

Advancements in Optimal Transport and its Applications: Exploring Questions around the Gromov-Wasserstein Distance

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This talk explores the Gromov-Wasserstein (GW) distance, a concept within optimal transport theory that enables the comparison of probability measures across distinct metric spaces. The presentation is structured around two main topics: (1) the barycenter problem and (2) a Gromov-Wasserstein approach for unbalanced scenarios. Regarding the first topic, we will examine the Barycentric Coding Model, which emerges in the GW context. Regarding the second, we will introduce the Partial Gromov-Wasserstein (PGW) metric, an extension of the GW distance designed for scenarios where measures may have unequal masses. An algorithm tailored to address this partial transportation problem will be presented, along with a linearization technique aimed at enhancing computational efficiency. We will present an algorithm to deal with the proposed partial transportation problem together with a natural arising linearization technique for fast computations.

In Special Session 21 on Optimization and Control at the Mathematical Congress of the Americas 2025.