



Detection Theory: A User's Guide

By Neil A. Macmillan, C. Douglas Creelman

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Detection Theory is an introduction to one of the most important tools for analysis of data where choices must be made and performance is not perfect. Originally developed for evaluation of electronic detection, detection theory was adopted by psychologists as a way to understand sensory decision making, then embraced by students of human memory. It has since been utilized in areas as diverse as animal behavior and X-ray diagnosis.

This book covers the basic principles of detection theory, with separate initial chapters on measuring detection and evaluating decision criteria. Some other features include:

- *complete tools for application, including flowcharts, tables, pointers, and software;
- *student-friendly language;
- *complete coverage of content area, including both one-dimensional and multidimensional models;
- *separate, systematic coverage of sensitivity and response bias measurement;
- *integrated treatment of threshold and nonparametric approaches;
- *an organized, tutorial level introduction to multidimensional detection theory;
- *popular discrimination paradigms presented as applications of multidimensional detection theory; and
- *a new chapter on ideal observers and an updated chapter on adaptive threshold measurement.

This up-to-date summary of signal detection theory is both a self-contained reference work for users and a readable text for graduate students and other researchers learning the material either in courses or on their own.

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Editorial Review

Review

"For the last many years I have been suggesting Macmillan and Creelman to those who ask me for a reference to detection theory. It is an excellent book and has proved useful to a wide variety of behavioral scientists who need detection theory as a tool. I am delighted to have this new edition to recommend, an edition which includes material that should make it of use to still more investigators. The new information about multidimensional signal-detection theory allows analysis of more complex experimental designs and, even more importantly from my perspective, analysis of situations where there are multiple detectors, or channels, or pathways."

?Norma Graham

Department of Psychology, Columbia University

"Rarely, I believe, has a book so fine in its first edition been as enhanced in its second. It continues to serve handsomely as a handbook, neatly laying out practically everything an experimenter needs in order to select from and apply a wide range of methods and measures. Its purpose as a textbook has been notably advanced: for example, early chapters on basic detection theory and alternatives are reorganized to make fundamental ideas more accessible and the later material on complex stimuli and methods is integrated by a tutorial treatment of recent developments in multidimensional detection theory. This volume's friendliness to the reader, and its broad coverage and considerable sophistication (do see the "essays"), make it highly suitable for the student and very likely informative even for the experienced investigator."

?John Swets

BBN Technologies--Chief Scientist (emeritus), Harvard Medical School--Lecturer o

Users Review

From reader reviews:

Cheryl Waller:

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