

SEMINAR

A Method for Landscape Exploration in Global Optimization.

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Abstract: Finding global minima for a general smooth objective function is a fundamental yet challenging problem arising in applied mathematics. Nevertheless, the most reliable techniques to converge to a minimum are local (gradient descent and Newton's method), and remain trapped in the basins of attraction of the minima found, which could be either local or global. Even in optimization courses, the students are often left with questions, such as, "how do we know that we found the global minimum? How do we know that we have visited the interesting regions of configuration space?" The purpose of this talk is to present methods and ideas that could help the students formulate answers to the questions above. In particular, I will present a new descent technique and a way to explore the landscape of the objective function, with no pretense that this is the answer to the problem, but with the hope of engaging the students. Interested students can begin to take small steps in the right direction toward the development of their own methods.

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