Machine learning – advanced classification methods in Phython

Course overview

This hands-on data science course is a sequel to Cognitir's Introduction to Data Science material. It will provide an overview of modern machine learning algorithms that analysts, portfolio managers, traders and chief investment officers should understand.

This course will explore advanced classification methods including neural networks and decision trees which are among the most effective data science techniques. An introduction to deep learning, a technique which has significantly increased the performance of machine learning algorithms over the last years and is heavily used in the industry, is also included.

Key learning outcomes

- An overview of modern machine learning relevant to finance professionals
- Be comfortable using Python to build common classification algorithms
- Evaluate & interpret algorithm accuracies

What this course offers?

- An overview of core classification methods and how to use them to solve real-world problems in the finance industry
- Hands-on Python programming experience
- Course notes, certificate of completion, and post-seminar email support for 3 months
- An engaging and practical training approach with a qualified instructor with relevant technical, business, and educational experiences

Who is this course for?

This course is relevant for individuals working with or needing to understand machine-learning algorithms, specifically classification methods.

Cognitir's Introduction to Data Science course or the equivalent is required.

CPD

This course is eligible for **6** CPD hours.

Programme

Review of Core Data Science Methods
- Supervised vs. Unsupervised learning, Classification, Regression, Clustering,
- Dimensionality Reduction, Ensemble, etc.

Selecting Informative Attributes
- Information gain, entropy, overfitting/generalization

Decision Trees & Random Forests
- What are they?
- How to do this in Python
- Coding Challenge

K-Nearest Neighbors
- What is it?
- How to do this in Python
- K-Nearest Neighbors Coding Challenge

Support Vector Machines
- What are they?
- How to do this in Python
- SVM Coding Challenge

Neural Networks
- What is it?
- How to use this in Python - example

- Neural Nets Coding Challenge

Deep Learning

- Why the hype?
- How to get started with deep learning

Evaluation of Classification Methods

- Accuracy, confusion matrix, ROC, AUC, Precision, Recall, etc.

Final Project

- Given a dataset and a classification mandate, students have to run these different classification models and figure out which one is “best”