

MATH RESEARCH AT UNC CHARLOTTE 2023

Project 6: Constrained optimal transport for Markov chains and graphs

Mentor: Dr. Kevin McGoff

Project description

In this project students will work as a team to research questions in probability. Optimal transport is the study of how to transform one probability distribution into another in an optimal way, and it has received substantial attention for both its theoretical properties and its widespread applications. More recently, researchers have begun to focus on constrained optimal transport, in which both the distributions and the types of transformations possess some additional structure. For this project students will investigate a constrained version of optimal transport that can be used to capture dynamics or graph structure. Possible application areas include genomics, graph matching, and neuroscience. Depending on the interests of the participants, students can pursue either theoretical or applied aspects of the research.