عنوان مقاله:
Supervised Fully Constrained Linear Spectral Unmixing using Evolutionary Strategy

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خلاصه مقاله:
Spectral Unmixing algorithms use two linear and non-linear mixing models to determine the relative abundances of the materials in a remotely sensed image. Hyperspectralimages are often treated as a Linear Mixture Model (LMM), where the image pixels are described by a linear combinationof the spectra of pure materials. In LMM, the abundances are non-negative and sum of them must be one. Linear Unmixing with these two constraints which termed as Fully Constraint Linear Spectral Unmixing (FCLSU) leads to some inequalities that are difficult to carry out. FCLSU can be considered as aconstrained optimization problem and Evolutionary Computation (EC) techniques are good problem solving toolsfor it. In this paper, we use Evolutionary Strategy (ES) to solveFCLSU with the assumption that the pure materials are known. The abundances estimated by ES are converted to a hyperspherical coordinate system to cope with the constraints. The results are compared based on different spectral similarity measures both on simulated and real data

کلمات کلیدی:
hyperspectral images, Fully Constraints Linear Spectral Unmixing, Evolutionary Strategy

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