

Applied Machine Learning

Master the fundamentals of applied Machine Learning

ABOUT THIS COURSE

This applied machine learning training will make you acquire the fundamental foundation of the data scientist in machine learning and will allow you to become operational on your data science use cases.

At the end of this training, trainees will be able to create, train and evaluate their own predictive models. Mastery of the main machine learning algorithms will make trainees versatile in most data science use cases.

All the theoretical concepts studied will be accompanied by a "red line" use-case, which will be implemented by the trainees throughout the training.

COURSE OBJECTIVES

At the end of the training, you will be able to:

- Understand machine learning and its uses
- Master and know how to use a full range of algorithms
- Continuously improve results with "features engineering"
- Implement end-to-end machine learning applications
- Rigorously evaluate their predictive models

LEVEL



AUDIENCE

Developer, business analyst, data analyst, data engineer, quantitative analyst, statistician

PREREQUISITE

Basic notions in data manipulation with python, or at least with another programming language, in statistics and in probabilities. Laptop and Anaconda software installed.



COURSE INSTRUCTOR

Thibaud Vienne

Expert in Machine Learning

Professor in machine learning at the master 203 Paris-Dauphine and at the engineering school ESIEE Paris

Applied Machine Learning

DAY 1 PROGRAM

Step 1: Introduction to machine learning

- The different types of learning
- Examples of use cases.
- The tools of the data scientist.
- Presentation of the "red line" use case

Step 2: Linear and logistic regression

- Linear regression
- Logistic regression
- Hands'on:** application of a « red line » use case

- Polynomial regression and regularisation
- Hands'on:** application of a « red line » use case

Step 3: Machine learning in practice

- Rigorously evaluate your model
- Hands'on:** application of a « red line » use case
- Improve the result with features engineering and features selection
- Hands'on:** application of a « red line » use case

DAY 2 PROGRAM

Step 4: More advanced algorithms: tree techniques

- Decision trees
- Hands'on:** application of a « red line » use case

Step 5: Practical workshop – It's up to you

- Implementation of a spam detector with test-mining techniques
- Implementing and evaluating your own model
- Skills practiced:** *logistic regression, evaluation, text-mining*


COURSE FEES

Course 4 days – 28h
length

Intra	1.950 €/pers
Inter	On demand (possibility of adapting over three days)

MODALITIES

60% theory including quiz
interactive
40% practical work

 3 to 8 participants

Individual, inter-companies

FOLLOW-UP AND EVALUATION

Quizzes and mini-exercises
Practical work (see steps 5 and 8 of
the program)
Training Evaluation Questionnaire

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DAY 3 PROGRAM

Step 6: Introduction to Neural Networks with Keras

Introduction to feedforward neural networks

Hands'on: application of a « red line » use case

Step 7: Optimisation of neural networks

Optimisation and parameterisation of neural networks

Hands'on: application of a « red line » use case

DAY 4 PROGRAM

Step 8: Practical workshop – It's up to you

Implementation from A to Z of a regression use-case

Implementing and evaluating your own model

Skills practiced: *linear regression, features engineering, decision trees, random drills, neural networks*

Step 9: Tools and organisation of the data scientist

Big Data: Processing of (very) large data

Cloud: The new tools available to data scientists

eXplainable AI: The end of black box models?

Organisation: The different data science professions

Step 10: Conclusion

Conclusion and summary of the training

To go further

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“Understanding the applications of Deep Learning, the structure of a neural network and mastering the necessary algorithms allowed us to better structure our Deep Learning project.”

Team Manager