

McMASTER UNIVERSITY
GRADUATE PROGRAM IN STATISTICS

STATISTICS SEMINAR

Speaker: Dr. Harry Joe
Department of Statistics
University of British Columbia

Title: Generating random correlation matrices based on
partial correlation vines and the onion method

Day: Tuesday, September 25, 2007

Time: 3:30 - 4:30 PM

Place: HH/217 - Deloitte Colloquium Room
(refreshments in HH/216 at 3:00 PM)

SUMMARY

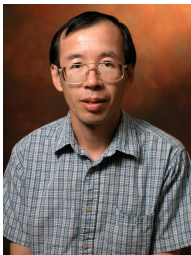
Partial correlation vines and the onion method are presented for generating random correlation matrices. As a special case, a uniform distribution over the set of $d \times d$ positive definite correlation matrices obtains.

Byproducts are: (a) For a uniform distribution over the space of $d \times d$ correlation matrices, the marginal distribution of each correlation is Beta($d/2, d/2$) on $(-1, 1)$. (b) An identity is obtained for the determinant of a correlation matrix R via partial correlations in a vine. (c) A formula is obtained for the volume of the set of $d \times d$ positive definite correlation matrices in $\binom{d}{2}$ -dimensional space.

REFERENCES

- H. Joe. (2007). Generating random correlation matrices based on partial correlations, *Journal of Multivariate Analysis*, 97, 2177-2189.

ABOUT THE SPEAKER



Dr. Joe is a professor in the Department of Statistics at University of British Columbia (UBC). He obtained his M.Sc. degree in Statistics from UBC in 1979, and his Ph.D degree in Statistics from Florida State University in 1982. One of the main themes of Dr. Joe's research is multivariate non-normal statistics or multivariate models, in which the multivariate responses can be binary, categorical, extreme value, etc. Apart from model construction, corresponding inferential techniques have been developed so that the models are computationally feasible to work with. Dr. Joe has devoted his theoretical and computational works on many multivariate applications in areas such as biostatistics, econometrics and finance, genetics, psychometrics and data mining. His monograph, *Multivariate Models and Dependence Concepts*, was published by Chapman & Hall in 1997. For more details of his research, refer to <http://www.stat.ubc.ca/~harry>.

MORE SEMINAR INFORMATION

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