AStrion
Automated Spectral analysis

A software solution for an automated condition monitoring

based on a advanced signal processing

brought to you by ASTRIIS
Towards zero failure

https://www.astriis.com

As industry 4.0 is developing, so is the demand for a reliable maintenance.

Unscheduled breakdowns increase operating costs due to repairs and production losses. But scheduled maintenance implies taking the risk of replacing expensive parts that are still fully operational, while neglecting other parts in spite of their failure.

Condition monitoring systems are the solution to optimize your maintenance plan and save costs. However, there are still **major drawbacks to their use:**

- Undetected breakdowns
- Lack of expertise in your company
- Time-consuming analysis
- System-dependent models
- Difficult to use

Furthermore, data volume is exponentially increasing due to the development of **IIOT systems**, but its automatic analysis remains a challenge .

As an answer to these recurrent challenges, AStrion provides a **smart and innovative solution able** to perform a fully automated preventive maintenance of every **rotating parts.**

Relying on an **expert-level automatic signal processing**, AStrion is able to **remotely** provide a diagnosis consisting in an early fault detection and localization followed by a severity tracking.

Its **user-friendly interface** ensures comprehensive diagnostics to operators and enhances the efficiency of analysts.

It is able to analyse **large datasets** and automatically monitor each part of a plant.
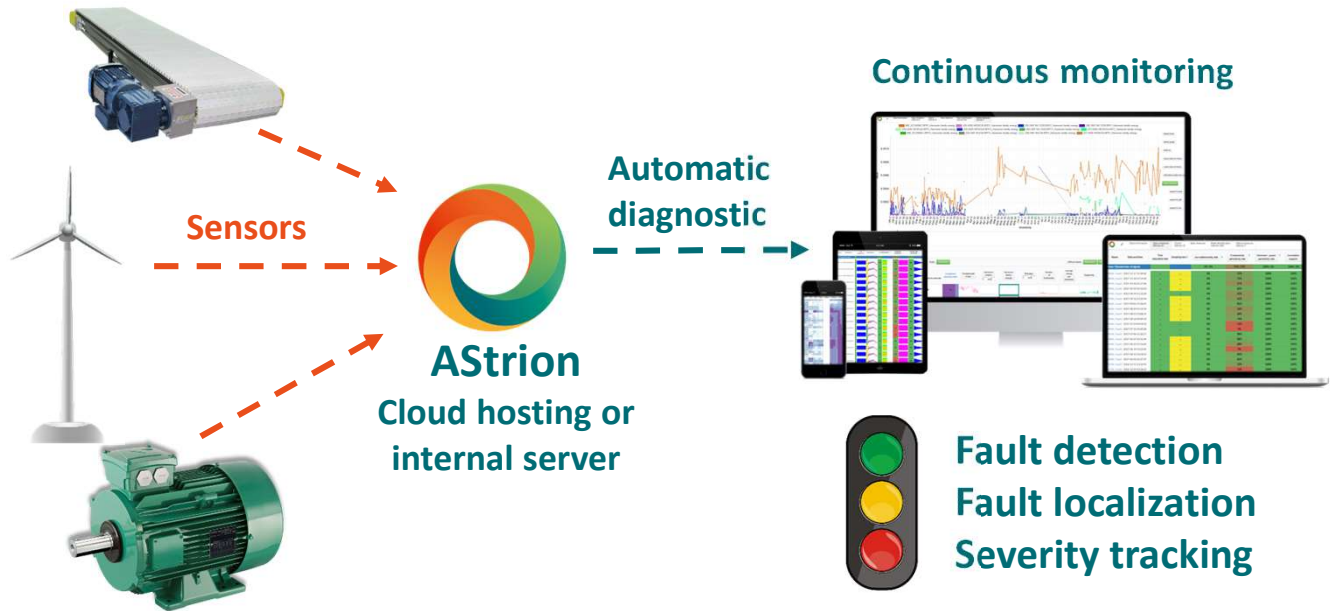
AStrion Benefits

👍 Automatic in-depth dataset analysis
👍 Expert-level signal processing
👍 Remote online diagnosis
👍 No need for historical datasets
👍 User-friendly interface
👍 Reduction of false alarms

See the AStrion teaser
https://www.youtube.com/watch?v=nXlkp7gJaOE&t=8s

![AStrion - Automated Spectral analysis]

Sensors

AStrion
Cloud hosting or internal server

Automatic diagnostic

Continuous monitoring

Fault detection
Fault localization
Severity tracking

As signals are collected and transferred to the **AStrion server**, the software performs automatically the calculations in **3 steps**

For each signal

1 - Data validation and pre-processing	• **Pre-processing:** Angular resampling • **Data validation:** Saturation, Sampling, Stationarity, Periodicity tests
2 - Expert level spectral analysis	• **Peak Identification:** High frequency resolution analysis, Peak detection • **Harmonic & sideband grouping** • **Kinematic association** • **Demodulation** • **Feature calculation**

For the full dataset

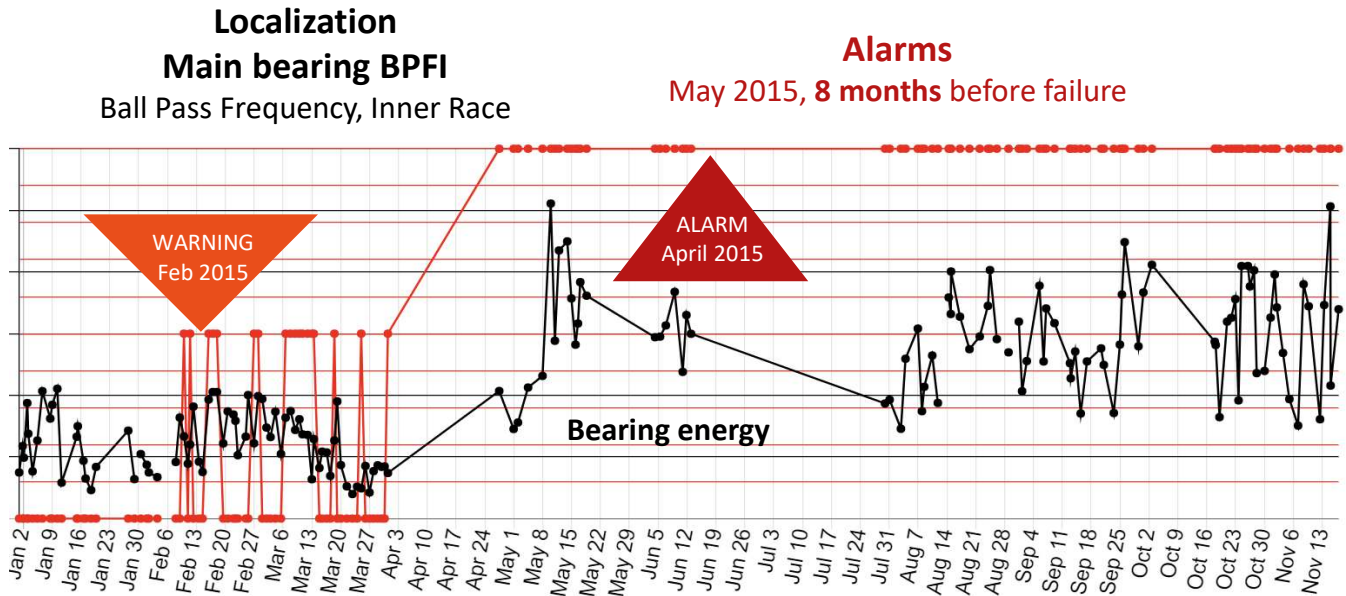| 3 – Feature tracking and diagnostic	• **Generation of time-frequency trends** • **Alarm raising:** Severity assessment

The **trends** are representative of the system health. If a part of the system is degrading, their evolution will reveal it. **Machine learning algorithms** are used to focus the attention only on symptomatic trends. These algorithms use the current dataset and do not need historical data.

Use Case: Wind turbine monitoring

The main bearing of wind turbine broke in December 2015.

A posteriori analysis by AStrion

Localization
Main bearing BPFI
Ball Pass Frequency, Inner Race

Alarms
May 2015, **8 months** before failure

WARNING
Feb 2015

ALARM
April 2015

Bearing energy

Interested?

Our offers

- **An online license via ASTRIIS cloud**
- **An offline license on your private server**
- **A service for comprehensive AStrion reports of your data**

Included services

- **Tailoring to your data format**
- **Training sessions**
- **Updates and Assistance**

Become a partner
Integrate AStrion in your offer

- **CMMS / EAM editors**
- **Data acquisition system**
- **Connected sensors**
- **Maintenance services**
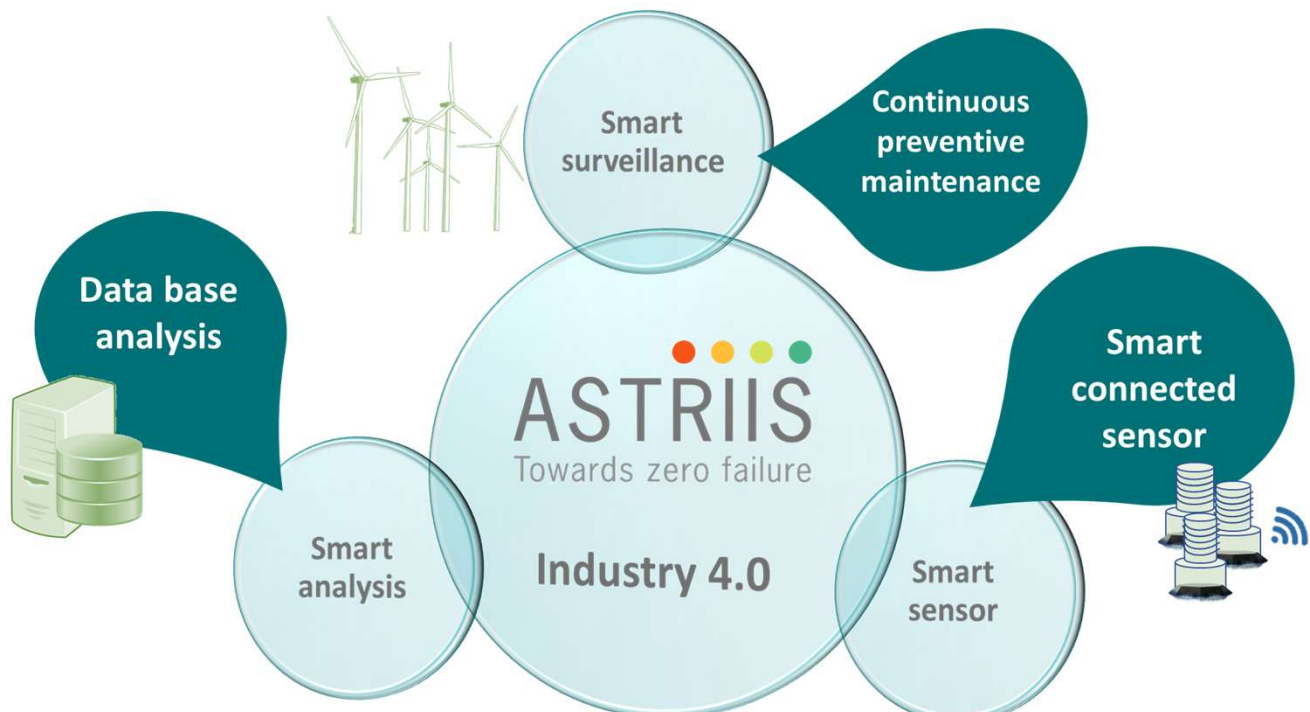
A French deeptech startup

After **30 years of research** in the French National Scientific Research Centre (CNRS), we decided to transfer our **high-level expertise in signal processing applied to condition monitoring** to the industry. The software AStrion was jointly created by GIPSA-lab in Grenoble and IRIT in Toulouse.

Supported by LINKSIUM, the startup called ASTRIIS aims to provide tools and services for condition preventive maintenance.

Our ambitions

- Make advanced monitoring techniques accessible to non-experts
- Assist mechanical experts with an automated signal processing

They trust us

EDF DTG — L'UNITÉ DE MESURE ET D'EXPERTISE

VALEMO — exploitation & maintenance EnR

NTN — SNR

MORPHOSENSE

OROS — MEASURING NOISE & VIBRATION

bluetwin

TotalEnergies — OneTech R&D Wind Program

Avoid undetected breakdown

Reduce maintenance cost

Easy installation

Get in touch with us ✍

Nicolas SAUBIN	**Nadine Martin**	**Paul ROY**	**Pascal GAIN**
CEO	CSO	CTO	CCO
Engineer & Entrepreneur	Expert in signal processing applied to fault detection	Project Management (Scrum, kaban..)	International Business Development, B2B Marketing +33 6 74 82 42 12
nicolas.saubin@astriis.com	nadine.martin@astriis.com	paul.roy@astriis.com	pascal.gain@astriis.com

Strategy & Fundings

Mechanics , vibration, Signal Processing

Technical Development, Infrastructure

Sales & Business Development