Data Mining II - Advanced Topics in Data Mining

Winter

(in German: Data Mining II - Advanced Topics in Data Mining)

Module-ID: FIN-INF-120455

Abbreviation	Credit Points	Semester	Term	Duration	Language	Level
DM2	9	Winter	starting at 1.	1 Semester	english	Master

Link:	LSF
Limited accessability:	false
Responsibility:	Myra Spiliopoulou
Lecturer:	Myra Spiliopoulou
Classes:	Vorlesung DM 2 Übung DM 2 **COURTESY TRANSLATION:** • Lecture class DM2 • Exercise class DM2
Applicability in curriculum:	- M.Sc. INF: Informatik - M.Sc. INGINF: Informatik - M.Sc. WIF: Informatik - M.Sc. DKE: Learning Methods and Models for Data Science - M.Sc. DE: Methoden der Informatik - M.Sc. DE: Fachliche Spezialisierung - M.Sc. VC: Computer Science

Intended learning outcomes:
When successfully completing this module, the students:

- comprehend why temporal data need different learning algorithms and evaluation procedures than used on static data
- comprehend the behaviour of supervised, unsupervised and semi-supervised learning algorithms on temporal data
- can design and apply simple learning algorithms and workflows on temporal data and interpret the induced models
- can evaluate models - once and in continuous evaluation, since both are needed in temporal learning

and have thus acquired skills they need in order to design and evaluate temporal learning algorithms themselves

Content:
Block 1A: Data Streams

- Basics
- Stream classification: learning methods and concept drift detectors; evaluation approaches
- Semi-supervised stream learning: methods and evaluation approaches

Block 1B: Time series

- Basics
- Time series classification
- Time series prediction
- Evaluation of models

Block 2: discussion of papers (inverted classroom) and hands-on of algorithms (in the exercises)
Workload:

- 28 hours - in presence : lecture class (2 hours per week)
- 28 hourse in presence: exercise class (2 hours per week)
- 214 Stunden: Individual working time on
  - Preparation for lectures and exercise classes
  - Reading and understanding the articles (scientific papers) provided for the discussion in the lecture class

Pre-examination requirements:	**Type of examination:**	**Teaching method / lecture hours per week (SWS):**

Votierung in der Vorlesung und in der Übung (A minimum number of points must be achieved in Block 1 and in Block 2)	Schriftliche Prüfung - Klausur **COURTESY TRANSLATION:** • Written exam of the form 'Klausur' • Prerequisite for the written exam: a minimum number of points must be achieved; this procedure is called 'Votierung'	• Vorlesung (2 SWS) • Übung (2 SWS) **COURTESY TRANSLATION:** • Lecture (2 hours per week of the semester) • Exercise (2 hours per week of the semester)

Prerequisites according to examination regulations:	**Recommended prerequisites:**
keine	• Familiarity with learning algorithms for static tabular data • Familiarity with methods for the evaluation of models induced on static data

Media:	**Literature:**

Comments:
Block 1: Literature on streams and time series; is provided in the elearning page of the module
Block 2: New papers are discussed, every time the course is offered

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