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Rise of the Agentic AI in Industrial Engineering: Benchmarking the AI That's Definitely Not Trying to Replace You

Bachelorhesis

Beckhoff's TwinCAT is launching the closed beta test for its CoAgent. We have the opportunity to put it through its paces and design new engineering workflows.

Motivation

With the industrial world sprinting toward smarter automation, Beckhoff has launched its latest leap: TwinCAT-CoAgent, a new agentic AI assistant now entering closed beta testing. Naturally, this raises an important question: *Is it a helpful engineering co-pilot... or the intern who never sleeps and threatens your entire department's job security?*

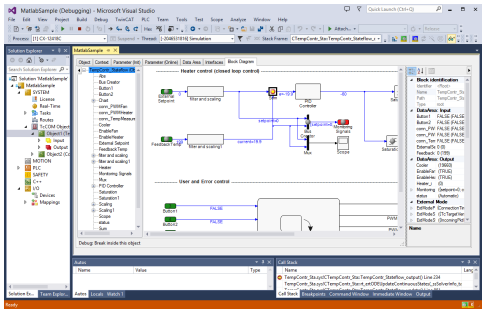


Figure 1: Beckhoff TwinCAT

As one of the few with early access, we have a unique opportunity to put CoAgent through its paces. This is a chance to explore how an embedded agentic AI might reshape industrial engineering workflows — from suggesting code snippets *to possibly replacing that one guy who still refuses to use version control.*

In the spirit of google's 10X concept, we now face a bold new hypothesis: Can CoAgent make one engineer do the work of ten? Or more bluntly: *Is this the beginning of the end for the 9 other engineers on the team*? **In short:** If we're all going to be replaced by agentic AI, we might as well be the ones who wrote its performance review.

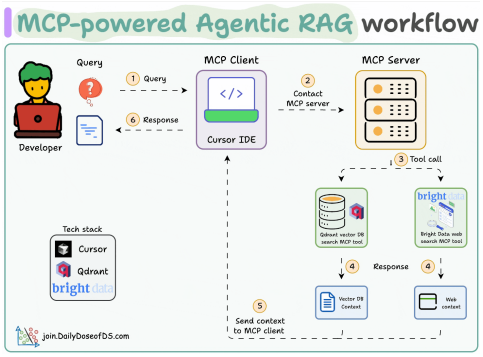


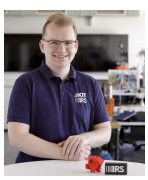
Figure 2: Agentic AI

Goals

- Design and implement benchmark tasks for the TwinCAT-CoAgent
- Prototype new AI-augmented workflows
- Identify limitations, risks, and failure modes
- Provide practical recommendations

Interests and Helpful Prior Knowledge

- Basic Understanding of Industrial Automation
- Interest to get familiar with TwinCAT and Agentic AI Concepts
- Lecture Information and Automation Technology



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