Seminar Speaker: Dr. Bistra Dilkina, Georgia Tech
Industrial Engineering Distinguished Researcher Seminar Series

Time and Location: Wednesday 8/31/16 from 1:25 to 2:15, Freeman Hall Auditorium

Title: Network Design Approaches to Biodiversity Conservation

Abstract:

Curbing biodiversity loss is one of the key goals in achieving sustainable development. However, most conservation investments are done with limited budget, and in the face of complex spatial variations in economic costs and ecological benefits. I address several hard spatial optimization problems that arise in the context of conservation planning, and show how network design and mixed-integer optimization can be leveraged for finding solutions and supporting effective and cost-efficient decision making. Studying conservation optimization gives rise to a broadly applicable class of problems, where one needs to optimally choose the network structure (add/delete nodes/edges) in order to facilitate or impede a stochastic process or a so-called cascade that will affect the designed network.

Bio:

Dr. Bistra Dilkina is an assistant professor in the College of Computing at the Georgia Institute of Technology. She received her PhD from Cornell University in 2012, and was a Post-Doctoral associate at the Institute for Computational Sustainability until 2013. Her research focuses on advancing the state of the art in combinatorial optimization techniques for solving real-world large-scale problems, particularly ones that arise in sustainability areas such as biodiversity conservation planning and urban planning. Her work spans discrete optimization, network design, stochastic optimization, and machine learning. She is also the co-director of the Data Science for Social Good (DSSG) Atlanta summer program, which partners student teams with government and nonprofit organizations to help solve some of their most difficult problems using analytics, modeling, prediction and visualization.