

## **REVIEWS AND ENDORSEMENTS**



"Inference and Learning from Data is a uniquely comprehensive introduction to the signal processing foundations of modern data science. Lucidly written, with a carefully balanced choice of topics, this textbook is an indispensable resource for both graduate students and data science practitioners, a piece of lasting value." **Helmut Bölcskei**, *ETH Zurich*, Switzerland



"This textbook provides a lucid and magisterial treatment of methods for inference and learning from data, aided by hundreds of solved examples, computer simulations, and over 1000 problems. The material ranges from fundamentals to recent advances in statistical learning theory; variational inference; neural, convolutional, and Bayesian networks; and several other topics. It is aimed at

students and practitioners, and can be used for several different introductory and advanced courses." Thomas Kailath, *Stanford University*, USA



"A tour de force comprehensive three-volume set for the fast-developing areas of data science, machine learning, and statistical signal processing. With masterful clarity and depth, Sayed covers, connects, and integrates background fundamentals and classical and emerging methods in inference and learning. The books are rich in worked-out examples, exercises, and links to data sets. Commentaries with

historical background and contexts for the topics covered in each chapter are a special feature." Mostafa Kaveh, University of Minnesota, USA



"This is the first of a three-volume series covering from fundamentals to the many various methods in inference and learning from data. Professor Sayed is a prolific author of award-winning books and research papers who has himself contributed significantly to many of the topics included in the series. With his encyclopedic knowledge, his careful attention to detail, and in a very approachable style, this first volume covers the basics of matrix theory, probability and stochastic

processes, convex and non-convex optimization, gradient-descent, convergence analysis, and several other advanced topics that will be needed for volume II (Inference) and volume III (Learning). This series, and in particular this volume, will be a must-have for educators, students, researchers, and technologists alike who are pursuing a systematic study, want a quick refresh, or may use it as a helpful reference to learn about these fundamentals." **Jose Moura**, *Carnegie Mellon University*, USA



"Volume I of Inference and Learning from Data provides a foundational treatment of one of the most topical aspects of contemporary signal and information processing, written by one of the most talented expositors in the field. It is a valuable resource both as a textbook for students wishing to enter the field and as a reference work for practicing engineers." **Vincent Poor**, *Princeton University*, USA



"Inference and Learning from Data, Vol. I: Foundations offers an insightful and well-integrated primer with just the right balance of everything that new graduate students need to put their research on a solid footing. It covers foundations in a modern way - emphasizing the most useful concepts, including proofs, and timely topics which are often missing from introductory graduate texts. All in one beautifully written textbook. An impressive feat! I highly recommend

it." Nikolaos Sidiropoulos, University of Virginia, USA



"This exceptional encyclopedic work on learning from data will be the bible of the field for many years to come. Totaling more than 3000 pages, this threevolume book covers in an exhaustive and timely manner the topic of data science, which has become critically important to many areas and lies at the basis of modern signal processing, machine learning, artificial intelligence, and their

numerous applications. Written by an authority in the field, the book is really unique in scale and breadth, and it will be an invaluable source of information for students, researchers, and practitioners alike." **Peter Stoica**, *Uppsala University*, Sweden



"Very meticulous, thorough, and timely. This volume is largely focused on optimization, which is so important in the modern-day world of data science, signal processing, and machine learning. The book is classical and modern at the same time - many classical topics are nicely linked to modern topics of current interest. All the necessary mathematical background is covered. Professor Sayed is one of the foremost researchers and educators in the field and the writing style

is unhurried and clear with many examples, truly reflecting the towering scholar that he is. This volume is so complete that it can be used for self-study, as a classroom text, and as a timeless research reference." **P. P. Vaidyanathan**, *Caltech*, USA



"The book series is timely and indispensable. It is a unique companion for graduate students and early-career researchers. The three volumes provide an extraordinary breadth and depth of techniques and tools, and encapsulate the experience and expertise of a world-class expert in the field. The pedagogically crafted text is written lucidly, yet never compromises rigor. Theoretical concepts are enhanced with illustrative figures, well-thought problems, intuitive examples,

datasets, and MATLAB codes that reinforce readers' learning." Abdelhak Zoubir, TU Darmstadt, Germany