

Avionics Navigation Systems

By Myron Kayton, Walter R. Fried



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An indispensable resource for all those who design, build, manage, and operate electronic navigation systems

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Avionics Navigation Systems, Second Edition, is a complete guide to the art and science of modern electronic navigation, focusing on aircraft. It covers electronic navigation systems in civil and military aircraft, helicopters, unmanned aerial vehicles, and manned spacecraft. It has been thoroughly updated and expanded to include all of the major advances that have occurred since the publication of the classic first edition. It covers the entire field from basic navigation principles, equations, and state-of-the-art hardware to emerging technologies. Each chapter is devoted to a different system or technology and provides detailed information about its functions, design characteristics, equipment configurations, performance limitations, and directions for the future. You'll find everything you need to know about:

Traditional ground-based radio navigation *

Satellite systems: GPS, GLONASS, and their augmentations *

New inertial systems, including optical rate sensors, micromechanical accelerometers, and high-accuracy stellar-inertial navigators Instrument Landing System and its successors *

Integrated communication-navigation systems used on battlefields *

Airborne mapping, Doppler, and multimode radars *

Terrain matching *

*

Special needs of military aircraft *

And much more

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Editorial Review

From the Publisher

A unified treatment of the principles and practices of modern navigation sensors and systems. This updated edition follows the format of its predecessor describing the basic functions and principles, design characteristics and equipment configurations, performance limitations, and sources of error. Coverage includes ground-based radio-navigation system aids; integrated communication-navigation systems; inertial and stellar-inertial navigation systems; air-data sensors and algorithms that derive airspeed, angles of attack and sideslip, and barometric altitude; attitude and heading sensors and displays; Doppler radars, radar altimeters, and mapping radars; and terrain map-matching.

From the Back Cover

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- Integrated communication-navigation systems used on battlefields
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- Terrain matching
- Special needs of military aircraft
- And much more

About the Author

MYRON KAYTON, PhD, is President of Kayton Engineering Company, with forty years of experience designing avionic, navigation, communication, and process systems. He has served as TRW's Chief Engineer for Spacelab avionics, Head of System Engineering for Space Shuttle avionics, and Project Engineer for the electronics of the Inertial Upper Stage. During the Apollo project, he was Deputy Manager for Lunar Module Guidance and Control at NASA's Johnson Space Center and is a former section head at Litton's Guidance and Control Division, where he designed some of the earliest multisensor navigation systems. Dr. Kayton is a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and an elected member of the corporate board of directors. An instrument-rated pilot, he also holds an FAA Project Raincheck certificate in air traffic control. WALTER R. FRIED, MS, is a navigation systems consultant who is widely known in the field of navigation. In his long career in aerospace electronics, he has worked on most types of navigation systems, as well as on air traffic management, airborne radar, antennas, and communication systems. He was instrumental in developing a new FM-CW Doppler navigation radar for helicopters that is still in widespread

use. Mr. Fried was Chief Scientist for Subsystems of the F-111 Avionics System and Technical Director of the JTIDS Relative Navigation System. He served on the FAA-commissioned Blue-Ribbon RTCA Task Force on the "Global Navigation Satellite System (GNSS) Transition and Implementation Strategy" and on several other GPS-related RTCA Committees. A Fellow of the IEEE, he is a coauthor of the book Airborne Radar.

Users Review

From reader reviews:

Mamie Perkins:

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