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Education

Hong Kong University of Science and Technology(Guangzhou), Guangzhou, China

PhD., Data Science and Analysis, 2024 to present

M.Phil., Data Science and Analysis, 2022 to 2024

Hong Kong Baptist University, Hong Kong S.A.R

M.Sc. in Operational Research and Business Statistics, 2021 to 2022

Double Master programme by Hong Kong Baptist University and University of Kent

Jimei University, Xiamen, China

B.Sc., Information and Computational Science, 2017 to 2021

Publication

1. Lu, X., Cheng, C. (2021). Locating facilities with resiliency to capacity failures and correlated demand uncertainty. Transportation Research Part E: Logistics and Transportation Review, p153, 102444.

   Abstract:This paper studies a capacitated facility location problem under disruptions, where disruption risk not only diminishes facilities' capacity partially or completely but also affects customers' demand patterns. We use a budgeted uncertainty set to simultaneously capture facilities' disruptions and customers' uncertain demand caused by the failures of nearby facilities. Three two-stage robust optimization formulations with different objectives and performance bounds are built to model the problem. Both column-and-constraint generation algorithm and Benders decomposition method are implemented to solve the models. Numerical tests are conducted to study the impact of disruption correlated demand uncertainty and the performance of models and algorithms.

Working Paper

1 The Construction of a Novel Generalized Gaussian process and its Application to Credit Card Customer's Behaviour

Supervised by Prof. Wenjia WANG- HKUST(GZ), DSA Thrust

Abstract: In the financial services field, it is crucial to predict customer behavior accurately, especially for evaluating and managing customer loss. Traditional Gaussian process models can handle small data and provide uncertainty estimates, but they face challenges when dealing with large datasets and irregular data. This study introduces a new Generalized Gaussian Process model (New_GGP). The new model uses a flexible core structure and improved optimization strategies. It captures complex, nonlinear patterns more effectively. We tested this approach on consumer credit card data by credit limits (Regression) and predicting education levels (Classification). Our results show that new_GGP outperforms older methods in computing speed and prediction accuracy. This model offers a solid tool for predicting customer behavior in financial services. It also creates new possibilities for Generalized Gaussian Processes in other areas.