



C R Rao Advanced Institute of Mathematics, Statistics & Computer Science (AIMSCS)

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Seminar on Change-point analysis in frequency domain for chronological data by

Prof. Venkata Krishna Jandhyala

Department of Mathematics and Statistics , Washington State University ,
Pullman, WA 99164-3113, USA

Date and time : 6th July 2017, Thursday at 03:30 pm

Venue: Ramanujan Building, C R Rao AIMSCS

Abstract:

The purpose of this study is to provide a new methodology of how one can consistently estimate a change-point in time series data. In contrast with previous studies, the suggested methodology employs only the empirical spectral density and its first moment. This is accomplished when both the means and variances before and after the unidentified time point are unknown. Then, the well-known Gauss-Newton algorithm is applied to estimate and provide asymptotic results for the parameters involved. Simulations carried out under different distributions, sizes and unknown time points confirm the validity and accuracy of the methodology. The real-world example considered in the study illustrates the robustness of the methodology in the presence of even extreme outliers.

Brief Biodata of Venkata Krishna Jandhyala :

Krishna Jandhyala received his Ph.D. degree in Statistics in 1986 from Department of Statistical and Actuarial Sciences, University of Western Ontario, London, Ontario, Canada. After spending three years as Visiting Assistant Professor at University of California, Santa Barbara and Irvine campuses, Krishna joined the Department of Mathematics and Statistics, Washington State University, Pullman, WA as Assistant Professor in 1989. He became Professor in 2000 and has assumed the role of Associate Chair of the department beginning March 2016. In 2011, he became Adjunct Professor at CR Rao AIMSCS.



His research interests are primarily in the area of change-point problems and their applications to environmental monitoring and assessment. He has published in journals such as *Stochastic Processes and Their Applications*, *Biometrika*, *Journal of Royal Statistical Society B*, *Sankhya A*, *Journal of Statistical Planning and Inference*, *Journal of Time Series Analysis*, *Econometric Theory*, *Environmetrics*, *Water Resources Research*, *Journal of Applied Meteorology and Climatology*, and so on. His research has been supported by National Science Foundation, USA. He is an active member of The International Environmetrics Society (TIES) and is currently serving as a member of its Board of Directors.