

Master thesis:
Simulations of Golf Club Team Competitions and
Validations of Mathematical Models

Description:

Golf club team competitions are regular events at public and private golf courses around the world. They are arranged by local golf directors or professionals who attempt to make the assignment of players to the teams as fair as possible, using the past performance of the players. Recently, Pavlikov, Hearn and Uryasev [1] have developed mathematical models which show promise of aiding in the assignment process. However, because of the high computational complexity of the possible number of assignments for real competitions, implementations have been limited to smaller surrogate competitions. The goal of this project is to perform a series of digital simulations of the real competitions and determine to what extent the mathematical models provide valid assignments. (It is worth noting that this stochastic team assignment problem is related to the set balancing problem in the academic literature.)

References:

1. Pavlikov, K., Hearn, D. W., and Uryasev, S., The Golf Director Problem: Forming Teams for Club Golf Competitions, in SOCIAL NETWORKS AND THE ECONOMICS OF SPORTS, Victor Zamaraev and Panos M. Pardalos (Eds), Springer, 2014. http://www.ise.ufl.edu/uryasev/files/2014/08/golf_problem.pdf

Required Skills:

CPLEX, MATLAB, Probability and Statistics, Stochastic Models, Programming Language such as C++

Prerequisites:

Digital Simulation Optimization Probability and Statistics Stochastic Modeling (Familiarity with golf is helpful but not required)