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# Hyperspectral Image Unmixing for Land Cover Classification

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### Abstract



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##### Abstract:

Hyperspectral image unmixing is a very essential but challenging task for solving the mixed pixel issues. Spectral unmixing is directly involved in image sub-pixel classification, answering the spectral mixing problem. The present study emphasizes the importance of unmixing spectral features from remotely sensed hyperspectral scenes to classify land features. The high spectral and moderate spatial resolution Jupiter Ridge AVIRIS hyperspectral image was used to test the endmember, unmixing and classification algorithms. The study has been done by atmospheric correction, dimensionality reduction, endmember extraction, spectral unmixing, and classification. The results show that the implemented methodology has provided four endmembers to unmix the image and abundances maps and Spectral Angle Mapper (SAM) based classification with 94.19% accuracy. It was shown that improved unmixing methods are vital to tackle spectral variability to obtain accurate abundances estimations. The present research can be helpful in the development of new unmixing algorithms.

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