
Covering the fundamentals of detection and estimation theory, this systematic guide describes statistical tools that can be used to analyze, design, implement, and optimize real-world systems. Detailed derivations of the various statistical methods are provided, ensuring a deeper understanding of the basics. Packed with practical insights, it uses extensive examples from communication, telecommunication, and radar engineering to illustrate how theoretical results are derived and applied in practice. A unique blend of theory and applications, and more than 80 analytical and computational end-of-chapter problems, make this an ideal resource for both graduate students and professional engineers.

**Kung Yao** is a Distinguished Professor in the Electrical Engineering Department at the University of California, Los Angeles. He received his BS (Highest Honors) and Ph.D. from Princeton University. A Life Fellow of the IEEE, he has worked for or consulted for several leading companies, including AT&T Bell Laboratories, TRW, Hughes Aircraft Company, and Raytheon.

**Flavio Lorenzelli** received his Ph.D. from the University of California, Los Angeles, and for several years was with ST Microelectronics. The recipient of a Fulbright fellowship in 1989, he has been an engineer at the Aerospace Corporation since 2007 and is a Lecturer in the Electrical Engineering Department at UCLA.

**Chiao-En Chen** is an Assistant Professor in both the Department of Electrical Engineering and the Department of Communications Engineering at National Chung Cheng University, Taiwan. He received his PhD from the University of California, Los Angeles, in 2008.