

Yanran Chen

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EDUCATION

RWTH Aachen University

Master of Science in Construction and Robotics

Master Thesis: Optimizing Factory Layouts for Scalable Production in Virtual Factory Environments

Oct 2021 – Sep 2024

Shanghai University

Bachelor of Engineering in Architecture

Sep 2015 – Jul 2020

WORK EXPERIENCE

WZL of RWTH Aachen University, Student Assistant, Aachen (Germany)

Jan 2024 – Present

- Developed a 3D factory planning interface using Unreal Engine 5.4 for research projects, building machine layout for design reviews.
- Implemented data connectivity and integrated live data via REST by Unreal Engine's Blueprint system.
- Wrote Python tool to calculate and optimize factory machine layouts based on predefined conditions, exported results as live overlay in Unreal Engine viewer.
- Supported VR project development with emphasis on UI/UX design and 3D model visualization.

Saint-Gobain Research Germany, Working Student, Herzogenrath (Germany)

Jan 2024 – Dec 2025

- Implemented Node-RED to InfluxDB pipeline capturing sensor data from production line
 - Implemented machine learning methods to analyse and predict product defect, improving process optimization and defect detection.
 - Managed and queried SQL databases and utilized Node-RED and Grafana for real-time data flow and visualization, dynamically presenting key data points to help team members quickly grasp core insights.
 - Developed a responsive Vue.js web application for internal users, with interchangeable back-end services built in Python (FastAPI) and Node.js, enabling real-time access to production KPIs.
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PROJECT

Seasonal Client Promotion Animation

Oct 2025 – Dec 2025

- 3D modeling and scene construction using Rhino and Blender to showcase the organization's business and technological capabilities.
- Production of scene demonstration animations and shot design to enhance visual appeal.
- AI-generated voiceover and video compositing for Christmas client promotional videos.

Digital Twin of Welding Robot

Oct 2022 – Feb 2023

- A digital twin system for welding robots was built based on ROS2, achieving synchronization between the real robot and the virtual model, virtual-real mapping, and simulation verification.
 - Sensor data was integrated to achieve real-time visualization of the robot's motion state in RVIZ, used for monitoring the robot's motion and task execution status.
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SKILLS

- Design: Adobe Creative Suite (Photoshop, Illustrator, InDesign, Lightroom), MS Office
- Real-time 3D Development and Simulation: Unreal Engine 5 (Blueprint, basic C++), ROS2
- Programming and Data: Python, SQL, Node-RED, Node.js, Vue.js
- Modeling and Animation: SketchUp, Rhino, Grasshopper, AutoCAD, Blender, Adobe Creative Suite, Twinmotion
- Data Visualization: Power BI, Grafana
- Languages: Chinese (Native), English (Fluent), German (Intermediate)