Distribution of Renyi Entropy from Nakagami Distribution Sample

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Abstract

This thesis rigorously computes the precise quantiles associated with the Maximum Likelihood Estimation (MLE) method for Renyi entropy applied to the Nakagami distribution. Additionally, it approximates the quantiles of the asymptotic distribution of this statistic. Furthermore, the thesis introduces an enhanced version of this statistical measure. Remarkably, even in cases involving small sample sizes, the proposed method provides a formula for determining quantiles based on the chi-square distribution. This approach yields an exact distribution of statistics and reveals key characteristics of the MLE Renyi entropy applied to the Nakagami distribution.

Keywords: Asymptotic Normality, Fisher Information, MLE, Nakagami Distribution, Renyi Entropy.