

Course 32032: Machine Learning and Data Mining

Course Organisation

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Fall 2020

Goals

- Objective of this course
 - Introduce tools and techniques for **machine learning** used in **data mining**
- At the end, you should
 - Understand what the techniques are
 - Appreciate their strengths and applicability
 - Be able to use the WEKA software
- We will
 - Present **fundamental learning algorithms** without delving into software-specific implementation details
 - **Not** delve into deep learning

Course contents

- Introduction to machine learning and data mining concepts, problems and applications
 - Input data and knowledge representation
 - Simple rules generation
 - Methodology of evaluation
 - Bayesian learning
 - Decision trees, associations rules
 - Nearest neighbours and clustering

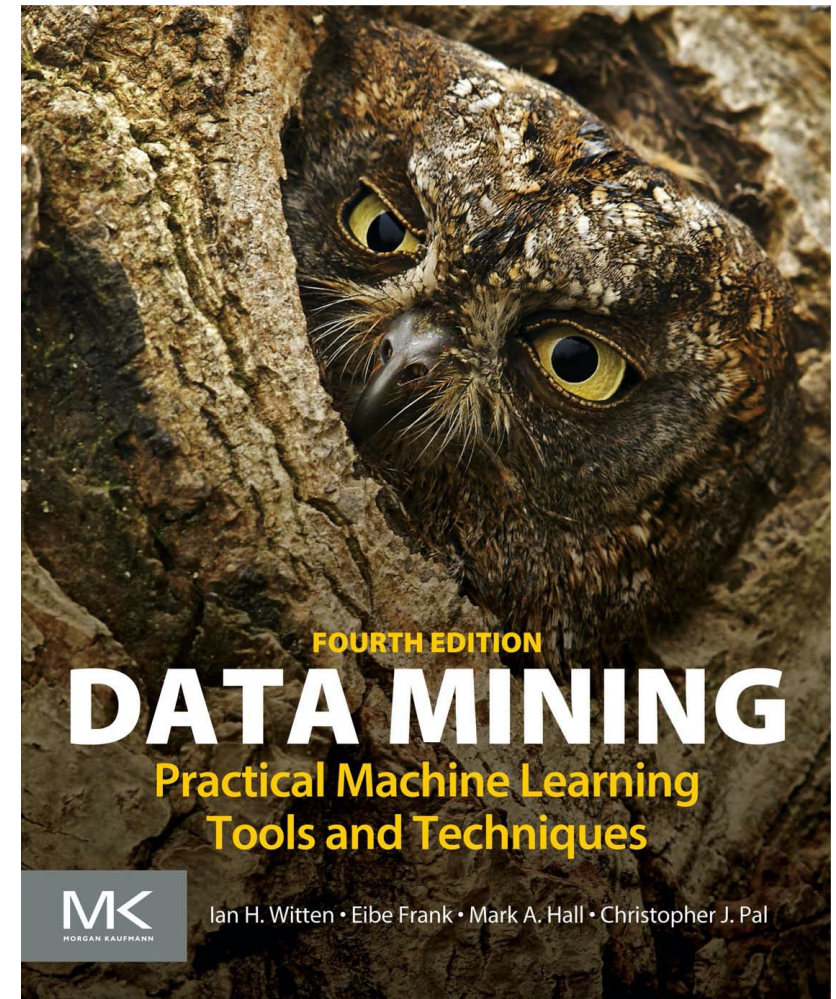
Bibliography

Data Mining: Practical Machine Learning Tools and Techniques, 4th ed.

Ian Witten, Eibe Frank,
Mark Hall, Christopher Pal

ISBN-13: 978-0128042915

<https://www.cs.waikato.ac.nz/~ml/weka/book.html>



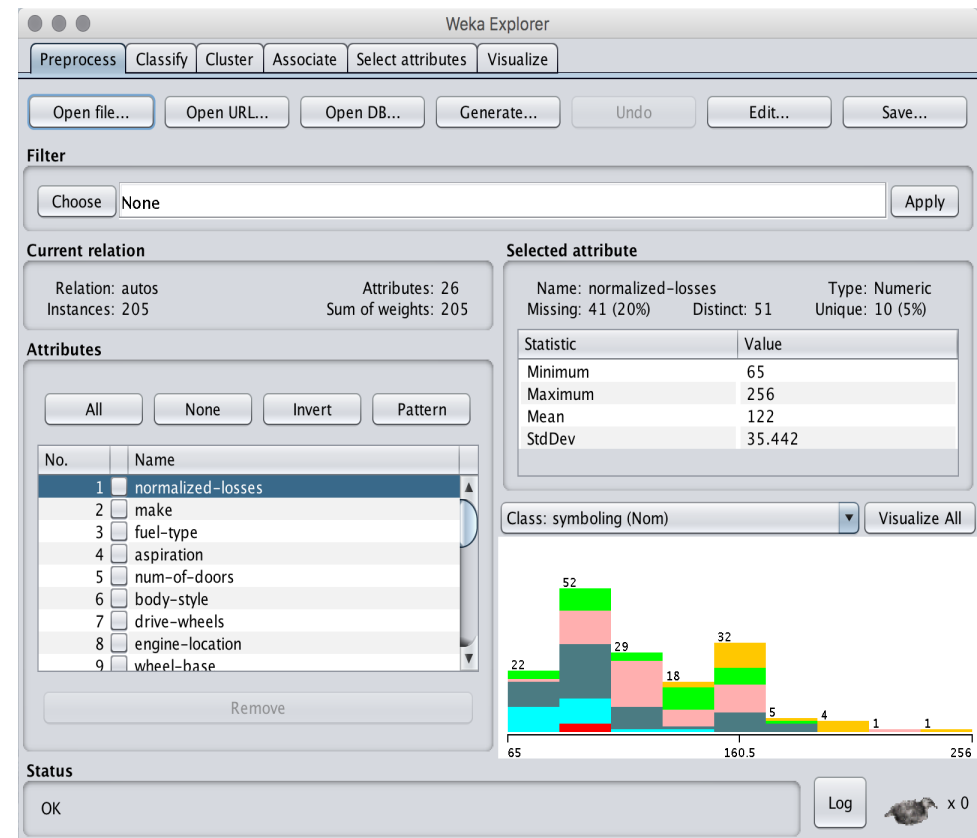
Software tools

WEKA / Waikato Environment for Knowledge Analysis

Collection of visualization tools and algorithms for data analysis and predictive modelling

Graphical user interface, easy access to functions

<https://www.cs.waikato.ac.nz/~ml/weka/>



Evaluation

- From your part
 - Precision (definition / equation)
 - Ask “why” (black box, transparent box)
 - 5 ECTS \neq 4h/week
- Evaluation
 - Written exam, 2 hours, English
 - Practical exercises: 20% (no repetition!)
 - Final written exam: 80%

Collaboration

- **Course notes:**

- ILIAS University of Bern

https://ilias.unibe.ch/goto_ilias3_unibe_crs_1841349.html

pasin.ch/r/dm

- **Classes**

- COVID-19 rules
 - Half class local/remote (even/odd numbers)
 - Each week
 - Any time
 - 5-6 recorded video clips (10-20 min)
 - Monday morning
 - Session for questions and discussions
 - Session for practical work

- **Email**

- Possibly other means throughout the semester