



Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series)

John A. Swets

Download now

[Click here](#) if your download doesn't start automatically

Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series)

John A. Swets

Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) John A. Swets

Signal detection theory--as developed in electrical engineering and based on statistical decision theory--was first applied to human sensory discrimination 40 years ago. The theoretical intent was to provide a valid model of the discrimination process; the methodological intent was to provide reliable measures of discrimination acuity in specific sensory tasks. An analytic method of detection theory, called the relative operating characteristic (ROC), can isolate the effect of the placement of the decision criterion, which may be variable and idiosyncratic, so that a pure measure of intrinsic discrimination acuity is obtained. For the past 20 years, ROC analysis has also been used to measure the discrimination acuity or inherent accuracy of a broad range of practical diagnostic systems. It was widely adopted by methodologists in the field of information retrieval, is increasingly used in weather forecasting, and is the generally preferred method in clinical medicine, primarily in radiology. This book attends to both themes, ROC analysis in the psychology laboratory and in practical diagnostic settings, and to their essential unity.

The focus of this book is on *detection* and *recognition* as fundamental tasks that underlie most complex behaviors. As defined here, they serve to distinguish between two alternative, confusable stimulus categories, which may be perceptual or cognitive categories in the psychology laboratory, or different states of the world in practical diagnostic tasks.

This book on signal detection theory in psychology was written by one of the developers of the theory, who co-authored with D.M. Green the classic work published in this area in 1966 (reprinted in 1974 and 1988). This volume reviews the history of the theory in engineering, statistics, and psychology, leading to the separate measurement of the two independent factors in all discrimination tasks, discrimination acuity and decision criterion. It extends the previous book to show how in several areas of psychology--in vigilance and memory--what had been thought to be discrimination effects were, in reality, effects of a changing criterion.

The book shows that data plotted in terms of the relative operating characteristic have essentially the same form across the wide range of discrimination tasks in psychology. It develops the implications of this ROC form for measures of discrimination acuity, pointing up the valid ones and identifying several common, but invalid, ones. The area under the binormal ROC is seen to be supported by the data; the popular measures d' and percent correct are not. An appendix describes the best, current programs for fitting ROCs and estimating their parameters, indices, and standard errors.

The application of ROC analysis to diagnostic tasks is also described. Diagnostic accuracy in a wide range of tasks can be expressed in terms of the ROC area index. Choosing the appropriate decision criterion for a given diagnostic setting--rather than considering some single criterion to be natural and fixed--has a major impact on the efficacy of a diagnostic process or system. Illustrated here by separate chapters are diagnostic systems in radiology, information retrieval, aptitude testing, survey research, and environments in which imminent dangerous conditions must be detected. Data from weather forecasting, blood testing, and polygraph lie detection are also reported. One of these chapters describes a general approach to enhancing the accuracy of diagnostic systems.

 [**Download** Signal Detection Theory and ROC Analysis in Psycho ...pdf](#)

 [**Read Online** Signal Detection Theory and ROC Analysis in Psyc ...pdf](#)

Download and Read Free Online Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) John A. Swets

From reader reviews:

Patricia Rodrigue:

Here thing why this specific Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) are different and trusted to be yours. First of all reading through a book is good but it depends in the content of it which is the content is as scrumptious as food or not. Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) giving you information deeper including different ways, you can find any reserve out there but there is no book that similar with Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series). It gives you thrill looking at journey, its open up your personal eyes about the thing in which happened in the world which is possibly can be happened around you. It is easy to bring everywhere like in area, café, or even in your means home by train. Should you be having difficulties in bringing the paper book maybe the form of Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) in e-book can be your alternative.

Patricia Vasquez:

Nowadays reading books are more than want or need but also turn into a life style. This reading habit give you lot of advantages. Advantages you got of course the knowledge the rest of the information inside the book this improve your knowledge and information. The details you get based on what kind of guide you read, if you want have more knowledge just go with education books but if you want experience happy read one with theme for entertaining such as comic or novel. The actual Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) is kind of reserve which is giving the reader unforeseen experience.

Delmar Stingley:

This book untitled Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) to be one of several books that best seller in this year, that is because when you read this book you can get a lot of benefit on it. You will easily to buy this specific book in the book retail outlet or you can order it via online. The publisher of the book sells the e-book too. It makes you easier to read this book, as you can read this book in your Cell phone. So there is no reason for you to past this reserve from your list.

Suk Barry:

As we know that book is very important thing to add our information for everything. By a guide we can know everything we wish. A book is a group of written, printed, illustrated or maybe blank sheet. Every year seemed to be exactly added. This book Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) was filled about science. Spend your extra time

to add your knowledge about your science competence. Some people has distinct feel when they reading some sort of book. If you know how big good thing about a book, you can sense enjoy to read a publication. In the modern era like right now, many ways to get book that you just wanted.

Download and Read Online Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) John A. Swets #NZEUL6D78T5

Read Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) by John A. Swets for online ebook

Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) by John A. Swets Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) by John A. Swets books to read online.

Online Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) by John A. Swets ebook PDF download

Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) by John A. Swets Doc

Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) by John A. Swets MobiPocket

Signal Detection Theory and ROC Analysis in Psychology and Diagnostics: Collected Papers (Scientific Psychology Series) by John A. Swets EPub