

The Road Less Traveled: From Local to Global in Optimization

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Abstract: In optimization, most of the proposed algorithms compute stationary points or local optima. Computing globally optimal solutions is a desirable but very difficult task in many practical instances.

In this talk we are going to discuss several issues including:

- Why does global optimization matter? In combinatorial optimization there are problems where every feasible point is locally optimal, therefore only the global optimum matters.
- How easy is local search? What is the complexity of computing locally optimal solutions?
- Estimation of the average number of local optima when we have knowledge about the problem data distribution.
- Space covering techniques and global optimization approaches based on local search.
- Applications where real-time locally optimal solutions are needed.