Information geometry and diffeomorphisms

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Abstract

In this talk I give an overview of the relation between information geometry and infinite-dimensional Riemannian geometry of diffeomorphims. The geometry is build around a principal bundle where the group of diffeomorphisms is fibrated over the space of smooth probability densities. By equipping the diffeomorphisms with Riemannian metrics compatible with this bundle structure, one obtains explicit links between optimal mass transport (corresponding to the Wasserstein-Otto metric) and optimal information transport (corresponding to the Fisher-Rao metric). I shall also discuss a new, encompassing class of Riemannian metrics for which geodesic well-posedness results recently have been proved.