Machine Learning with R

Duration: 4 days Price: € 2650

Open Schedule

Data Science with R

Audience Course Machine Learning with R

The course Machine Learning with R is intended for data analists and data scientists who want to use the R libraries for modeling and machine learning.

Prerequisites training Machine Learning with R

To participate in this course knowledge and experience with the programming language R for Data Analysis is required. Prior knowledge with regard to statistical methods and algorithms is beneficial for the understanding.

Realization course Machine Learning with R

The theory is treated on the basis of presentations. Illustrative demos clarify the concepts. The theory is interspersed with exercises and case studies. The course times are from 9.30 to 16.30.

Official Certificate Machine Learning with R

Participants receive an official Machine Learning with R certificate after successful completion of the course.

Content Course Machine Learning with R

In the course Machine Learning with R you will learn how to apply the R language and the R libraries in modeling projects and machine learning. Machine Learning is part of artificial intelligence and concerns the study of algorithms that automatically improve based on experience. Machine learning algorithms create a model based on training data and can then make predictions about new data.

Review R

First of all, a review discusses the fundamentals of R such as data types and functions. Then a number of important libraries such as dplyr and ggplot2 are treated.

Machine Learning

Next the principles of machine learning, building models based on data and the differences between supervised and unsupervised learning are explained.

Regressions

Linear regression and logistic regression and the differences between them are discussed. Then attention is paid to how models can be checked for accuracy by looking at summaries, coefficients and plots.

Functional R

Subsequently the course covers how functional programming techniques in R can be applied. Here other solutions for iteration through various map and other functions are discussed.

Sparklyr Intro

Attention is also paid to the access of Apache Spark from R by means of a distributed data frame implementation with operations such as selection, filtering and aggregation.

Shiny

Visualization of data in interactive web applications directly from R via the Shiny package is also on the program.

Decision Trees

Next the course Machine Learning with R discusses Decision Trees. This Machine Learning algorithm is based on classification.

Other Algorithms

Finally the course ends with the discussion of various other Machine Learning algorithms such as Naive Bayes, Principal Component Analysis and Support Vector Machines.

Modules Course Machine Learning with R

Module 1 : R Review	Module 2 : Machine Learning	Module 3 : Linear Regression
R Data Types	What is Machine Learning?	Check Model
Data Frames	Building Models of Data	Using Summary
Factors	Model Based Learning	Using Coefficients
Rmarkdown	Tunable Parameters	Correlation R
tidy package	Supervised Learning	R Squared
Functions in R	Discrete Labels	F Test
Apply functions	Continuous Labels	Check Model Graphically
Statistics	Classification and Regression	Check Residuals
R Data Files	Unsupervised Learning	Polynomial Regression
Using dplyr Package	Data Speaks for Itself	Gaussian Basis Functions
Plotting with ggplot2	Clustering and Dimensionality Reduction	Overfitting
Module 4 : Logistic Regression	**Module 5 : Functional R**	**Module 6 : Sparklyr Intro**
Compare with Linear Regression	Solving Iteration	Spark Session
Explore with Graphics	purr package	Copy data into Spark
Logistic Function	library tidyverse	File Setup
Checking Model	map Functions	Load data
Using Summary	Parameters of map	Spark SQL
Using Coefficients	.x as placeholder	Store Data
Calculate Probabilities	map_lgl Function	Using dplyr
Making Predictions	map_int and map_char	showquery()
Confusion Matrix	map2 Function	Spark DataFrame Functions
Accuracy	Other iteration functions	sdf_pivot()
Precision and Recall	Combine purr with dyplr	Feature Transformers
ROC Curve	walk Function	Distributed R
Module 7 : Shiny	**Module 8 : Decision Trees**	**Module 9 : Other Algorithms**
Web Applications	Ensemble Learner	Naive Bayes Classifiers
Shiny Architecture	Creating Decision Trees	Gaussian Naive Bayes
Shiny Server	DecisionTreeClassifier	Principal Component Analysis
UI and Server	Overfitting Decision Trees	Least Squares
Input Object	Ensembles of Estimator	Polynomial Fitting
Output Object	Random Forests	Constrained Linear Regression
Reactivity	Parallel Estimators	K-Means Clustering
Render Options	Bagging Classifier	Support Vector Machines
Shiny Functions	Random Forest Regression	Conditional Random Fields
Shiny Layout and Dashboard	RandomForestRegressor	Explained Variance
Shiny Performance	Non Parametric Model	Dimensionality Reduction

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