

From Cliques to Equilibria: The Dominant-Set Approach to Clustering

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Abstract

These lectures will provide an overview of “dominant sets,” a graph-theoretic notion of a cluster which generalizes the concept of a maximal clique to edge-weighted graphs and has intriguing connections with optimization theory, (evolutionary) game theory, and dynamical systems theory. The idea is general and can be applied to weighted graphs, digraphs and hypergraphs alike. After introducing the main properties of dominant sets, along with some generalizations, I will discuss a few recent applications in the field of computer vision, including interactive image segmentation, geo-localization, multi-camera tracking, and person re-identification.