



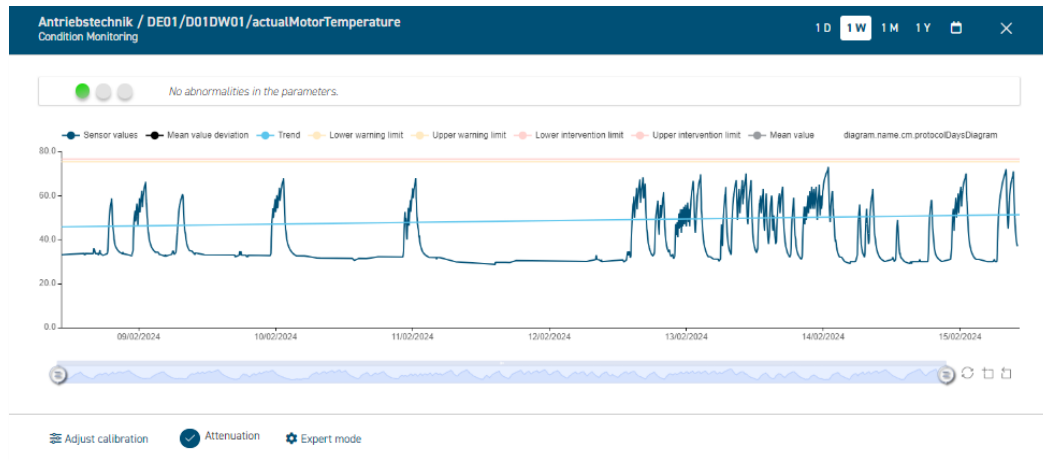
# AI Development

Chris Brooks

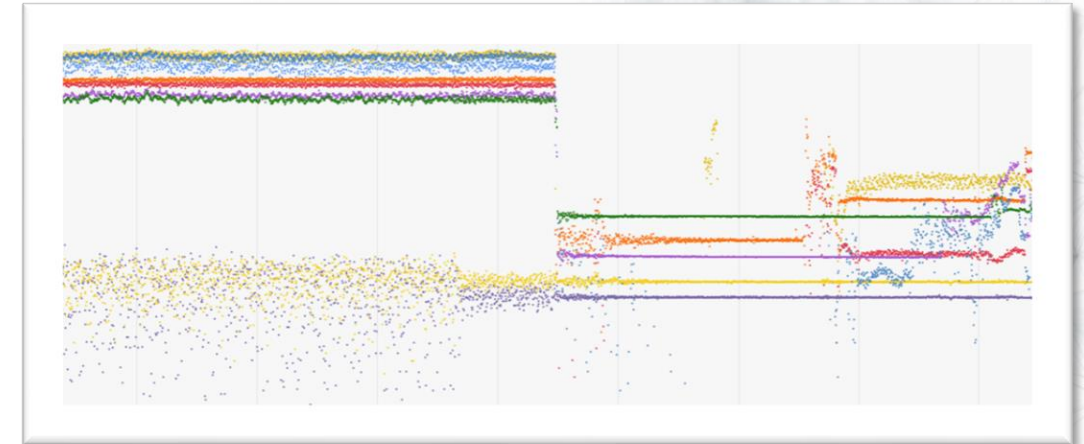
manroland Goss

# Condition Monitoring VS Artificial Intelligence

**CM** can work with **AI** and **AI** can replace classic **CM**.  
So why separate them?



- Condition monitoring was developed to monitor individual parameters and report history
- Artificial intelligence has the task of recording the correlations between many different parameters.

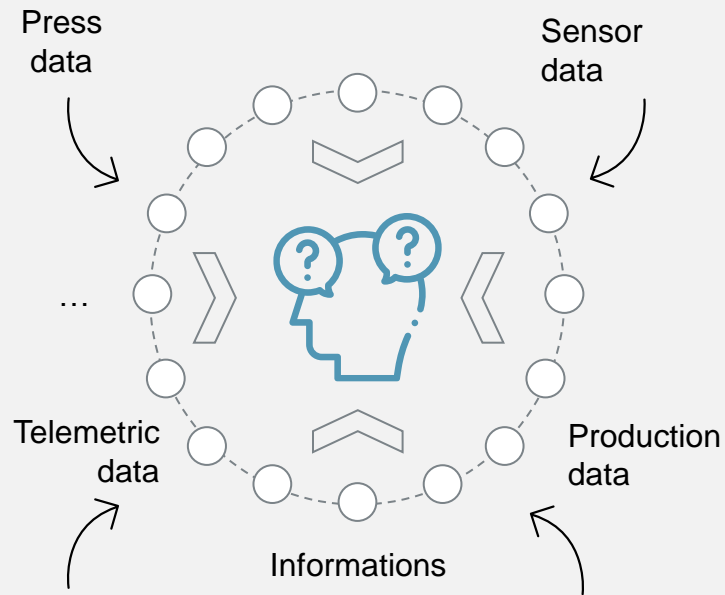


Expensive software for simple monitoring

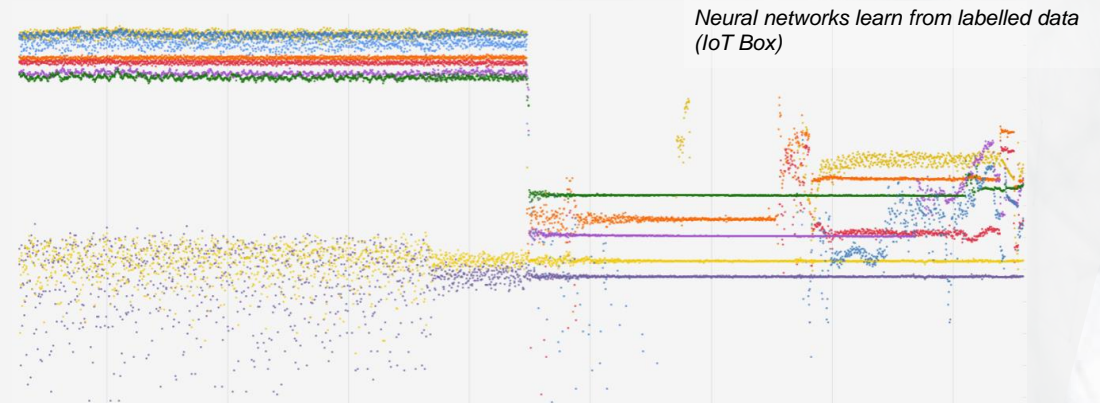
In future, AI will help the machine operator...  
The CM is a tool for maintenance

# AI\* Development

## The problem ...



- The use of AI makes it possible to analyze far more input parameters than humans can handle
- This eliminates the person-dependent view
- Using an AI means influencing variables are also evaluated that have very rarely or never had an impact
- The application automatically learns the normal working ranges of the parameters and monitors them constantly
- If a fault event occurs, a report with the unusual data is generated immediately
- With every malfunction, the system improves independently



# AI\* Development



**IoT Box**  
collects data  
(press data,  
environmental  
data)



**MAINTELISENSE  
NEXT GEN**

Recognize symptom  
trends & show  
anomalies



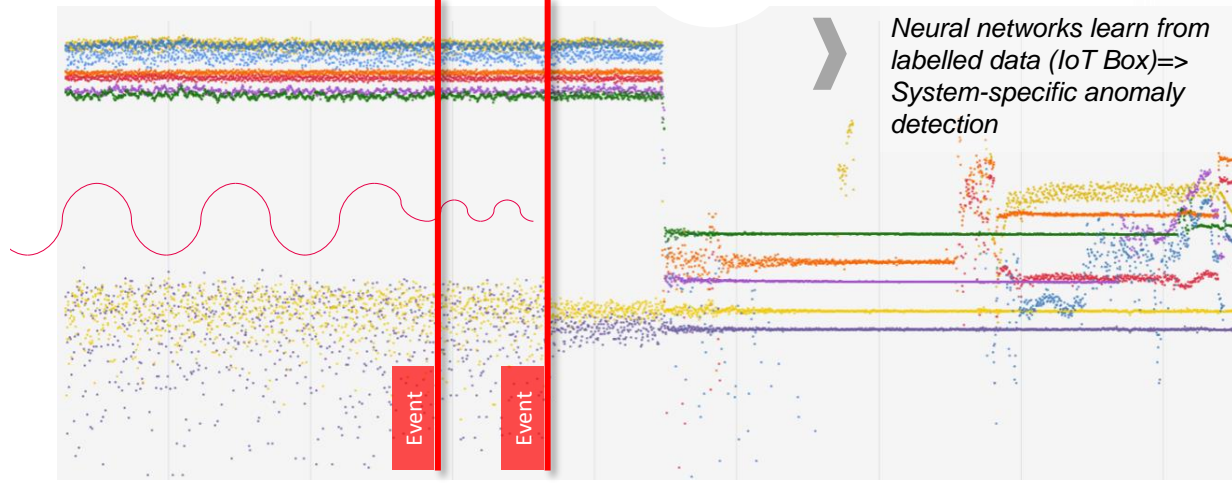
**External measured data**

e.g. Humidity, room temperature, compressed air, ink, water, gas, ...

**Internal measured data** e.g. log messages,  
motor characteristics, PLC status, ...



**Symptoms** (e.g. web breaks, waste rate at the start, ...)



AI monitors all data  
streams using search  
bots and neural networks  
and shows correlations

...



... so that early warnings  
are possible to drive  
maintenance activity, or  
prevent unwanted press  
condition



Expandability with any  
sensors/data possible



With more presses  
connected, benefits  
increase

# AI\* Development



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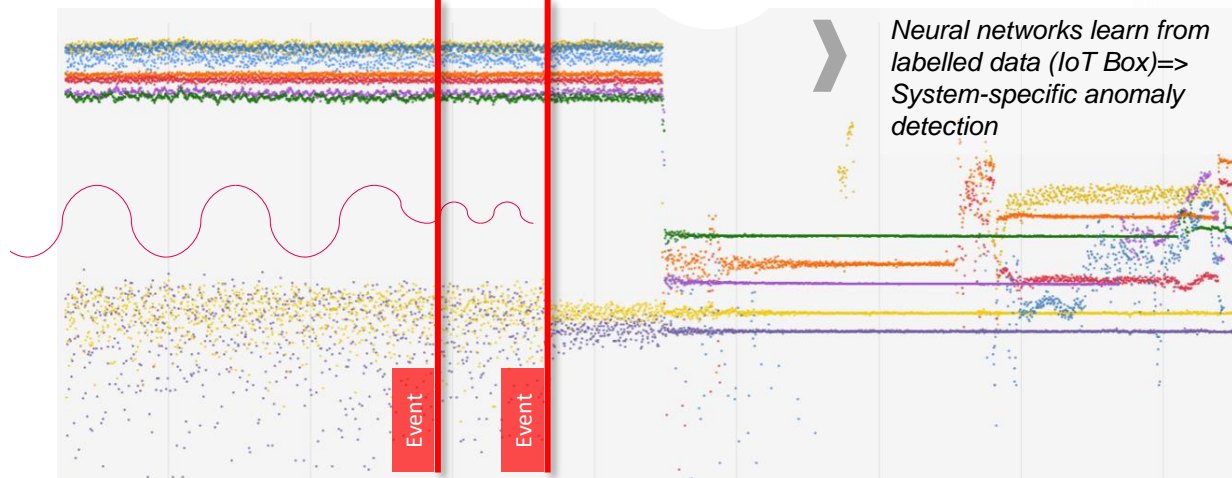
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**Symptoms** (e.g. web breaks, waste rate at the start, ...)



- Flow Sensors
  - Compressed Air
  - Water
  - Fountain Solution
  - Ink
- Temperature Sensors
- Vibration Sensors
- Power Measurements
- Pressure Sensors

## AI Benefits –increasing production demands

- Predictive, real-time press conditions.
  - Does the AI adapt to the conditions without input from the operator?
- AI answers the question “Why did that happen?”
- Predictive/Preventative Maintenance
- Maintenance Validation

## AI Challenges

- No “One Size All” model
- Limitations with what’s available in legacy equipment
- Like “Conditioning Monitoring” will it be utilized?





**Thank you**  
for your Attention.

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