Festo Training and Consulting
From industry – for industry

FESTO

Practical Introduction to Machine Learning with Neural Nets in Industrial Environments

Machine learning is seen as one dimension of artificial intelligence. Using machine learning, IT systems recognize patterns based on large amounts of data, initiate appropriate action items and thus generate knowledge. The focus in this context are neural nets, as they are in most cases the algorithmic basis when it comes to data analytics in machine or deep learning. By collecting and analyzing data, several optimizations can be achieved in industrial environments ranging from process efficiency up to predictive maintenance.

The content of this training **initially centers on the** history and theoretical basics of machine learning and neural nets. Participants then begin implementing and operating their own neural nets from scratch and optimize them for the challenges of today's production environment.
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**Practical introduction to machine learning
with neural nets in industrial environments**

Training content

- History and developments in machine learning (e.g., K-Means, Forest Trees, Support Vector Machines)
- Structure, functionality, and characteristics of neural nets
- Necessary mathematical basics to understand the operation of neural nets
- Modelling of neural nets based on the programming language Python and relevant software tools
- Working with machine libraries like Keras and TensorFlow
- Machine learning applications in practice using the CP Factory/CP Lab (image analysis, predictive maintenance, etc.)

Training outcomes

After completing this training course, the participants:

- understand the basics and developments in machine learning
- are familiar with the structure of neural nets from scratch and are able to modify them according to their own applications
- learn about potential application scenarios for machine learning in industrial environments

Target group

Vocational teachers and experts from engineering/design, maintenance and IT, with a profound mathematical understanding and basic interest in artificial intelligence

Duration

3 or 4 days

Please note that, currently, this training is only available at our Learning Factory in Denkendorf, Germany (in German or English language).

All Festo Didactic training courses offer the following additional benefits:

- Post-tests can additionally be used to monitor the training effectiveness
- Our trainings can be customized and carried out worldwide (on demand)
- Trainings take place with real industrial components, used in a safe environment
- Our trainers are certified according to our internal trainer qualification „Festo Certified Training Professional" and have many years of industrial experience