Masterseminar im Wintersemester 2016/2017

Allgemeine Informationen:

Der Umfang der schriftlichen Ausarbeitung darf 6000 Wörter nicht überschreiten. Wir empfehlen die Arbeit mit dem Textsatzsystem LaTeX.
Dazu erhalten Sie vom Lehrstuhl:

- Richtlinie zum wissenschaftlichen Arbeiten
- LaTeX-Vorlage Seminararbeit
- LaTeX-Vorlage Präsentation

Die Vorlagen werden zeitnah über STiNE bereitgestellt. Sie können eigene Themenvorschläge machen.

Themen

1. Travel time value (Paper vorstellen)
   This paper identifies, relates and compares two popular modelling approaches to estimate the value of travel time changes. The first (random utility) assumes that the random component of the model relates to the difference between the utilities of travel options; the second (random valuation) assumes that it relates to the difference between the value of travel time and a suggested valuation threshold. This paper gives details of the theoretical relationship between the two approaches and compares them empirically at several levels of model sophistication. Datasets from two national studies (the UK and Denmark) are employed. The results show a consistent superiority of the RV approach and a systematic gap in the value of travel time between approaches. A similar pattern across models is found in both countries. This raises questions about the validity of results using the RU approach.

   Literatur: Ojeda-Cabral et al. (2016)

2. Assortment planning (Paper vorstellen)
   We consider constrained assortment problems assuming that customers select according to the multinomial logit model (MNL). The objective is to find an assortment that maximizes the expected revenue per customer and satisfies a set of totally unimodular constraints. We show that this fractional binary problem can be solved as an equivalent linear program. We use this result to solve five classes of practical assortment optimization and pricing models under MNL, including (1) assortment models with various bounds on the cardinality of the assortment, (2) assortment models where we need to decide the display location of the selected products, (3) pricing models with a finite menu of possible prices, (4) quality consistent pricing models where the prices of the products have to follow a specified quality ordering, (5) assortment models with precedence constraints. We show that all of these classes of problems can be solved as linear programs. In some instances, constraints can be combined as long as total unimodularity is preserved. In addition, we show how the results extend to a larger class of attraction choice models that avoid some of the shortcomings of MNL.

   Literatur: Davis et al. (2013)
3. **Tariff zone planning (Paper vorstellen)**

Tariff design is among the most elementary decision problems to be solved in every public transportation network. This paper focuses alternative zone–based tariffs, which vary in the way zones are cut (ring structure vs. connected zones) and fares are calculated (counting zones, cumulative pricing, and maximum pricing), and compares their ability to exploit the customers’ willingness to pay. For this purpose, we formulate six versions of the tariff design problem, investigate their computational complexity, and develop suited mixed integer models. Our comprehensive computational study reveals that tariffs based on cumulative pricing outperform traditional distance–based tariffs and are best suited to exploit the customers’ willingness to pay.

*Literatur*: Otto and Boysen (2015)

4. **Stop location (Paper vorstellen)**

This article proposes a bi-criteria formulation to find the optimal location of light rapid transit stations in a network where demand is elastic and budget is constrained. Our model is composed of two competing objective functions seeking to maximize the total ridership and minimize the total budget allocated. In this research, demand is formulated using the random utility maximization method with variables including access time and travel time. The transit station location problem of this study is formulated using mixed integer programming and we propose a heuristic solution algorithm to solve large-scale instances which is inspired by the problem context. The elastic demand is integrated with the optimization problem in an innovative way which facilitates the solution process. The performance of our model is evaluated on two test problems and we carry out its implementation on a real-world instance.

*Literatur*: Hossein Rashidi et al. (2016)

5. **Predictive policing: The role of crime forecasting in law enforcement operations**


*Literatur*: Perry (2013)

6. **Handelsnetzplanung**

Visualisieren und analysieren Sie die Händlernetze in Südafrika der CLAAS Global Sales GmbH.

*Literatur*: -

7. **Absatzanalyse**

Visualisieren Sie, zeitlich und räumlich differenziert, die Absatzsituation der Feldschlösschen Getränke AG.

*Literatur*: 

8. **Transportnetzplanung (Thema ist reserviert)**

Evaluieren Sie das aktuelle Hub and Spoke Netzwerk der Feldschlösschen Getränke AG.

*Literatur*: Haase and Hoppe (2008)
Literatur


