

Insalate di Matematica

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A painless introduction to Optimal Transport

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Google Meet meeting

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Abstract

I will give a (very) basic overview of the hot topic of Optimal Transport (OT). I will introduce the problem in a discrete setting in order to make it more visual and to avoid distracting technical assumptions. I will then state the analogous continuous problem and point out its connections with some nonlinear PDEs.

The space of probability measures can be equipped with a natural metric arising from the OT problem, the Wasserstein distance. I will (maybe) discuss the advantage of such a distance over other classical choices and (certainly) informally discuss how it can be fruitfully exploited in some Machine Learning applied problems. Some possible generalizations of such a distance will be also presented.

The talk is addressed to non experts (like myself) and can be ideally followed by undergrad students.



Keywords:

Mass transportation problem · Monge-Ampère equation ·
Wasserstein-type distances · Shape classification

"Obvious" is the most dangerous word in mathematics. - Eric Temple Bell