Book Announcements

FRANKLIN, G.F., Stanford University, **POWELL, J.D.,** Stanford University, and **EMAMI-NAEINI, A.,** Systems Control Technology, *Feedback Control of Dynamic Systems,* Addison-Wesley, New York, 1986, 622 pages. $41.95.

Purpose: This book has been developed for a first course in feedback control at the senior level for all engineering students. The ability to solve linear ordinary constant-coefficient differential equations with Laplace transforms is assumed. The emphasis of the book is designing controllers that will process sensor measurements to cause a dynamic system to meet tracking and disturbance rejection specifications in spite of model errors.

Contents: An overview and brief history of feedback control. Dynamic models and dynamic response. Essential principles of feedback. The root-locus design method. The frequency-response design method. State-space design. Control-system design: principles and case studies. Digital control. Appendices. Index.

VAN DE VEGTE, J., University of Toronto, *Feedback Control Systems,* Prentice-Hall, New York, 1986, 433 pages. $50.67.

Purpose: This book is intended for a first course in control systems for third- or fourth-year students. It is self contained so that it is suitable for self study.

Contents: Introduction and linearized dynamic models. Transfer function models of physical systems. Transient performance and the s-plane. Feed-back system modeling and performance. Dynamic compensation of feedback systems. The root locus method. Frequency response methods. Frequency response analysis and design. Digital control systems. Digital control systems analysis and design. Nonlinear control systems. State space analysis. Introduction to state space design. Multivariable systems in the frequency domain. Appendices. Index.

LAGUNOV, V.N., *Introduction to Differential Games and Control Theory,* Heldermann Verlag, Berlin, 1985, 285 pages.

Purpose: This book is a translation of a Russian text. The first part of the text (roughly one half) is on the mathematical theory of optimal control, and the second part is on game theory. The text is based on a course presented to mathematics students which gives a game-theoretic introduction to zero-sum two-person differential games.

Contents: Basic ideas and typical problems. Dynamic programming. The maximum principle. One stage games. Multistage games. Fundamental differential game-concepts. Methods of solving differential games based on dynamic programming and the maximum principle. Some methods of investigating differential games not based on the maximum principle or dynamic programming. Index.

HARIHARAN, P., CSIRO Division of Applied Physics (Sydney, Australia), *Optical Interferometry,* Academic Press, New York, 1985, 303 pages. $58.00.

Purpose: The aim of this book is to present a self-contained treatment of optical interferometry with particular emphasis on recent developments and their implications for the future. With approximately 600 references, this book is a suitable reference for students and researchers.

Contents: The development of physical interferometry. Two-beam interference. Coherence. Multiple-beam interference. Thin films. The laser as a light source. Measurements of length. The study of optical wave fronts. Interferometry with lasers. Interferometry spectroscopy. Fourier-transform spectroscopy. Holography. Holographic interfereometry. Speckle interferometry. Stellar interferometry. Appendices. Index.

METIVIER, M., and PARDOUX, E., Editors, *Stochastic Differential Systems: Filtering and Control,* Springer-Verlag, New York, 1985, 322 pages. $29.00.

Purpose: This bound volume contains the proceedings of the IFIP-WG 7/1 Working Conference held at Marseille-Luminy, France on March 12-17, 1984. The contents listed below represent the major topics discussed at the conference.

Contents: Stochastic partial differential equations and infinite dimensional martingale problems. Fluctuations and asymptotic analysis of finite and infinite dimensional systems. Stochastic equations-diffusions. Filtering. Control theory.

KRYLOV, N.V., LIPSTER, R. SH., and NOVIKOV, A.A., Editors, *Statistics and Control of Stochastic Processes,* Springer-Verlag, New York, 506 pages. $54.00.

Purpose: This bound volume contains the papers presented at the 1984 Seminar on Statistics and Control of Stochastic Processes held at the Steklov Institute of Mathematics in Moscow. The contents presented below indicate the major topics considered at the seminar.

Contents: Statistical analysis. Filtering. Stochastic control of random processes. Stochastic calculus (martingales, stochastic differential systems).