A self-contained study of the various applications and developments of discrete distribution theory

Written by a well-known researcher in the field, *Discrete q-Distributions* features an organized presentation of discrete $q$-distributions based on the stochastic model of a sequence of independent Bernoulli trials. In an effort to keep the book self-contained, the author covers all of the necessary basic $q$-sequences and $q$-functions.

The book begins with an introduction of the notions of a $q$-power, a $q$-factorial, and a $q$-binomial coefficient and proceeds to discuss the basic $q$-combinatorics and $q$-hypergeometric series. Next, the book addresses discrete $q$-distributions with success probability at a trial varying geometrically, with rate $q$, either with the number of previous trials or with the number of previous successes. Further, the book examines two interesting stochastic models with success probability at any trial varying geometrically both with the number of trials and the number of successes and presents local and global limit theorems. *Discrete q-Distributions* also features:

- Discussions of the definitions and theorems that highlight key concepts and results
- Several worked examples that illustrate the applications of the presented theory
- Numerous exercises at varying levels of difficulty that consolidate the concepts and results as well as complement, extend, or generalize the results
- Detailed hints and answers to all the exercises in an appendix to help less-experienced readers gain a better understanding of the content
• An up-to-date bibliography that includes the latest trends and advances in the field and provides a collective source for further research

• An Instructor’s Solutions Manual available on a companion website

A unique reference for researchers and practitioners in statistics, mathematics, physics, engineering, and other applied sciences, Discrete q-Distributions is also an appropriate textbook for graduate-level courses in discrete statistical distributions, distribution theory, and combinatorics.

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