

Product Quality AI

Increase revenue and operating margin via higher yield driven by quality prediction, forensics and control



The Noodle.ai Product Quality AI (PQAI) application is designed for manufacturing companies looking to improve product quality and with a high current cost of quality.

The PQAI application combines input material/component data, process parameters, equipment information, production schedule, operator information and quality measurements. The application's Machine Learning models use this data to predict downstream product quality, identify drivers of quality deviations, and recommend optimal controllable process settings to reduce those deviations.

With these AI-driven predictions, diagnoses and recommendations, manufacturing operations teams can improve yield and profitability.

Key Features

Prediction of Yield and Cost of Quality

Predict expected yield and cost of quality based on planned schedule

Advanced Defect Prediction

Predict probable defects in intermediate product/processes

Quality Risk Attribution (Diagnosis)

Extract and weight the key drivers of the predicted quality risks

Quality Risk Mitigation (Control)

Recommend process/equipment settings to achieve target quality metrics

Scenario Analysis

Configure process parameter combinations and observe associated impact on quality metrics

Operational Context

Evaluate operating modes, crews, input types, and environment as part of plant simulation model

Application Details



YOUR FACTORY

Internal Data

- Process parameters (control settings, sensor actuals)
- Quality targets & measurements
- Production schedule
- Equipment (type/utilization) & crew ID data

External Data

- Weather, traffic, geo data



NOODLE.AI

Enterprise AI® Platform

- Sense | Current operating regime of manufacturing process, batch, equipment
- Predict | Intermediate and end-of-line product quality (surface, physical, dimensional, compositional)
- Recommend | Process settings to improve quality distribution



YOU

PQAI Application Interface

- Monitor | Overview of defects and process variance summary
- Risk | Real-time quality risks by process/batch, including value-at-risk
- Mitigate | Key drivers of quality risks along with recommended settings to mitigate

Key Differentiators

Prediction, Diagnosis and Control

PQAI not only models plant/process dynamics and predicts quality issues but also identifies drivers of quality issues and recommends actions to resolve. Predictions, diagnoses and recommended actions can be consumed via dashboards or directly integrated with factory controls

Advanced AI/ML Techniques

Production process modeling and optimization is done via a combination of deep learning, Bayesian modeling and reinforcement learning

Reusability & Scalability

PQAI serves as a layer of intelligence on top of existing MES (OEE, Track & Trace) and CMMS, allowing data from those systems to be leveraged. Enterprise AI® Application Trainer enables the same model to be deployed – with feature changes and hyperparameter tuning – across permutations of plants, lines, and products

Ongoing Improvement

Quality predictions and recommendations improve with additional data gathered during production or testing

Benefits

	6-8% reduction in total cost of quality
	15-25% reduction in scrap & rework
	15% decrease in inspection and root-cause analysis
	20-30% decrease in quality variability



Noodle.ai is on a mission to create a world without waste. As the leading source of Enterprise AI®, we're pushing the limits of data science to give business leaders a view into the future, enabling them to achieve radical efficiency within their manufacturing and supply chain operations.

Founded in 2016, Noodle.ai has been selected the #1 B2B Startup by LinkedIn, a Top 100 Startup by CIO Review Magazine, and a 2019 Cool Vendor for AI in Supply Chain by Gartner.

