MOHAMMAD BAHRAMI

Automation & Digital Twin Engineer

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PROFESSIONAL SUMMARY

Automation engineer with 3+ years specializing in warehouse robotics and digital twin systems. Delivered 35+ production simulations for AMR/AGV deployments, reducing simulation development time by 92% and improving commissioning efficiency by 10% with up to 20% fleet optimization. Expert in Emulate3D, C#, ROS2, and virtual commissioning workflows.

TECHNICAL SKILLS

Robotics & Automation: ROS2 | AMR/AGV Fleet Management | Traffic Optimization | Virtual Commissioning
Programming: C# (Advanced) | C++ | Python | MATLAB | Command-line tools| Git/GitHub | Linux
Industrial Systems: PLCs (Siemens TIA Portal, Beckhoff TwinCAT) | OPC UA | MQTT | TCP/IP | HMI Design
Simulation: Emulate3D | NVIDIA Omniverse | SolidWorks | CATIA
Methodologies: FMEA | Six Sigma

PROFESSIONAL EXPERIENCE

AUTOMATION & DIGITAL TWIN ENGINEER

May 2023 - Present

Dymation | Milan, Italy

- Built 35+ Emulate3D digital twins for automated warehouse systems, reducing simulation development time from 3 months to 1 week (92% improvement) through reusable C# frameworks.
- Developed AMR traffic management algorithms in C# that increased warehouse throughput by optimizing AMR traffic management across 8 production deployments.
- Integrated Siemens TIA Portal and Beckhoff TwinCAT PLCs with Emulate3D simulations, enabling pre-deployment validation and reducing on-site commissioning time by 10%.
- Created immersive VR demonstrations in NVIDIA Omniverse for pre-sales presentations, enabling customers to visualize automation solutions and improving decision confidence.
- Applied FMEA and Six Sigma methodologies to identify bottlenecks, implementing data-driven solutions that improved predicted throughput by 12-15%.
- Leading ROS2 integration for simulation platform, enabling real-world AMR navigation algorithm testing and fleet optimization in virtual environment.

MASTER'S THESIS INTERN

Oct 2022 - May 2023

Dymation | Milan, Italy | *Thesis: Virtual Commissioning for Automatic Systems in Intralogistics*

- Developed custom OPC UA server in C# for bi-directional data exchange between Emulate3D simulation and control systems.
- Designed TCP-based peer-to-peer messaging protocol for AMR-to-AMR communication, enabling real-time traffic coordination and deadlock prevention.
- Optimized job management logic improving simulated throughput by 7%, with recommendations successfully implemented in production facility.

EDUCATION

Master of Science in Mechanical Engineering (Mechatronics & Robotics) Feb 2021 - May 2023

Politecnico di Milano | Milan, Italy | *Certificate: Polimi Ambassador in Smart Infrastructures*

Bachelor of Science in Mechanical Engineering Sep 2016 - Aug 2020

Amirkabir University of Technology | Tehran, Iran | Publication: doi:10.1016/J.ICHEATMASSTRANSFER.2021.105360

CERTIFICATIONS & LANGUAGES

Certifications: Lean Six Sigma Yellow Belt | Machine Learning

Languages: English (Fluent) | Italian (Intermediate) | Persian (Native)