

Letter to the Editor

A Brief Review of My Research in Statistics and Biostatistics

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DEAR EDITOR,

Besides three books - Multivariate Analysis, A course in Linear Models and Growth Curves, my research contributions to Statistics and Biostatistics are in the following areas: (a) Experimental Designs and Linear Models, (b) Multivariate Analysis and (c) Markov Renewal Processes.

In Experimental Designs, using eigenvalues and eigenvectors of the C-matrix of designs, I have provided easier methods of analysis of mixed factorials, Lattice Squares and combination of inter and intra block estimates, which are uniformly better, in one-way and two-way designs, balancing in factorial designs, cross-validating choice of weights and trigonometric levels of factors.

In addition, I have provided a unified treatment of missing plots, a new measure of rotatability in response surface designs.

Methods of estimation of relative potency of drugs in 2-way and incomplete block designs, as well as the use of a composite response and a composite dose (using canonical correlations and vectors) are provided.

In multivariate Analysis, my main contributions are mostly in the areas of canonical vectors as discriminant functions, exact tests of direction and collinearity factors in hypotheses about goodness of fit of one or more hypothetical discriminant functions, principal components and scores for categories in

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categorical data, using factors of Wilks' Lambda, generalized T square of Hotelling, and exact distributions of residual roots and non-central Wishart distribution.

Also, Influence functions of multivariate statistics, error rates of discriminant functions, stepwise discriminant function when the number of variables is larger than the number of observations, sum of profiles models with exchangeably distributed errors, modified growth curves are considered using research.

In Markov Renewal Processes, I have extended several results of Cox's ordinary renewal process, obtaining moment formulas for the matrix renewal functions and have used the results in considering Predator -Prey interactions and replacement strategies of components.

Finally, using an extension of the Chapman Robbins inequality, I have derived a bound known as the Kshirsagar bound for the variance of unbiased estimates.

Sincerely,

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