Non-destructive quality prediction with AI (Improving quality and productivity)

Data Science Tool MELSOFT MaiLab

Do you not want to ship products with confidence?

Quality cannot be measured without destructive testing.

➤ **Identifying workpieces with a high likelihood of defects using data analysis**

- Real-time diagnostics of production process data to pinpoint products with high potential for defects.

I'm not sure how to establish the OK/NG judgment criteria

➤ **AI automatically constructs the judgment rules**

- AutoML features assist in data analysis by automatically creating AI models, even without knowledge of data analysis.

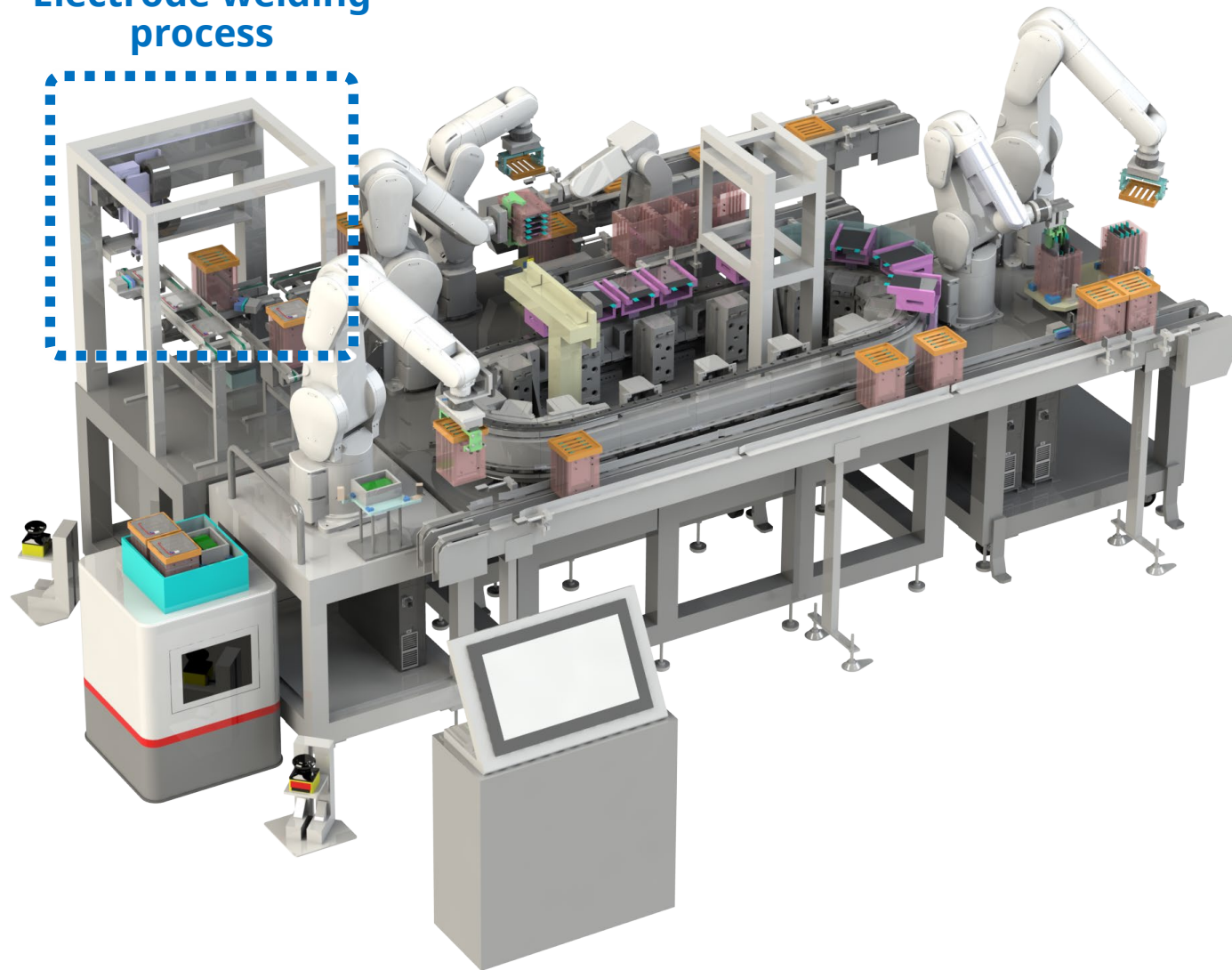**Few defective products and insufficient accumulation of abnormal data**

➤ **Decision rules can be constructed using only normal data.**

- Decision rules can be constructed using only normal data.
- We automatically create an AI model that detects 'unusual' patterns in the good product data.

MITSUBISHI ELECTRIC
Changes for the Better

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MELSOFT MaiLab is the solution!

Electrode welding process

MELSOFT MaiLab

MELSOFT MaiLab　診断端末モニタ[Local diagnosis terminal]

TOP ＞ １０１７

AI実行状況

１０１７　　　　　　　　■ １０１７_DIAG　■ 比較条件値　■ 異常検知箇所

判定結果

OK

タスク実行状況

入力　処理時間　**1** ms
収集処理時間　■ 入力　■ 収集周期
バッファ使用量

AI　処理時間　**2** ms
診断結果
AI診断結果割合

出力　処理時間　**0** ms
診断処理時間　■ AI　■ 出力　■ 診断周期

Before	In the electrode welding process, we have been monitoring the trend of defects by extracting samples from the initial, intermediate, and final products and conducting destructive testing (nugget diameter inspection) to ensure there are no defects.
After	By using parameters such as welding current during the welding process, we can identify products with a high likelihood of defects and remove them from the production line. This allows us to manage the quality trend without destructive inspection.

Automating the World

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What is MELSOFT MaiLab   Bringing AI to manufacturing. Achieving data utilization without specialized knowledge

Analysis without programming using AI

➤ **Easy to use without expertise in AI or programming**

MELSOFT MaiLab enables various data analysis applications using numerous machine learning and statistical analysis methods, including deep learning and multiple regression analysis, which incorporate AI capabilities. Moreover, it allows for easy implementation of data analysis solutions without the need for programming.

Perform offline analysis and real-time diagnostics within a single software

➤ **Can start small without going too big**

By utilizing a single software, it is possible to analyze production data in the office and use the analysis results for on-site diagnostics. So the learning model obtained from data analysis can be applied directly to the production site..

Provision of data analysis services

➤ **Get started right away with a reliable support system**

Our team of data analysts, who are familiar with in FA (Factory Automation), will provide support for your data analysis.
We provide "Data Analysis Support Service" to analyze your data, and "Data Analysis Training" to teach you the know-how of data analysis..

Concept diagram Data Science Tool MELSOFT MaiLab

Your AI Data Scientist,
will guide you on the journey.
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