Massive Data Analytics

Course Info

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http://disi.unitn.eu/~themis

Course Prerequisites

- Databases or Data Management

- basic probability and statistics

Course Material

- course taught using:
    - slides
    - published research papers

- course-related material uploaded at:
    - http://disi.unitn.eu/~themis/courses/MassiveDataAnalytics/

    - check course web-page for announcements!

Course Requirements

- Class Participation 10%

- Assignments 15%

- Project 60%

- Final Exam 15%

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- Class Participation 10%
  - participate in class discussions of problems and research papers
- Assignments 15%
- Project 60%
- Final Exam 15%

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- Class Participation 10%
- Assignments 15%
  - 1-page review of research papers
  - presentation of a research paper in the class
- Project 60%
- Final Exam 15%

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- Assignments 15%

- Project 60%

    - work on a major project to be submitted at the end of the course (with intermediate deadlines)

        - detailed marking scheme on course web page

- Final Exam 15%

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- Project 60%

- Final Exam 15%

    - oral examination on the submitted project

Project

- Software implementation related to course material

- Should involve an original component or experiment

- More later about available data and computing resources.

- Teamwork is encouraged
  - requirements for single-person teams are still high

- project must be completed by the end of the course

Recommended Reference Books

- S. Chakrabarti. Mining the Web: Statistical Analysis of Hypertex and Semi-Structured Data. Morgan Kaufmann, 2002
- R. O. Duda, P. E. Hart, and D. G. Stork, Pattern Classification, 2ed., Wiley-Interscience, 2000
- T. Dasu and T. Johnson. Exploratory Data Mining and Data Cleaning. John Wiley & Sons, 2003
- U. M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurusamy. Advances in Knowledge Discovery and Data Mining. AAAI/MIT Press, 1996
- U. Fayyad, G. Grinstein, and A. Wierse, Information Visualization in Data Mining and Knowledge Discovery, Morgan Kaufmann, 2001
- **J. Han and M. Kamber. Data Mining: Concepts and Techniques. Morgan Kaufmann, 2nd ed., 2006**
- D. J. Hand, H. Mannila, and P. Smyth, Principles of Data Mining, MIT Press, 2001
- **T. Hastie, R. Tibshirani, and J. Friedman, The Elements of Statistical Learning: Data Mining, Inference, and Prediction, Springer-Verlag, 2001**
- T. M. Mitchell, Machine Learning, McGraw Hill, 1997
- G. Piatetsky-Shapiro and W. J. Frawley. Knowledge Discovery in Databases. AAAI/MIT Press, 1991
- **P.-N. Tan, M. Steinbach and V. Kumar, Introduction to Data Mining, Wiley, 2005**
- S. M. Weiss and N. Indurkhya, Predictive Data Mining, Morgan Kaufmann, 1998
- **I. H. Witten and E. Frank, Data Mining: Practical Machine Learning Tools and Techniques with Java Implementations, Morgan Kaufmann, 2nd ed. 2005**