

# Fisher Vectors for PolSAR Image Classification

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**Resumen** In this letter, we study the application of the Fisher vector (FV) to the problem of pixelwise supervised classification of polarimetric synthetic aperture radar images. This is a challenging problem since information in those images is encoded as complex-valued covariance matrices. We observe that the real parts of these matrices preserve the positive semidefiniteness property of their complex counterpart. Based on this observation, we derive an FV from a mixture of real Wishart densities and integrate it with a Potts-like energy model in order to capture spatial dependencies between neighboring regions. Experimental results on two challenging data sets show the effectiveness of the approach.

**Keywords:** PolSAR, Fisher Vectors, Image Classification

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