Professor Negar Soheili
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Time and location: 10:00-11:00 am on Friday, April 15th, 2022 in S121 PBB

Title: On the projection and rescaling algorithm

Abstract: A convex feasibility problem is concerned with finding a point in the intersection of convex sets. This problem arises directly in applications such as classification and image reconstruction. Convex feasibility problems are also fundamental in optimization because any convex optimization problem can be cast in this form. The projection and rescaling algorithm is a recent method for solving such problems that combines a basic procedure involving only low-cost operations with a periodic rescaling step that improves conditioning. In this talk, I present a simple projection and rescaling algorithm for solving symmetric conic feasibility problems. I will also discuss an extension of this algorithm that finds the most interior solutions to a pair of primal-dual feasibility problems in the special case of polyhedral cones. Extensive computational experiments on synthetic instances with varied conditioning provide promising evidence for the effectiveness of the projection and rescaling algorithm.

Biography: Negar Soheili is an Associate Professor at the Information and Decision Sciences department, University of Illinois at Chicago. She joined UIC in August 2014 after she got her PhD in Operations Research from Carnegie Mellon University. Negar's research lies at the intersection of Operations Research and Machine Learning. In particular, her research focuses on first-order methods to solve large scale convex optimization problems with applications arising in machine learning, data mining, and decision making.