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Smoothing splines on the manifold of lines in \mathbb{R}^2 .

Manifolds of lines in \mathbb{R}^n have played a role in the theory of linear systems and the theory of the shape analysis. More recently they have become an important tool in statistics. In this paper, smoothing splines on the manifold of lines in \mathbb{R}^2 are constructed using natural metric on the manifold of lines in \mathbb{R}^2 . This method uses a particular representation of the manifold of lines in \mathbb{R}^2 and does very well in terms of the cost function. (Received February 09, 2014)