

## A software solution for an automated condition monitoring

based on a smart 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 **interface** ensures comprehensive diagnostics to operators and enhances the efficiency of analysts.

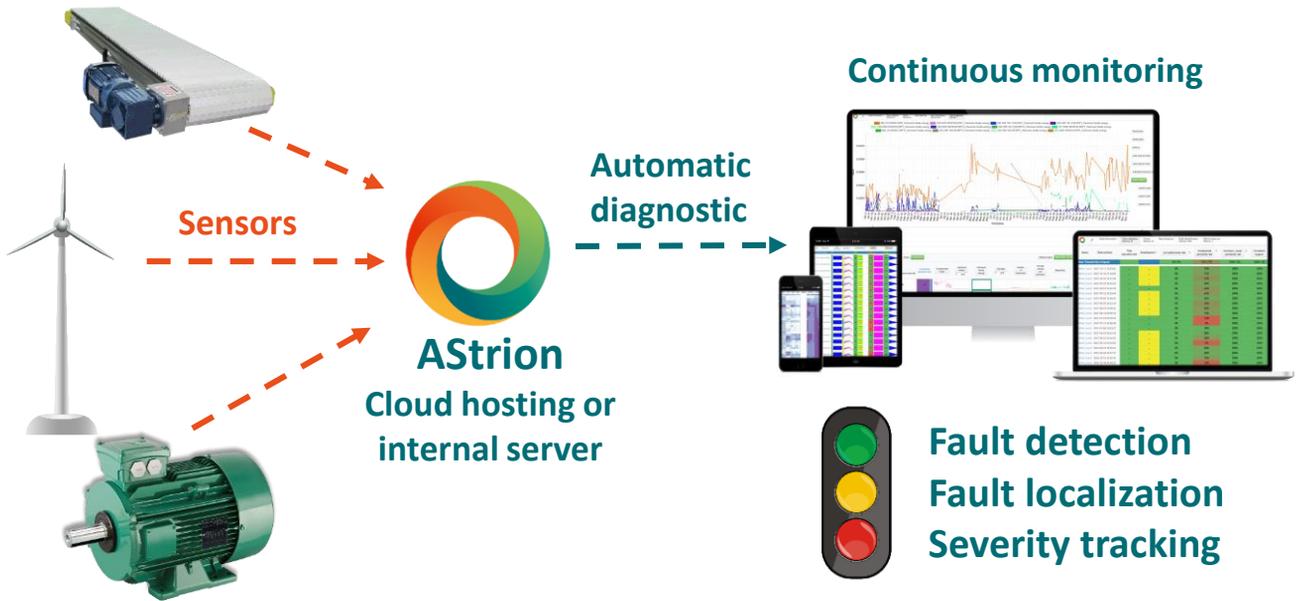
It is able to analyse **large datasets** and automatically monitor each part of a plant.

### **AStrion Benefits**

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



See the AStrion teaser  
<https://youtu.be/z6tcjSJOeys>



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

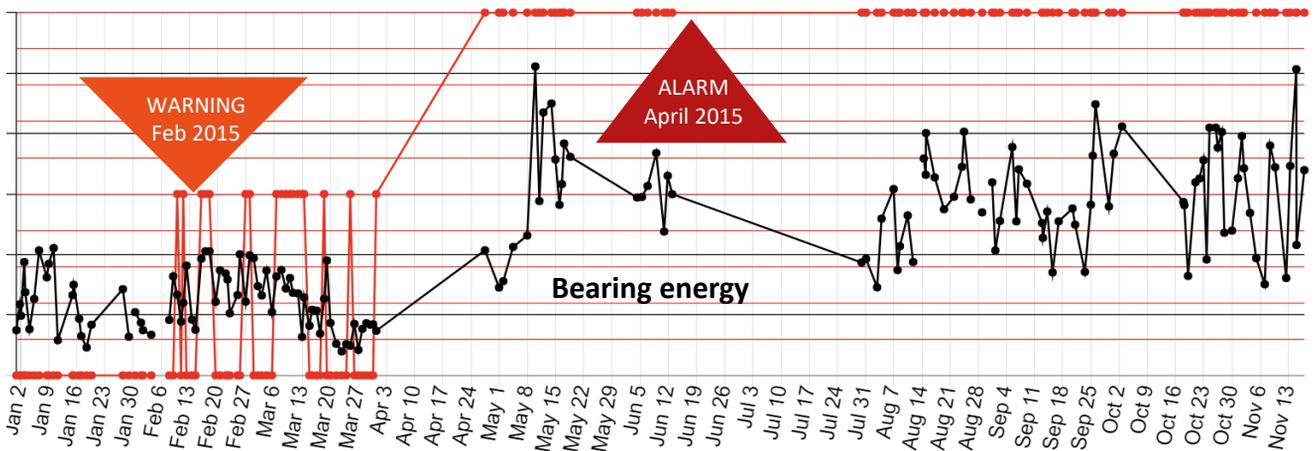
## Localization

### Main bearing BPFI

Ball Pass Frequency, Inner Race

## Alarms

May 2015, **8 months** before failure



## Interested?

### Our offers

- An online license via ASTRIS cloud
- 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

- GMMS
- Data acquisition system
- Connected sensors
- Maintenance services



# ASTRIIS

Towards zero failure

Our team  
Our company  
Our history

## A French deeptech startup

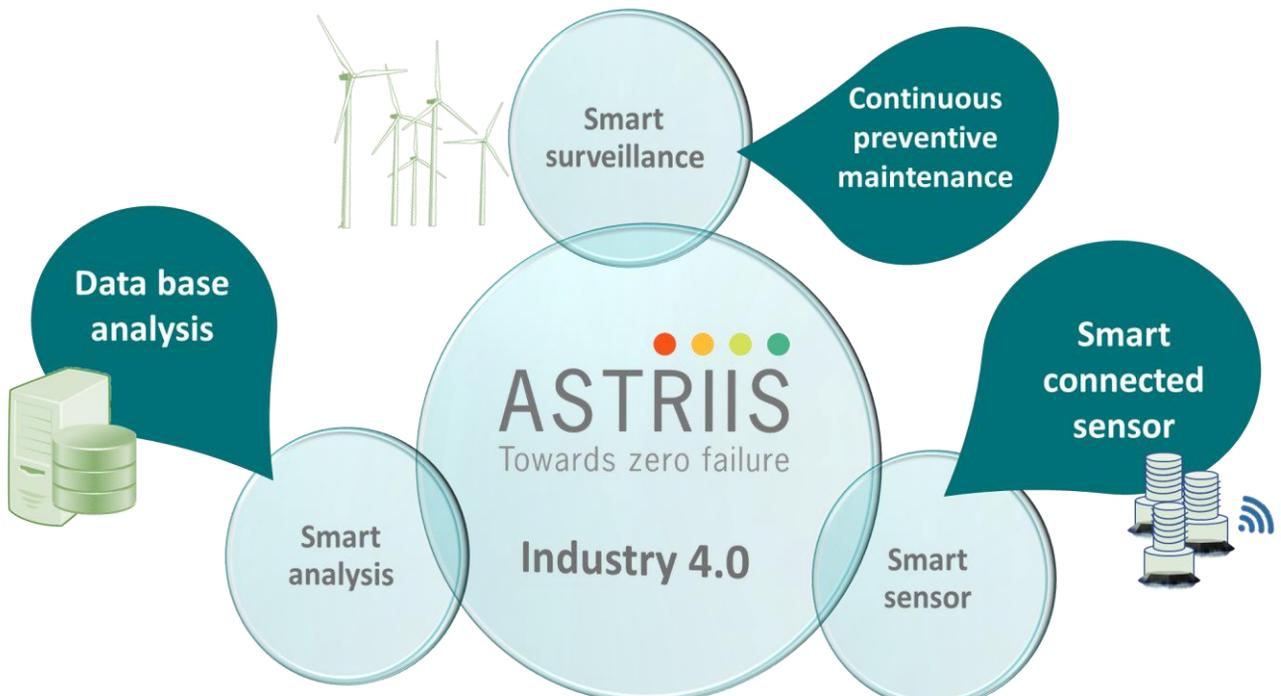
After **30 years of research** in the French National Scientific Research Centre (CNRS), we decided to transfer our **high-level expertise in signal processing applied to condition monitoring** to the industry. The software Astrion was jointly created by GIPSA-lab in Grenoble and IRIT in Toulouse.

Supported by LINKSIUM, we are currently building a startup called ASTRIIS with the aim of providing 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



Avoid undetected  
breakdown



Reduce  
maintenance  
cost



Easy  
installation

Get in touch with us 

[contact@astriis.com](mailto:contact@astriis.com)