

Spatial Optimization Techniques in Aid of Natural Resource Management

Dr. Sándor F. Tóth
Associate Professor



Abstract

I will describe a set of operations research problems of increasing complexity that arise in natural resource management including forestry, fisheries and reserve design. Main features of these problems include spatiotemporal dimensions in decision space and multiple competing management objectives. The mathematical characteristics of many of these problems match those of some of the most common discrete optimization polytopes including the set covering-, the facility location-, or the traveling salesman problems. I will describe some of the modeling and solution techniques that we had developed or adapted to our applications and pose some open questions that still remain.

Date & Time



April 4, 2023



MEB 106



11:30 am - 12:20 pm

Bio

Dr. Tóth is Donald J. & Robert G. McLachlan Associate Professor of Natural Resource Informatics at the University of Washington's (Seattle) School of Environmental & Forest Sciences and adjunct associate professor at the Department of Industrial & Systems Engineering. Dr. Tóth published 28 refereed research articles in leading forestry, conservation and operations research journals. He has served on the editorial board of Forest Science and Natural Resources Modeling. Dr. Tóth teaches forest management & economics, forestry consulting and optimization in natural resources. Dr. Tóth's research interests include forest management, nature reserve design, spatial optimization, the economics of forest ecosystem services, and multi-criteria decision making. Dr. Tóth currently chairs the WA Dept. of Natural Resources' Technical Advisory Committee.