

Bsc/MSc Seminar Business Analytics

PRICE PREDICTION

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University of Hildesheim, Germany

31/10/2013

Outline

1. Introduction

2. Regulations

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Course Information

- ▶ Term: WiSe 2013/2014
- ▶ Course Code: 3265
- ▶ ECTS Credits: 3
- ▶ Starts: 24/10/2013
- ▶ Language: Literature in English; Presentations and Reports optionally in English or German
- ▶ Schedule: Weekly, every Thursday between 16:00 and 18:00
- ▶ Location: B26 in Samelsonplatz
- ▶ Instructor:
 - ▶ Name: Josif Grabocka
 - ▶ Email: josif@ismll.uni-hildesheim.de
 - ▶ Office: C35, Samelsonplatz

Seminar Topic: Price Prediction (I)

- ▶ Prediction of product prices is a crucial element of **business analytics**, combining a strong real-life motivation with the opportunities offered by large data collection and storage facilities.
- ▶ In this seminar the emphasis will be on utilizing data mining approaches in analysing historical data which describes buyers and market behaviors.
- ▶ Our aim is to detect patterns and regularities in the historical data in order to be able to predict product prices in the future.

Seminar Topic: Price Prediction (II)

- ▶ Predicting not only "what" to buy but also "when" to buy a product
- ▶ Prediction Markets, which support decision-making via analysing speculative behaviors
- ▶ Option Pricing, that helps investors to sense risks and understand an asset's future price
- ▶ Stock trend prediction, which enables profit maximization through market forecasting

Available Papers

Number	Paper	Presentation Date
1	Oren et al., KDD 2003	21/11/2013
2	Chen et al., EC 2010	28/11/2013
3	Frongillo et al., NIPS 2012	05/12/2013
4	Agrawal et al., KDD 2012	12/12/2013
5	Agrawal et al, KDD 2011	19/12/2013
6	Saad et al., IEEE TNN 1998	09/01/2014
7	Frongillo et al., STOC 2012	16/01/2014
8	Storkey et al., AISTATS 2011	23/01/2014
9	Agrawal et al., CIKM 2011	30/01/2013

Note: Detailed list in the course web site: http://www.ismll.uni-hildesheim.de/lehre/semBA-13w/script/index_en.html

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Course Procedure

1. Every student selects one paper (Deadline: 30/10/2013)
 - ▶ Via email to josif@ismll.uni-hildesheim.de
 - ▶ Until 30/10/2013
 - ▶ First come first served!
 - ▶ Send three preferred papers to avoid allocation crashes
2. Student prepares and presents the paper
 - ▶ A period of 3 weeks is provided for the first paper
 - ▶ Then each paper is prepared in a row, one presentation per week
3. A report is filed to the instructor

Seminar Presentation

1. Timing

- ▶ Presentation 60 mins, Discussions & Questions: 30 minutes

2. Preparation Guidelines

- ▶ Avoid reading the paper, explain it
- ▶ Rephrase in your words: What is the problem being tackled and its importance?
- ▶ Present the work in a coherent style, feel free to reorganize the content
- ▶ Search related work and state similarities
- ▶ Understand the technical details and the motivation behind
- ▶ Critically address the conclusions
- ▶ Propose alternative approaches
- ▶ Bonus for additional experiments

Seminar Report

- ▶ Deadline: **07/03/2013**
- ▶ Maximum 30 pages, generally circa 20 pages, A4, 11-12pt, usual width
- ▶ **3** printed and bound copies of the reports to be submitted to Josif Grabocka
- ▶ **1** CD including seminar paper and slides, sources and pdfs, programs and source codes, other materials used for presentation
- ▶ Guidelines:
 1. Present the study from an analysis (not repetitive) perspective
 2. Follow the logical structure of the presentation
 3. Position the study in the large context of research
 4. Include analytical findings, weak and strong points