
Seminario 158 Police Stations for instant reaction: A Maximal Homicide Coverage Location Problem

Calendario de actividades

Economista de la Universidad EAFIT y estudiante de la maestría en Matemáticas Aplicadas de la misma universidad. Actualmente se desempeña como profesional del Banco de la República Sucursal Medellín y como docente en la Universidad EAFIT y en la Universidad Autónoma Latinoamericana. Sus temas de interés son: Crimen, Educación y mercado laboral.

Resumen

The probability of facing prison is one of the major factors that deters individuals from committing crimes. The degree of impact of this variable is affected both by the severity of penalties, and by the probability of being caught, which largely depends on the level of police coverage in the jurisdiction. Thus, we consider a maximal covering location problem where the objective is to provide maximal coverage of weighted potential homicide spots through the construction of police stations for instant reaction, subject to a budget constraint. Our empirical application is performed in Medellín, we call the Google Maps Application Programming Interface (API) to estimate average travelling time between police stations and criminal spots, then we use a Simulated Annealing algorithm to find the best feasible allocation of stations subject to a set of suggested budgets. We confirm that the maximum coverage follows a diminishing marginal process over the budget.

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