Authors

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Mr. Bernstein is a senior engineer and manager of the Advanced Image Processing Analysis and Development department. He is currently principal investigator of the NASA Earth Resources Technology Satellite (ERTS) program. He joined IBM in 1956 with the Federal Systems Division in Vestal, New York. Since 1967 he has had lead technical roles in analyzing and designing systems for the acquisition and processing of satellite and aerial imagery. Mr. Bernstein received a B.S. from the University of Connecticut, Storrs, in 1956 and an M.S. from Syracuse University in 1960, both in electrical engineering. He is a member of the American Society of Photogrammetry and a senior member of the Institute of Electrical and Electronics Engineers, and in 1971 was Chairman of the IEEE International Geoscience Electronics Symposium. He is a contributor to the books *Pollution—Engineering and Scientific Solution* and *Geoscience Electronics*. Mr. Bernstein has had several patents granted and in 1974 received both the NASA Medal for Exceptional Scientific Achievement and the IBM Outstanding Contribution Award.

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Mr. Byrne is Technical Assistant to the Chief of the Digital Electronics Systems Division at Kennedy Space Center; in this position he is the Chief Engineer for the Launch Processing System hardware development effort. Mr. Byrne joined the U.S. Government in 1956, serving in various positions ranging from development engineer to chief of the radio frequency and telemetry receiving facility at Kennedy Space Center. In his Government assignments, Mr. Byrne has been associated with the Redstone, Jupiter, and Pershing programs, under the direction of the U.S. Army Ordnance Corps, and with the Gemini and Saturn/Apollo programs, under the direction of NASA.

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Mr. Chow is an advisor for space technology at the Electronics Systems Center in Owego. From 1942 to 1951, Mr. Chow worked as a design and development engineer for General Electric Company, and served as instructor, lecturer, and consultant in the New York area. While associated with American Bosch Arma Corporation from 1951 to 1964, he contributed significantly to the inertial guidance system for the Atlas ICBM. He was a group director for Aerospace Corp. from 1964 to 1967. In 1967 he joined IBM and later directed the Space Systems Center's technical planning, advanced systems study, and product assurance efforts in Bethesda, Maryland. Mr. Chow received his B.A. from Chino Tung University, Shanghai, China in 1940 and his M.A. from the Massachusetts Institute of Technology in 1942, both in electrical engineering.

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Mr. Coon is an advisory engineer in the systems design group in Huntsville where he joined IBM in 1966. He is currently assigned to the Large Space Telescope project. His technical interests include the design of momentum exchange control systems for long life spacecraft. Mr. Coon received a B.S. degree in 1964 and an M.S. degree in 1966, both in electrical engineering, from the University of Alabama. He is a member of the Institute of Electrical and Electronics Engineers.

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Mr. Cooper has been program manager for Space Shuttle avionics since 1971 and is responsible for the systems engineering, hardware development, and Air Force applications. He joined IBM in 1950 in the physics department at Endicott, New York. In 1958, he was made a division executive manager for Advanced Systems Research at Owego. Mr. Cooper was promoted to General Manager, FSD Space Guidance Center, Owego, in 1962, and to FSD Vice-President and General Manager of the Space Systems Center in October 1965. Mr. Cooper received a B.S. from the University of Cincinnati and an M.S. from Purdue University, both in chemical engineering. He is an Associate Fellow and corporate member of the American Institute of Aeronautics and Astronautics and a senior member of the Institute of Electrical and Electronics Engineers. In 1969 Mr. Cooper received NASA's public service award for outstanding contributions as key leader of the Government/Industry team which made possible the success of the Apollo program.

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Mr. Doolittle is the engineering and program management manager for the Huntsville site. Previously he was the Cape Kennedy facility site manager and, before that, program manager of the Launch Processing System project (system engineering and software development for the launch checkout system for the Space Shuttle transportation system). Mr. Doolittle joined IBM in 1956 in Owego, New York, where he worked on navigation systems. His space-related work began in 1964 in Houston, Texas as a flight controller and later in Huntsville, Alabama, working on the Saturn program. Prior to joining IBM, Mr. Doolittle was an instructor at the University of New Hampshire, where he received a B.S. in physics in 1952 and an M.S. in electrical engineering in 1956.

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Hockenberger joined IBM in 1962 in Owego, New York, where he was involved in design and development of high speed circuits. From 1964 to 1974 he was located in Huntsville, Alabama, involved in the design and analysis of data transmission systems for satellites and special customer requirements. From 1958 to 1962 he was a communication systems engineer with Avco Corporation, Cincinnati, Ohio. Mr. Hockenberger received a B.E.E. in 1958 from the University of Florida and an M.S. in 1962 from the University of Cincinnati, in electrical engineering.

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Mr. Hudson is a senior engineer and the program manager for the Large Space Telescope program. He joined IBM in 1958 at Owego, New York in the advanced systems research group, where he worked on the design and development of digital differential analyzers and their application to missile guidance, navigation, and control problems. Other past work assignments include various engineering responsibilities on the Saturn, Skylab, Space Shuttle, and Safeguard programs. Mr. Hudson received a B.S. degree from the University of Connecticut, Storrs, in 1958 and an M.S. degree from Syracuse University in 1961, both in electrical engineering. He is a member of the American Institute of Aeronautics and Astronautics, the Institute of Electrical and Electronics Engineers, Tau Beta Pi, Eta Kappa Nu, and Sigma Pi Sigma.

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Mr. Irby is manager of the Systems Design department, which deals with the analysis and design of pointing control systems and data management systems for Shuttle payloads. His current interests include the Large Space Telescope Phase B System Design; Spacelab user interaction concept definition; and the design of the simulation facility for Marshall Space Flight Center use in data systems design. Mr. Irby received a B.S. in 1963 and an M.S. in 1964, both in electrical engineering, from the University of Tennessee. In 1965 he joined IBM in Huntsville as an engineer, working on the Saturn launch vehicle control system design. In 1969 he began working on the analysis and design of the Skylab flight control system and in 1971 was named manager of the Skylab Systems Design department. In 1974 Mr. Irby was the recipient of an IBM Outstanding Contribution Award for his efforts in the Skylab attitude control system design and mission support.

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Mr. Kidd is manager of the Sensor Systems Analysis department of the Houston facility. He joined IBM in 1974 and is currently working on the analysis of experiments proposed as Shuttle payloads in the disciplines of high energy astrophysics, astronomy, Earth, ocean, and atmospheric observations. Before joining IBM, he was a member of the technical staff at TRW Systems in Houston, supporting NASA in the evaluation of guidance, navigation, and Earth resource sensor systems. He received a B.A. degree in 1958 and an M.S. degree in 1960, both in mathematics, from Texas A&M University.

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Dr. Kraft was appointed Director of the NASA Johnson Space Center in January 1972 after holding the position of Deputy Director of the Center. He entered Federal Service in 1945 at the Langley Aeronautical Laboratory. In 1958 Dr. Kraft was selected to be one of the original members of the Space Task Group to establish Project Mercury. He was a prime contributor to basic mission control techniques, flight control team concepts, and worldwide tracking and other instrumentation requirements. He developed, trained, and operationally qualified the flight controller teams for Mercury missions, and was the Flight Director for all Mercury missions. He directed the design and implementation of the Mission Control Center in Houston, directed planning and mission control for all Gemini missions, and guided the operational planning and conducted mission operations in support of the Apollo flights through the lunar landing. Dr. Kraft received a B.S. degree in 1944 in aeronautical engineering from Virginia Polytechnic Institute and State University, Blacksburg, Virginia. In 1966 and 1967, respectively, he was awarded honorary Doctor of Engineering degrees from the Indiana Institute of Technology, Fort Wayne, and St. Louis University. In the course of his career, Dr. Kraft has been accorded many honors. He received the NASA Outstanding Leadership Award from the President in May 1963. He was awarded the NASA Distinguished Service Medal in January 1969 and October 1969. He is a Fellow of the American Astronautical Society and the Institute of Aeronautics and Astronautics. In April 1970 Dr. Kraft was elected a member of the National Academy of Engineering. He is also a member of Pi Tau Sigma and Gamma Tau Sigma.

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Mr. Sklaroff is an advisory engineer with the Shuttle systems engineering department, currently performing data processing studies. He joined IBM in 1960 and has worked as a systems engineer on such programs as the Orbiting Astronomical Observatory, Saturn, and the Apollo Telescope Mount. In 1969 he began formulating redundancy management techniques for the Shuttle vehicle data processing system and in 1972 participated in the design and flight test of sensor and computer redundancy management for the Tactical Aircraft Guidance System (TAGS) program. Mr. Sklaroff received a B.S. degree in electrical engineering in 1959 and an M.S. degree in business administration in 1960, both from the University of Pennsylvania, and an M.S. degree in electrical engineering in 1965 from Syracuse University. Mr. Sklaroff is a member of Eta Kappa Nu.

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Dr. Sohoni is an advisory engineer at Huntsville where he joined IBM in 1967. Currently he is responsible for the NASA Marshall Space Flight Center studies related to Space Shuttle utilization and payload planning. Since joining IBM he has been involved primarily in guidance and trajectory optimization work for Saturn and other space vehicles. Dr. Sohoni received a B.E. degree from Jabalpur University, India, in 1958, and an M.S. degree in electrical engineering from Purdue University in 1959. From 1959 until 1964 he was a computer analyst at Vapor Corporation, Chicago. From 1964 until 1967 he was a research associate at the University of Alabama, where he received a Ph.D. degree in nonlinear control theory. Dr. Sohoni is a member of Eta Kappa Nu and Pi Mu Epsilon.

Robert H. Wolfe, Jr.

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Dr. Wolfe is a physicist in the sensor systems analysis department where he is currently engaged in formulating data processing requirements for remote Earth sensors and astronomy and Earth atmosphere instruments contained in the proposed Space Shuttle payloads. His activities include the mathematical modeling, calibration, and performance evaluation of those instruments and the formulation of measurement reduction and correction techniques. Before joining IBM in 1974. Dr. Wolfe performed similar tasks for remote Earth sensors at TRW Systems in Houston. He received an A.B. in astronomy and mathematics in 1962 and an M.A. in astronomy in 1963, both from the University of Kansas. In 1973, he obtained a Ph.D. in physics from the University of Houston.

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