**DESCRIPTION**

Machine and system solutions are built of inter-project-recurring operational modules that always need a certain degree of customization. On a system level, different system layouts might be feasible, dependent on the number of variants, the forecasted production volume, and the flexibility required. Each of those solutions is associated with different costs (investments and running costs). Decisions for certain solutions are currently made based on experience and trial and error. This leads to exhaustive iterations in the design process and suboptimal Total Cost of Ownership (TCO) for the customer.

This thesis aims for a digital twin that helps machine builders reasoning a certain line configuration, optimally combining degrees of freedom in layout, line scalability, production volumes and variants, and reusable modules.

**POTENTIAL TASKS**

- Pareto analysis of representative industrial machine building projects
- Definition of line characteristics
- Representative Realization of different existing line layouts as discrete event simulation (DES) in Anylogic
- Integration of standard modules for Ruhlamat lines for easy (re-)creation of different line configurations
- Quantification of volatility and uncertainty using statistical analysis

**FURTHER INFORMATION**

- Start in January/April 2023 in Suzhou, China
- Duration: 6 months
- Specialization: Mechanical engineering, electronic engineering, industrial engineer, mechatronics

**CONTACT**

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