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AI in Engineering: Solid frameworks and applications

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Using AI in productive environments is more than just building ML models. Especially in engineering contexts, it is important that any AI application fits into the users' work processes. Unlike with generative AI, the focus here is usually not on the creativity of the solution but instead on the reliability and trustworthiness of the AI-based solution. To this end, we highlight the advantages of AI Systems Engineering, the aim of which is to make AI and ML methods systematically usable according to the typical requirements and procedures of engineers. We show two applications of this framework, one in the R&D context in the domain of fatigue strength estimation, where Bayesian methods and Active Learning is used and another in Production Planning for large components, where Reinforcement Learning techniques are applied.

Biography:

Gunar Ernis is Head of the business unit Industrial Analytics. He holds a doctorate in experimental particle physics and has been working as a data scientist at Fraunhofer IAIS since 2016. He is intensively involved in analysing data in the industrial environment and is active in several projects dealing with condition monitoring, predictive maintenance and design of experiments.