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研究简报

对称稳定分布的相关熵及其在时间延迟估计上的应用

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Correntropy of the Symmetric Stable Distribution and Its Application to the Time Delay Estimation

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摘要 | 参考文献 | 相关文章

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摘要 相关熵是一个表示随机变量局部相似性的统计量。该文首先研究对称α-稳定SαS分布的相关熵的参数表示，利用该参数表示证明了对于位置参数为零的分布SαS，最大相关熵准则与最小分散系数准则是等价的。最后将研究结果应用于稳定分布噪声环境下自适应时间延迟估计。仿真实验表明，该文算法性能优于最小均方误差时间延迟估计与最小平均P-范数时间延迟估计。

关键词： 信号处理 相关熵 对称稳定分布 最大相关熵准则 最小分散系数准则

Abstract： Correntropy is a localized similarity measure between two scalar random variables. This paper presents the parametric representation of the symmetric α-stable (SαS) distribution's correntropy. The equivalency of the maximum correntropy criterion and the minimum dispersion criterion is derived from the parametric representation for zero location SαS distributions. This result is used to propose the adaptive time delay estimation in SαS noise. Simulations show that the algorithm based on correntropy works better than the least mean square and the least mean p-norm approaches.

Keywords： Signal processing Correntropy Symmetric stable distributions Maximum correntropy criterion Minimum dispersion criterion

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