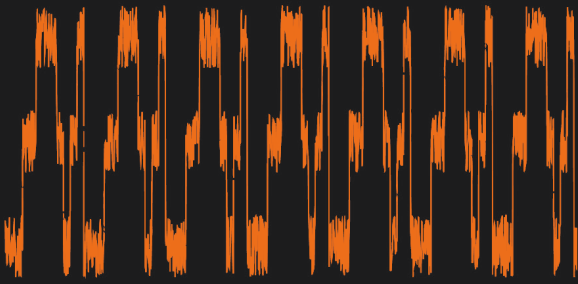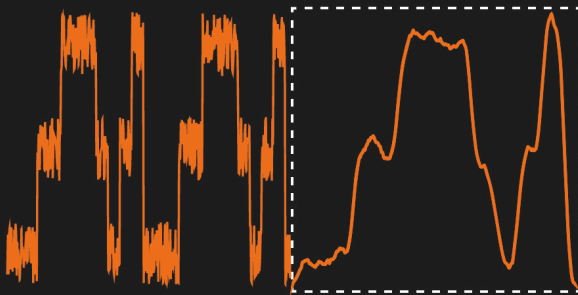data processing
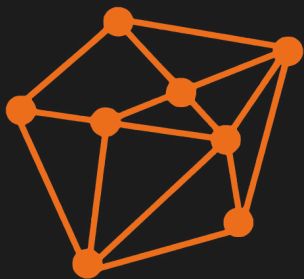

model development
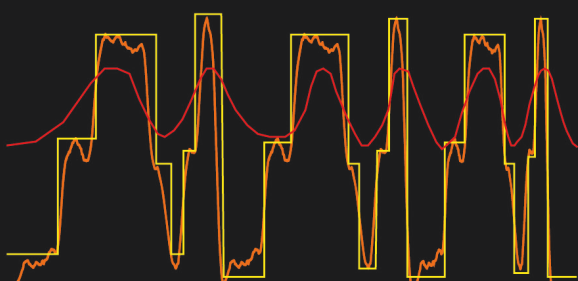

model forecast

algorithm

actuator control

artificial intelligence makes codesys plc self-learning

collecting data and their influencing factors, generating forecasts from them and creating a self-optimising plc:
the WICKIE M system from mrm² automatisierungstechnik gmbh uses artificial intelligence for demand-oriented and self-learning control of automation processes in building management.

conventional systems are based on static parameters that are entered once. these can be changed at any time, but only manually.
WICKIE M is based on self-learning plc. relevant data is recorded via the sensors. ki algorithms then calculate a prognosis based on the recorded data and control the actuators according to this prognosis. the decisive factor here is that all relevant parameters communicate and interact with each other through WICKIE M.

WICKIE M can save up to 25% energy in building automation by interacting air conditioning, shading, light and presence in the room via a building bus system. the actuators are only controlled when it is necessary according to the forecast for room use. synchronisation with the actual presence in the room is ensured. previous time controls always have to be adapted to changes in use - WICKIE M adapts itself and is also scalable from individual room control to complete energy management.

the intelligence of WICKIE M is based on time series predictions with a neural network. lstm technology (long short-term memory) makes this neural network very powerful. machine learning algorithms collect the recorded data in a database, recognise patterns in the data, continuously update the computational models and generate the predictions.

the programming language is python, the high-level language of choice for data analysis and machine learning. we use the ki library keras. orchestration via docker ensures automated provision and management of all software components and their connections. the codesys applications as interfaces enable an uncomplicated implementation of all sensors and actuators of the intelligent system.

The WICKIE M methodology is transferable to other tasks.
time series forecasts can also be used profitably in the production process, for example to predict output quantities and material flow or for predictive maintenance. however, to really benefit from our self-learning optimisation, the target definition of the use cases must be very precise.

WICKIE M is our small, clever and intelligent solution for demand-oriented, self-learning control, which shows strong performance especially in building automation and energy management.

get more information at +49 7335 9499 100 or vertrieb@mrm2.de.
mrm² automation technology gmbh | www.mrm2.de