rolling Parachute Payload G81-042

Vibration

- Generic Model of a Large Flexible Space Structure for Control Concept Evaluation G81-088
Symmetric Missile Dynamic Instabilities G81-075

Propulsion**Airbreathing Propulsion**

- The Variable-Speed Tail-Chase Aerial Combat Problem G81-051
Multivariable Control Altitude Demonstration on the F100 Turbofan Engine G81-008

Electric and Advanced Space Propulsion

- Navigation Accuracy Analysis for an Ion Drive Flyby of Comet Halley G81-060

Spacecraft Technology**Attitude Determination**

- Control of a Large Flexible Platform in Orbit G81-110

Dynamics and Control

- Three-Dimensional Response Characteristics for Spacecraft with Deploying Flexible Appendages G81-111
Control of a Large Flexible Platform in Orbit G81-110
Extensions of Suboptimal Output Feedback Control with Application to Large Space Structures G81-109

- Satellite Attitude Control with Decomposed Controller G81-101
Sensitivity of Modal-Space Control to Non-ideal Conditions G81-090
Attitude Stabilization of Large Flexible Spacecraft G81-089
Generic Model of a Large Flexible Space Structure for Control Concept Evaluation G81-088
Operational Experience on OTS-2 G81-087
In-Flight Magnetometer Calibration and Attitude Determination for Near-Earth Spacecraft G81-082
Stability of Large Space Structure Control Systems Using Positivity Concepts G81-078
Robust Colocated Control for Large Flexible Space Structures G81-077
Optimal Feedback Slewing of Flexible Spacecraft G81-076
Strapdown Attitude Reference Systems: Preliminary Design and Performance Analysis G81-063
Time-Optimal Magnetic Attitude Maneuvers G81-059
Inversion of a Class of Complex Matrices G81-057
Minimum-Variance Design of Constant-Gain Filters Subject to Stability Constraints G81-053
Control of Large Flexible Space Structures Using Pole Placement Design Techniques G81-047
Modal Truncation for Flexible Spacecraft G81-046
Parameter Plane Analysis for Large Flexible Spacecraft G81-045
Uncontrolled Dynamics of the Skylab Vehicle G81-044
Stability of an Orbiting Ring G81-033
Spacecraft Attitude Acquisition from an Arbitrary Spinning or Tumbling State G81-028
Optimal Control of Damped Flexible Gyroscopic System G81-027
On-Orbit Control System Performance of the HEAO-2 Observatory G81-026
Guidance Laws for Short-Range Tactical Missiles G81-019
Dumping Momentum Magnetically on GPS Satellites G81-014
Three-Axis Attitude Determination from Vector Observations G81-011
Optimal Local Control of Flexible Structures G81-004
Stability of a Precision Attitude Determination Scheme G80-112
Numerical Solution of the Constrained Re-entry Vehicle Trajectory Problem via Quasilinearization G80-071
Formulation of Equations of Motion for Complex Spacecraft G80-017

Earth-Orbital Trajectories

- Expansion of the Third-Body Disturbing Function G81-054
Sequential Orbit Determination with Auto-Correlated Gravity Modeling Errors G81-048
The Main Problem in the Theory of Artificial Satellites to Order Four G81-034
Orbital Decay Due to Drag in an Exponentially Varying Atmosphere G80-111
Semianalytic Theory for a Close-Earth Artificial Satellite G80-054

Entry Vehicle Dynamics and Control

- Numerical Solution of the Constrained Re-entry Vehicle Trajectory Problem via Quasilinearization G80-071

Entry Vehicles and Landers

- Orbital Decay Due to Drag in an Exponentially Varying Atmosphere G80-111

Lunar and Interplanetary Trajectories

- A New Method for Optimizing Multiple-Flyby Trajectories G81-103
 Floquet Reference Solutions for the Lunar Theory and the Jovian Moons G81-102
 Optimal Control via Mathematical Programming G81-071
 Navigation Accuracy Analysis for an Ion Drive Flyby of Comet Halley G81-060
 A New Trajectory Concept for Exploring the Earth's Geomagnetic Tail G81-032

Meteoroid and Radiation Protection

- A New Method for Optimizing Multiple-Flyby Trajectories G81-103

Missions and Economics

- A New Trajectory Concept for Exploring the Earth's Geomagnetic Tail G81-032

Navigation, Guidance, and Flight-Path Control

- Navigation Accuracy Analysis for an Ion Drive Rendezvous for an Ion Drive Rendezvous with Comet Tempel 2 G81-093
 Identity Between INS Position and Velocity Error Models G81-092
 An Improved Approach to Predicting Pilot Rating Behavior G81-084
 Reliability and Accuracy Prediction for a Redundant Strapdown Navigator G81-083
 Optimal Control via Mathematical Programming G81-071
 Navigation Accuracy Analysis for an Ion Drive Flyby of Comet Halley G81-060
 Expansion of the Third-Body Disturbing Function G81-054
 Simultaneous Eccentricity and Drift Rate Control G81-049

Sequential Orbit Determination with Auto-Correlated Gravity Modeling Errors

- G81-048
 A New Trajectory Concept for Exploring the Earth's Geomagnetic Tail G81-032
 Optimization of Earth Sensor Thresholding Techniques G81-024
 Geometric Dilution of Precision in Global Positioning System Navigation G81-016
 Stability of a Precision Attitude Determination Scheme G80-112
 Sequential Estimation Algorithm Using a Continuous UDU^T Covariance Factorization G80-057

Signatures and Tracking

- Operational Experience on OTS-2 G81-087

Simulation

- Three-Dimensional Response Characteristics for Spacecraft with Deploying Flexible Appendages G81-111
 Formulation of Equations of Motion for Complex Spacecraft G80-017

Space Station Systems, Manned

- Stability of an Orbiting Ring G81-033

Systems

- In-Flight Magnetometer Calibration and Attitude Determination for Near-Earth Spacecraft G81-082
 On-Orbit Control System Performance of the HEAO-2 Observatory G81-026
 Stability of a Precision Attitude Determination Scheme G80-112
 Sequential Estimation Algorithm Using a Continuous UDT^T Covariance Factorization G80-057

Structural Mechanics and Materials**Structural Design**

- Wind-Tunnel Investigation of Active Controls Technology Applied to a DC-10 Derivative G81-085

Structural Dynamics

- Three-Dimensional Response Characteristics for Spacecraft with Deploying Flexible Appendages G81-111
 Control of a Large Flexible Platform in Orbit G81-110
 Sensitivity of Modal-Space Control to Non-ideal Conditions G81-090
 Attitude Stabilization of Large Flexible Spacecraft G81-089
 Generic Model of a Large Flexible Space Structure for Control Concept Evaluation G81-088
 Wind-Tunnel Investigation of Active Controls Technology Applied to a DC-10 Derivative G81-085
 Stability of Large Space Structure Control Systems Using Positivity Concepts G81-078
 Control of Large Flexible Space Structures Using Pole Placement Design Techniques G81-047
 Stability of an Orbiting Ring G81-033
 Optimal Control of Damped Flexible Gyroscopic System G81-027
 Sensing the Position and Vibration of Spacecraft Structures G81-025
 Deformable Mirror Surface Control Techniques G81-005
 Optimal Local Control of Flexible Structures G81-004

Structural Stability

- Attitude Stabilization of Large Flexible Spacecraft G81-089
 Wind-Tunnel Investigation of Active Controls Technology Applied to a DC-10 Derivative G81-085
 Stability of Large Space Structure Control Systems Using Positivity Concepts G81-078

Structural Statics

- Sensing the Position and Vibration of Spacecraft Structures G81-025

Author Index

Ackermann, J., G81-104
 Albanes, W., G81-022
 Alford, R. L., G80-054
 Alford, R. L., G80-054
 Anderson, G. M., G81-020
 Anderson, R. H., G81-024, G81-025
 Arbel, A., G81-077
 Ashkenas, I. L., G81-029
 Asner Jr., B. A., G81-045
 Axelby, G. S., G81-091
 Bainum, P. M., G81-110
 Balakrishna, S., G81-068
 Balas, M., G81-089
 Ballard, J., G81-043
 Bar-Itzhack, I. Y., G81-062, G81-081, G81-092
 Barmish, B. R., G81-070
 Barthelemy, J.-F.M., G81-090
 Baruh, H., G81-027
 Benhabib, R. J., G81-078
 Berkery, E. A., G81-026
 Bhattacharyya, K. C., G80-112

Bhattacharyya, K.C., G81-094
 Bien, Z., G81-002
 Bierman, G. J., G80-057
 Bradley, J. W., G81-042
 Breakwell, J. A., G81-076
 Breakwell, J. V., G81-033, G81-051
 Broucke, R., G81-054
 Browne, J.C., G81-013
 Bruckner, J. M. H., G81-105
 Buchanan, H. J., G81-044
 Buholz, N. E., G81-025
 Buratti, A., G81-037
 Byrnes, D. V., G81-103
 Calise, A. J., G81-064
 Carrington, C. K., G81-059
 Chaffin, D. E., G81-080
 Chakravarty, A. J. M., G80-111
 Chakravarty, A. J. M., G81-096
 Chiarappa, D. J., G81-005
 Chopra, I., G81-043
 Chyung, D. H., G81-002
 Claysmith, C. R., G81-005

Contensou, P., G81-039
 Daly, K. C., G81-083
 D'Amaro, L. A., G81-103
 DeHoff, R. L., G81-008
 Deprit, A., G81-099
 Deprit, A., G81-034
 Didaleusky, D. G. J., G81-067
 Dougherty, H. J., G81-063
 Draper, C. S., G81-074
 Dunham, D. W., G81-032
 Dunn, H. J., G81-066
 Erzberger, H., G81-040
 Fagg, A. S., G81-087
 Fang, B. T., G81-016
 Farquhar, R. W., G81-032
 Farrell, J. L., G81-091
 Ferguson Jr., J. R., G81-014
 Forrest, R. D., G81-106
 Franklin, S. N., G81-104
 Fredricks, D. A., G81-070
 Fusco, G., G81-037
 Gai, E., G81-083

Galaboff, Z. J., G81-044
 Garrard, W. L., G81-066
 Gartrell, C. F., G81-049
 Gerber, M. A., G81-079
 Gerdes, R. M., G81-106
 Getz, W. M., G81-003
 Ginter, S., G81-089
 Glandorf, D. R., G81-057
 Good, D. I., G81-013
 Graham, D., G81-015, G81-058
 Grepper, P. O., G81-041
 Grubin, C., G80-017
 Grunwald, A. J., G81-107
 Gupta, N.K., G81-077
 Hablani, H. B., G81-088
 Hackney, R. D., G81-008
 Haeussermann, W., G81-038
 Hallauer Jr., W. L., G81-090
 Hamer, H. A., G81-110
 Hargraves, C., G81-065
 Harrison, J. V., G81-083
 Hatfield, J. J., G81-107