

Tenth Advanced Statistics and Data Mining Summer School at UPM (Madrid, June 29th - July 10th, 2015)

por webadmin - Viernes, marzo 20, 2015

<http://www.biometricsociety.net/2015/03/20/tenth-advanced-statistics-and-data-mining-summer-school-at-upm-madrid-june-29th-july-10th-2015/>

Dear colleagues,

The Technical University of Madrid (UPM) will once more organize the ‘Advanced Statistics and Data Mining’ summer school. The summer school will be held in Boadilla del Monte, near Madrid, from June 29th to July 10th. This year’s edition comprises 12 week-long courses (15 lecture hours each), given during two weeks (six courses each week). Attendees may register in each course independently. No restrictions, besides those imposed by timetables, apply on the number or choice of courses.

Early registration is now *OPEN*. Extended information on course programmes, price, venue, accommodation and transport is available at the school’s website:

<http://www.dia.fi.upm.es/ASDM>

Please, forward this information to your colleagues, students, and whoever you think may find it interesting.

Best regards,

Pedro Larranaga, Concha Bielza, Bojan Mihaljevic and Laura Anton-Sanchez.
— School coordinators.

*** List of courses and brief description ***

* Week 1 (June 29th – July 3rd, 2015) *

1st session: 9:45-12:45

Course 1: Bayesian Networks (15 h)

Basics of Bayesian networks. Inference in Bayesian networks. Learning Bayesian networks from data. Real applications. Practical demonstration: GeNIe, Weka, Bayesia, R.

Course 2: Time Series(15 h)

Basic concepts in time series. Descriptive methods for time series. Linear models for time series. Extensions. Practical demonstration: R.

2nd session: 13:45-16:45

Course 3: Supervised Pattern Recognition (15 h)

Introduction. Assessing the performance of supervised classification algorithms. Preprocessing.

Classification techniques. Combining multiple classifiers. Comparing supervised classification algorithms.

Course 4: Bayesian Inference (15 h)

Introduction: Bayesian basics. Conjugate models. MCMC and other simulation methods. Regression and Hierarchical models. Model selection. Practical demonstration: R and WinBugs.

3rd session: 17:00 – 20:00

Course 5: Neural Networks and Deep Learning (15 h)

Introduction. Training algorithms. Learning and Optimization. MLPs in practice. Deep Networks.

Course 6: Unsupervised Pattern Recognition (15 h)

Introduction to clustering. Data exploration and preparation. Prototype-based clustering. Density-based clustering. Graph-based clustering. Cluster evaluation. Miscellanea. Conclusions and final advise.

Practical session: R.

* Week 2 (July 6th – July 10th, 2015) *

1st session: 9:45-12:45

Course 7: Statistical Inference(15 h)

Introduction. Some basic statistical test. Multiple testing. Introduction to bootstrap methods. Introduction to Robust Statistics. Practical demonstration: R.

Course 8: Bayesian Classifiers (15 h)

Discrete predictors. Gaussian Bayesian networks-based classifiers. Other Bayesian classifiers. Bayesian classifiers for: positive and unlabeled data, semi-supervised learning, data streams, temporal data.

Practical session: R.

2nd session: 13:45-16:45

Course 9: Text Mining (15 h)

Introduction. Fundamentals. Language Modeling. String Processing. Text Classification. Information Extraction. Practical session: GATE (optionally, python).

Course 10: Feature Subset Selection (15 h)

Introduction. Filter approaches. Embedded methods. Wrapper methods. Advanced topics. Practical session: R and Weka.

3rd session: 17:00-20:00

Course 11: Support Vector Machines and Convex Optimization (15 h)

Introduction. SVM models. SVM learning algorithms. Convex non differentiable optimization.

Course 12: Hidden Markov Models (15 h)

Introduction. Discrete Hidden Markov Models. Basic algorithms for Hidden Markov Models. Semicontinuous Hidden Markov Models. Continuous Hidden Markov Models. Unit selection and clustering. Speaker and Environment Adaptation for HMMs. Other applications of HMMs. Practical session: HTK.

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