ML algorithms are directly executable in real-time

Inference, i.e. the execution of a trained ML model, can be performed directly in real-time with a TwinCAT TcCOM object. With smaller networks, system response times of less than 100 µs corresponding to a TwinCAT cycle time of 50 µs are supported. Models can be called via PLC, C/C++ TcCOM interfaces or a cyclical task.

Through seamless integration with the control technology, the multi-core support provided by TwinCAT 3 is also available for machine learning applications. This means, for instance, that different task contexts can access a particular TwinCAT 3 Inference Engine without restricting each other. All the fieldbus interfaces and data available in TwinCAT can be fully accessed as well. This allows ML solutions to use immense amounts of data, for example, for complex sensor data fusion (data merging), and it also means that real-time interfaces to actuators are available to enable, among other things, optimal control.

Further information: www.beckhoff.com/machine-learning