National Institute of Technology Rourkela

Defence Seminar

Seminar Title	: Statistical Information Measures with Properties and Inferences
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Venue	: Seminar Room, Department of Mathematics
Date and Time	: 20 Sep 2025 (11.00 A.M.)
Abstract	: This thesis introduces several information measures and explores their mathematical properties. Inequalities, bounds, stochastic orders and effect of monotone transformations of the proposed measures are obtained. Some information generating functions, fractional information measures, weighted varentropy measures, copula-based information measures are proposed. Estimation techniques, mainly parametric, non-parametric and semiparametric approaches are used for the purpose of estimation of the proposed measures. Few information measures are validated using chaotic maps (logistic and Chebyshev). Simulated as well as real data sets are considered for illustration purposes. In addition, some informational characteristics of the Shannon entropy, Kullback-Leibler divergence, Gini&rsquos mean difference, Chi-square divergence and Fisher information for cubic transmuted distributions are explored. The cubic transmuted Shannon entropy and cubic transmuted Gini&rsquos mean difference are also proposed using cubic transmuted distributions. Some simulation studies for the proposed information measures from an inferential point of view are carried out. Finally, conclusions of the dissertation work and future problems are included.