Book Announcements

ZARCHAN, P. *Tactical and Strategic Missile Guidance,* Progress in Astronautics and Aeronautics, Vol. 124, edited by A. R. Seebass, AIAA, Washington, DC, 1990, 341 pages.

Purpose: Various aspects of tactical and strategic missile guidance are presented in this book. Each guidance law is derived mathematically and then explained in a simple way. Numerical examples using FORTRAN are given.

Contents: Numerical techniques; fundamentals of tactical missile guidance; method of adjoints and the homing loop; noise analysis; proportional navigation and miss distance; digital fading memory noise filters in the homing loop; advanced guidance laws; Kalman filters and the homing loop; other forms of tactical guidance; tactical zones; strategic considerations; boosters; Lambert guidance; strategic intercepts; miscellaneous topics.

GAJIC, Z., PETKOVSKI, D., and **SHEN, X.,** *Singularly Perturbed and Weakly Coupled Linear Control Systems: A Recursive Approach,* Lecture Notes in Control and Information Sciences, Vol. 140, Springer-Verlag, New York, 1990, 202 pages.

Purpose: This monograph presents a comprehensive treatment of the recursive reduced-order methods for singularly perturbed and weakly coupled linear systems.

Contents: Algebraic Lyapunov and Riccati equations; output feedback control of linear singularly perturbed and weakly coupled systems; linear stochastic systems; recursive approach to finite-time singularly perturbed and weakly coupled control systems; applications to differential games; linear discrete weakly coupled control systems; linear discrete singularly perturbed control systems.

KIRK, C. L., and **JUNKINS, J. L.,** (eds.), *Dynamics of Flexible Structures in Space,* Springer-Verlag, Berlin, 1990, 659 pages.

Purpose: This volume contains the proceedings of the First International Conference on Dynamics of Flexible Structures in Space, U.K., May 15–18, 1990.

Contents: Dynamic modeling and control techniques; multibody dynamics, robots, and design; numerical analysis, finite element methods, and experimental methods; tethers and tethered satellites, on-orbit system identification, and space station dynamics.

TAPLEY, BYRON D., (ed.), *Eshbach's Handbook of Engineering Fundamentals,* 4th ed., Wiley, New York, 1990.

Purpose: This is an updated and revised edition of the original handbook.

Contents: Mathematical and physical units, standards, and tables; mathematics; mechanics of rigid and deformable bodies; mechanics of incompressible fluids; aeronautics; astronautics; automatic control; computer science; thermodynamics and heat transfer; electromagnets and circuits; electronics; light, radiation, and acoustics; chemistry; engineering economics; properties of materials.

NACHTIGAL, C. L., (ed.), *Instrumentation and Control, Fundamentals and Applications,* Wiley, New York, 1990, 90 pages.

Purpose: This is a reference book for the practicing engineer.

Contents: Systems engineering concepts; dynamic systems analysis; instrument statics; input and output characteristics; electronic devices and data conversion; grounding and cabling techniques; bridge transducers; position, velocity, and acceleration measurement; force, torque, and pressure measurement; temperature and flow transducers; signal processing and transmission; data acquisition and display systems; closed-loop control system and analysis; control system performance modification; servoactuators for closed-loop control; controller design; general purpose control devices; state-space methods for dynamic systems analysis; control system design using state-space methods.

CAREY, G. F., (Ed.), *Parallel Supercomputing: Methods, Algorithms, and Applications,* Wiley, West Sussex, U.K., 1990, 287 pages.

Purpose: Contributions from various authors on methods and algorithms for parallel and parallel-vector computing are presented.

Contents: Performance limits for parallel processors; parallel speedup; overview of current developments in parallel architectures; machine-independent parallel numerical algorithms; parallel computing software; parallel sub-domain and element-by-element techniques; applications.

ZIKIC, A. M., *Practical Digital Control,* Ellis Horwood, West Sussex, U.K., 1989, 383 pages.

Purpose: The purpose of this book is to present a combined study of classical and modern discrete control theories in a condensed and reasonably compact form.

Contents: Introduction to the control problem; architecture of digital control computers and interfacing problems; mathematical foundations and control of discrete systems; stability of control systems; analog design of discrete controller; discrete design of a digital controller; state space representation; computer-implementation requirements for discrete controllers; appendices.