

Sooraj Sunil

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EDUCATION

Oct 2022 - Present	Master of Science - MSc. Systems Engineering for Manufacturing (Grade: 1,8) Otto-von-Guericke University Magdeburg, Germany Majors: Factory Automation and Industrial Robotics, Advanced Application of Industry 4.0, Systems Engineering for Manufacturing, Modelling & Simulation in Logistics Planning. Academic Projects: <ul style="list-style-type: none">Establishing Digital Engineering Chains using MBSE: Steel production plant.Production planning Optimization using Siemens Tecnomatix Plant Simulation.
Jul 2015 - Jul 2019	Bachelor of Technology - Mechanical Engineering (Grade: 2,2) Government Engineering College Thrissur, India

PROFESSIONAL EXPERIENCE

Oct 2025 - Present	Bosch Rexroth AG Master Thesis Stuttgart, Baden-Württemberg, Germany Topic: Evaluation of EPLAN generation in a digital engineering tool chain for mechatronic components of transport systems <ul style="list-style-type: none">Conceptual development of an AutomationML-based engineering data logistics to integrate EPLAN generation from simulation models using a Common Data Model.Enriched Transfer System 2 (TS2) simulation objects with electrical metadata, developed a Visual Components Python add-on to export information model in a structured JSON/XML.Developed AML foundation for data mapping by creating System Unit Classes in Enterprise Architect using DIAMOND Common Concept modeling for AML generation.
Mar 2025 - Sep 2025	Bosch Rexroth AG Werkstudent: Simulation in Customer Business Factory Automation Stuttgart, Baden-Württemberg, Germany <ul style="list-style-type: none">Conceived and evaluated configurable PLC function blocks for TS2 control, implemented and validated a ctrlX-based Virtual Commissioning simulation demonstrator model.Drafting of a technical specification for a standardized component library for platform independent Virtual Commissioning of the Transfer System TS2.Development of a simulation model for an Active Shuttle customer project to evaluate, optimize cycle time and assess the Autonomous Mobile Robot technical configuration.Defined technical requirements and implemented library for VarioFlow belt, TS1Evo.
Sep 2024 - Feb 2025	Bosch Rexroth AG Intern: Simulation in Customer Business Factory Automation Stuttgart, Baden-Württemberg, Germany <ul style="list-style-type: none">Creation, execution, and documentation of software tests for simulation libraries: Transfer System TS1, TS2, TS5 and VarioFlow plus following the V-model framework.Development and implementation of library components for VarioFlow belt and TS1.Design and documentation of demonstrator / training models for ctrlX-based Virtual Commissioning of technical systems in Visual Components.Implemented a proof of concept for operational virtual commissioning of TS2, including evaluation of signal models and process logic and integration of PLC function blocks.

Oct 2023 - Feb 2024	Otto-von-Guericke University Magdeburg Tutor - Material Handling Systems <ul style="list-style-type: none"> Conducting ASRS experiments, Course content preparation, Academic advising.
July 2022 - Sep 2022	Nitta Gelatin India Limited (NGIL) Senior Engineer (Collagen Peptide Expansion Projects) Cochin, India <ul style="list-style-type: none"> Collaborated with Industrial engineering design team iteratively to optimize plant layout and production line design, Piping and Instrumentation diagram. Procured technical and budgetary offers for respective equipment required for the new plant from various vendors. Prepared PLC program control logic for automation of the production operations.
Sep 2019 - Jun 2022	Nitta Gelatin India Limited (NGIL) Senior Engineer (Peptide Production Plant) Cochin, India <ul style="list-style-type: none"> Coordinated Cross functional teams for process automation and optimization resulting in 30% daily production increase. Implemented Lean principles like 5S in and around the production plant. Maintaining Standard Operating Procedures (SOPs), ISO standard documents.

PROJECTS

Apr 2024 - May 2024	Discrete-Rate and Discrete-Event Simulation Modelling in Production planning <ul style="list-style-type: none"> Modeled an entire cookie production process in ExtendSim using DRS and DES, identified bottlenecks, estimated production capacity with validation using rough calculations.
Apr 2024 - May 2024	Production Planning Optimization with DES and Genetic Algorithms (GA) <ul style="list-style-type: none"> Developed a Plant Simulation model and applied GA to optimize sequencing and lot sizing, reducing makespan and total tardiness and achieving up to 30% efficiency improvement.
Oct 2023 - Feb 2024	Establishing Digital Engineering Chains using Digital Twin: Steel production plant <ul style="list-style-type: none"> Applied Model Based Systems Engineering (MBSE) to implement engineering data logistics across engineering disciplines; generated a global AutomationML DSL and generated AAS for Digital Twin realization.

LANGUAGE PROFICIENCY

English: Fluent	German: Good Knowledge	Malayalam: Mother tongue
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SKILLS

Simulation	: Visual Components, Plant Simulation, ExtendSim10
Programming	: Git, Python, SimTalk, C++, JSON, XML, Streamlit
Control & Automation	: CODESYS, PLC programming (ST), ctrlX WORKS, OPC-UA, Virtual Commissioning
Systems Engineering	: Enterprise Architect, MBSE, SysML, AutomationML, Digital Twin
Agile Methodologies	: Azure DevOps, Jira, Kanban, Lean principles (5S, Kaizen, JIT, TPM, Gemba)
Data Analysis	: MS Office, Power BI
CAD & CAE	: EPLAN Electric P8, MTPro, Solidworks, Siemens NX, Altair Inspire, Prusa Slicer
Other	: Six Sigma, SAP

REFERENCE

Mr. Richard Verbeet	: System Architect Engineering Solutions & Projects (DC-AT/ESP1) Bosch Rexroth AG Email: Richard.Verbeet@boschrexroth.de Tel: +49 172 2752063
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