Research School for
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Solving Norm-based Clustering using Benders Decomposition

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Clustering is a fundamental technique in data science, critical for identifying structure within datasets. My research introduces Minimum-Volume Norm-Based Clustering (MVNBC), a method designed to capture complex data patterns through norm-based regions that minimize volume, resulting in flexible, adaptive clusters. This approach is formulated as a mixed-integer conic optimization problem, presenting substantial computational challenges.

At Beta Symposium 2024, I will discuss how I am applying Benders decomposition to address these challenges. By decomposing MVNBC into master and subproblems, Benders' method helps to solve the problem optimally. This talk will highlight initial findings and share insights into improving computational strategies for solving this norm-based clustering in uncertain data environments.