Riesz Mixture Model for Brain Tumor Detection

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Abstract : This research introduces an application of the Riesz mixture model for medical image segmentation for accurate diagnosis and treatment of brain tumors. We propose a pixel classification technique based on the Riesz distribution, derived from an extended Bartlett decomposition. To our knowledge, this is the first study addressing this approach. The Expectation-Maximization algorithm is implemented for parameter estimation. A comparative analysis, using both synthetic and real brain images, demonstrates the superiority of the Riesz model over a recent method based on the Wishart distribution.