

**ICTS - OT/ML/PDE Seminar**

**Title** : Empirical Optimal Transport: Convergence Rates and Lower Complexity Adaptation

**Speaker** : Shayan Hundrieser (Georg-August University of Goettingen)

**Date** : Tuesday, 24 September 2024

**Time** : 4:00 PM (IST)

**Abstract** : The theory of optimal transport (OT) offers versatile tools for the comparison of probability measures in a geometrically faithful way. In statistical contexts, transport based methodology often relies on estimation of the OT cost through an empirical plug-in approach, which raises questions about its accuracy. The convergence behavior of the empirical OT cost for increasing sample size is dictated by various aspects. These include the intrinsic dimension of the population measures, their concentration, as well as the regularity of the ground cost function. Remarkably, under distinct population measures with different intrinsic dimensions, the convergence rate for the empirical OT cost adapts to the population measures in the most favorable way, being determined by the lower dimensional measure. This phenomenon represents a hallmark feature of empirical optimal transport and is termed lower complexity adaptation. The talk is based on joint work with Thomas Staudt and Axel Munk.

**Venue** : Online

Zoom Link: <https://us02web.zoom.us/j/81379290349>

Meeting ID: 813 7929 0349