

# Anomaly Detection - Exercise

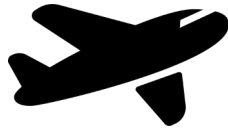
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Algorithms in Machine Learning, ISAE-SUPAERO

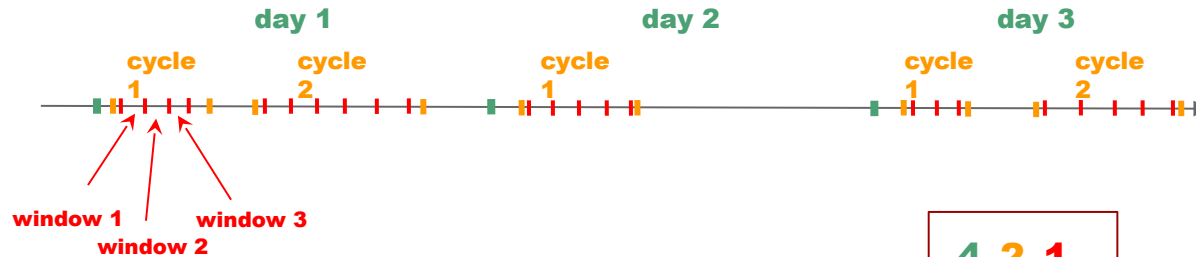
*Jérémy Pirard*  
*Data Scientist*  
*Airbus Commercial Aircraft*

# The dataset

Aircraft systems are recording values of parameters such as speed, temperature, pressure, electrical current values...



**11 parameters  
recorded:  
p1, p2, p3, ..., p11**



**Window = section of  
measures, up to 100 points**

**1 parameter "day\_cycle\_window" :**

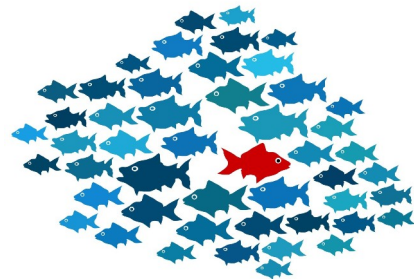
**4\_2\_1**

**day 4, cycle 2,  
window 1**

# The question

An aircraft system expert comes to see you (data scientist) with this dataset, and asks you to:

**“Build an algorithm to detect windows that are abnormal.”**



- 1/ With this information and no more, formulate the problem, and tell him what is feasible and what is not.
- 2/ Develop an approach to answer his question in the best way possible.
- 3/ Present your findings to the expert, in a way he can understand and help you validate your results...

**Good  
Luck**



# Other interesting datasets

- **1/ KDD Cup 1999: network intrusion detection - famous, OK but balanced dataset**

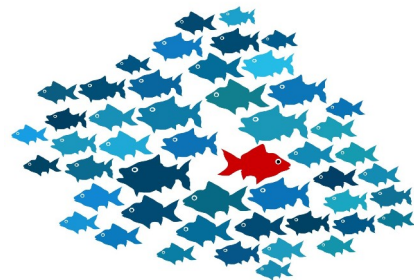
<http://kdd.ics.uci.edu/databases/kddcup99/kddcup99.html>

- **2/ Large collection of datasets on different tasks and data types:**

<http://odds.cs.stonybrook.edu/>

- **3/ Numenta Anomaly Benchmark - generated dataset, but used for detailed benchmark:**

<https://github.com/numenta/NAB>



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