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Laurent Younes* (laurent.younes@jhu.edu), 3400 N Charles st, Johns Hopkins University, Clark Hall, Baltimore, MD 21218. *Riemannian Metrics on Spaces of Deformable Images and Measures: from Singular to Smooth.*

Based on the formalism of metamorphosis, it is possible to define Riemannian metrics on spaces of images or measures that are partially induced by the action of diffeomorphisms. We will review recent results applying this framework. The first one studies a metric defined on spaces of generalized functions, on which we make an explicit characterization of the geodesics that link discrete measures. The second one discusses a metric that is applicable to continuously differentiable images, within which the geodesic equation has solutions that are characterized by finite-dimensional dynamical systems. Using this property, we introduce an optimal control approach that optimizes solutions of such systems to compute geodesics between images.

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