



ANNOUNCES A
COLLOQUIUM

Dr. Vernon Chinchilli

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will speak on

Matrix-based Concordance Correlation Coefficient for Repeated Measures

Time: 3:00 PM – 4:00 PM

Date: Friday, October 21, 2011

Place: Alter Hall 746

Abstract

In many clinical studies, Lin's concordance correlation coefficient (CCC) is a common tool to assess the agreement of a continuous response measured by two raters or methods. However, the need for measures of agreement may arise for more complex situations, such as when the responses are measured on more than one occasion by each rater or method. In this work, we propose a new CCC in the presence of repeated measurements, called the matrix-based concordance correlation coefficient (MCCC) based on a matrix norm that possesses the properties needed to characterize the level of agreement between two $p \times 1$ vectors of random variables. It can be shown that the MCCC reduces to Lin's CCC when $p = 1$. For inference, we propose an estimator for the MCCC based on U-statistics. Furthermore, we derive the asymptotic distribution of the estimator of the MCCC, which is proven to be normal. The simulation studies confirm that overall in terms of accuracy, precision, and coverage probability, the estimator of the MCCC works very well in general cases especially when n is greater than 40. Finally, we use real data from an Asthma Clinical Research Network (ACRN) study and the Penn State Young Women's Health Study for demonstration.

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