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The Entropic JKO Scheme

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The JKO scheme (named after Jordan, Kinderlehrer, and Otto, 1996) is an implicit Euler-type scheme that provides a variational way to construct weak solutions to nonlinear diffusion equations, relying on their gradient flow structure in the Wasserstein space. In 2015, Peyré proposed an entropic version which, although it only yields approximate solutions to the original problem, leads to remarkably efficient numerical computations based on the Sinkhorn algorithm. But what exactly does this approximate scheme compute? Can we estimate the error it introduces? Does this approach also have interesting theoretical implications? These are the questions I will address in my presentation.

This talk is based on joint work with Sofiane Cherf, Anastasiia Hraivoronska, and Filippo Santambrogio.

Author: BARADAT, Aymeric

Orateur: BARADAT, Aymeric