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Stochastic Optimization with Randomized Smoothing for Image Registration

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Highlights

- To suppress local minima, we smooth the cost function of image registration with a randomized smoothing (RS) technique.
- A convolution-based smoothing technique in which the original cost function is convolved by a Gaussian distribution with an efficient randomized optimization procedure.
- The RS technique is applied to translation, rigid, affine and B-spline transformation models.
- Experiments on 2D artificial images, 2D cell images, 3D lung CT, and 3D brain MRI scans confirm the benefits of the method.

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