

GIULIO BIROLINI

Engineer

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Portfolio: <https://giuliobirolini.github.io>

SUMMARY

BS and MS in Mechanical Engineering with 4 years of experience in industrial engineering roles, specialized in continuous improvement and Lean Six Sigma projects. Experienced in the use of Python and Generative AI tools to maximize the efficiency and quality of every task and project.

EDUCATION

Master of Science in Mechanical Engineering

Specialization: Process Optimization

University of Bergamo, Bergamo, Italy | Graduated: June 2020

Bachelor of Science in Mechanical Engineering

University of Bergamo, Bergamo, Italy | Graduated: June 2016

Advanced Studies in Data Science and Business Analytics

Focus: Applied Industrial Analytics

Handong Global University, Pohang, South Korea | September 2024

PROFESSIONAL EXPERIENCE

Industrial Engineer – Operations Analytics

Phoenix International S.p.A., Italy | February 2022 – March 2023

- Analyzed production and quality processes to improve operational performance, achieving a 33% reduction in rework through data-driven root cause analysis and process optimization
- Integrated Lean Manufacturing and Six Sigma (DMAIC) principles with statistical analysis to improve throughput and process stability
- Supported and guided a team in creating automated performance dashboards using Python and Power BI to monitor OEE, cycle time, and quality KPIs in real-time
- Applied statistical process control (SPC) and regression analysis using Minitab to identify process variations and implement corrective actions

Project Engineer – Industrial / Manufacturing Engineering

O.V.S. Officine Valle Seriana S.p.A., Italy | July 2020 – February 2022

- Supported Engineer-to-Order projects through technical and operational analysis, ensuring delivery under cost, schedule, and quality constraints
- Collaborated with cross-functional teams (engineering, production, quality) to optimize manufacturability and process efficiency for custom industrial equipment
- Conducted capacity analysis and production planning to meet project milestones while maintaining resource utilization efficiency
- Verified technical compliance with ASME Boiler and Pressure Vessel Code and TEMA heat exchanger standards

Industrial Engineer

CMS Costruzione Macchine Speciali S.p.A., Italy | April 2019 – March 2020

- Supported Lean Manufacturing and continuous improvement initiatives on the production floor, reducing waste and cycle time through value stream mapping and standard work implementation
- Applied time-motion studies and root cause analysis (5 Whys, Fishbone diagrams) to identify bottlenecks and implement process improvements
- Focused on implementing standard work, Kanban systems, and andon boards displaying interactive KPIs to improve workflow visibility and real-time production monitoring
- Collaborated with operators and supervisors to establish standard work procedures and visual management systems, enhancing workplace organization through 5S methodology

TECHNICAL SKILLS

Industrial Engineering & Operations: Lean Manufacturing, Six Sigma (DMAIC), Continuous Improvement, Process Optimization, Value Stream Mapping, 5S, Kaizen, Root Cause Analysis, OEE & KPI Measurement, Capacity Analysis, Throughput & Cycle Time Optimization

Analytics & Statistics: Statistical Process Control (SPC), Regression Analysis, Design of Experiments (DOE), Applied Statistics, Forecasting, Predictive Analytics

Software & Tools: Python (Pandas, NumPy, Scikit-learn), SQL, Power BI, Microsoft Excel (Advanced), Minitab, MATLAB, R, Git/GitHub

CAD & Engineering Design: AutoCAD, Autodesk Inventor, Solid Edge

Standards & Compliance: ASME Boiler and Pressure Vessel Code, TEMA Standards

Languages: English (Fluent), Italian (Native)

CERTIFICATIONS

- **Six Sigma Green Belt Specialization**
- **Operations Research Specialization**

SELECTED PROJECTS

Demand Forecasting and Inventory Optimization Dashboard

- Developed forecasting and optimization models using Python to support operations and inventory planning decisions
- Demonstrated industrial engineering approach to capacity planning, inventory management, and performance trade-off analysis

Vertiport Site Selection with K-Means Clustering

- Applied K-Means clustering algorithm in Python to support infrastructure location decisions based on demand patterns
- Translated data analysis into actionable location and capacity planning recommendations