



CLAIO
2016

Congreso Latino-Iberoamericano de Investigación Operativa

2 al 6 de octubre, Santiago de Chile
Centro de Extensión, Pontificia Universidad Católica de Chile



Program & Abstracts

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the responses, sometimes creating a group that obey some sort of characteristics. The main goal of this work is to identify or, in the perfect scenario pre-identify, those bias in order to modify the model, through the translation of the weights matrix, using the eigenvalues to do so, changing the final order generated by the AHP method. This approach is useful for the decision maker because it can show the final order by class of specialist and its interests. For example, in the case study, it was identified three bias (groups) in the responses, named as industry, academia and regulation. The industry wants a model that results in a higher profit, the academia aims the better model that fit the data and the regulation is concerned about the consequences at the environment.

Detecting separation in logistic regression via linear programming

Inácio Andruski-Guimarães (UTFPR - Universidade Tecnológica Federal do Paraná, andruski.guimaraes@gmail.com)

ABSTRACT. The parameter estimation in logistic regression model is known to be dependent on the data configuration. While the logistic model work well for many situations, may not work when the groups of observations are completely separated. Separation is a common problem in the logistic regression. Mathematical Programming approaches have been used for detecting separated data in logistic regression, but most of these researches have focused on the two group problem. In this paper we propose a linear programming formulation to detect separation in polytomous logistic regression. The proposed approach classifies data as completely separated, quasi-separated or overlapped, and can be used as part of the parameter estimation. Comparison with other methods, using different data sets taken from the literature, shows that our formulation may suggest an efficient alternative to mathematical programming approaches for the multiple-group problem.

Factor effects affecting the performance of pantaneiro horses

Eliane Gomes (Empresa Brasileira de Pesquisa Agropecuária, eliane.gomes@embrapa.br), Geraldo Souza, Adalgiza Rezende, Debora Santos, Marcia Nogueira, Reinaldo Mellito Filho, Pablo Trigo, Urbano Abreu, Sandra Santos

ABSTRACT. Pantaneiro horses were submitted to a performance test. Performance was measured by a data envelopment analysis – DEA model – with four outputs and one unit input. The output measures were the distance achieved in the performance test, hematocrit as a weighted average over the test duration, cardiac and respiratory frequencies as weighted averages over the test duration and the level of lactic acid at the test termination. Contextual variables of interest are age, horse

weight, room temperature and corporal temperature, and presence or absence of a condition known as equine infectious anemia (EIA). Only the EIA effect and room temperature affect performance statistically significantly, as indicated by a nonparametric replication analysis. The techniques used in the analysis can be extended, with little changes, to other applications, whether or not in the agricultural sector.

21E: Distribution and Communication Network Optimization I

Sala 7, 09:45-11:15

Session Chair: Pablo Escalona

Elementary shortest paths avoiding negative circuits

Rafael Andrade (Federal University of Ceará, rca@lia.ufc.br), Rommel Saraiva

ABSTRACT. Let $D = (V, A)$ be a digraph with a set of vertices V and a set of arcs A , with c_{ij} representing the cost of an arc (i, j) in A . The problem of finding the shortest elementary path in the presence of negative cycles (SEPPNC) is NP-hard and consists in determining, if it exists, the path of minimum cost between two distinguished vertices s in V and t in V . We propose three solution approaches for the SEPPNC, which are a compact primal-dual formulation, a branch-and-bound algorithm, and a cutting-plane method. An extensive computational study performed on both benchmark and randomly generated instances shows that our approaches outperform state-of-the-art solution techniques for this problem, while providing optimal solutions for benchmark instances in very small execution times.

Algoritmo Branch Price para el Problema de Diseño de Redes de Comunicaciones Basadas en p-ciclos.

Agustin Pecorari (UBA, agustin.pecorari@gmail.com), Irene Loiseau

ABSTRACT. Las redes de telecomunicaciones supervivientes son aquellas que siguen funcionando a pesar de fallas. El objetivo es diseñar las redes de forma tal que se pueda garantizar la protección del tráfico frente a ciertos tipos de fallas al menor costo posible. La reciente tecnología de p-ciclos se convirtió rápidamente en una técnica prometedora debido a que brinda los beneficios combinados de la velocidad de recuperación de los anillos y la eficiencia de la malla. En las redes basadas en p-ciclos, cada ciclo protege ante la falla de un link que forma parte del ciclo o de uno que tiene sus dos extremos en el ciclo. En este trabajo propusimos varios modelos de