

Philéas: Anomaly Detection for IoT Monitoring

Alberto Franzin, Raphael Gyory, Hugues Bersini
 Jean-Charles Nadé, Guillaume Aubert, Georges Klenkle
 {afranzin,raphael.gyory,bersini}@ulb.ac.be, jcnade@gmail.com, gaubert@degetel.com, gklenkle@eugeka.com

IRIDIA, Université Libre de Bruxelles
 Degetel Belgium

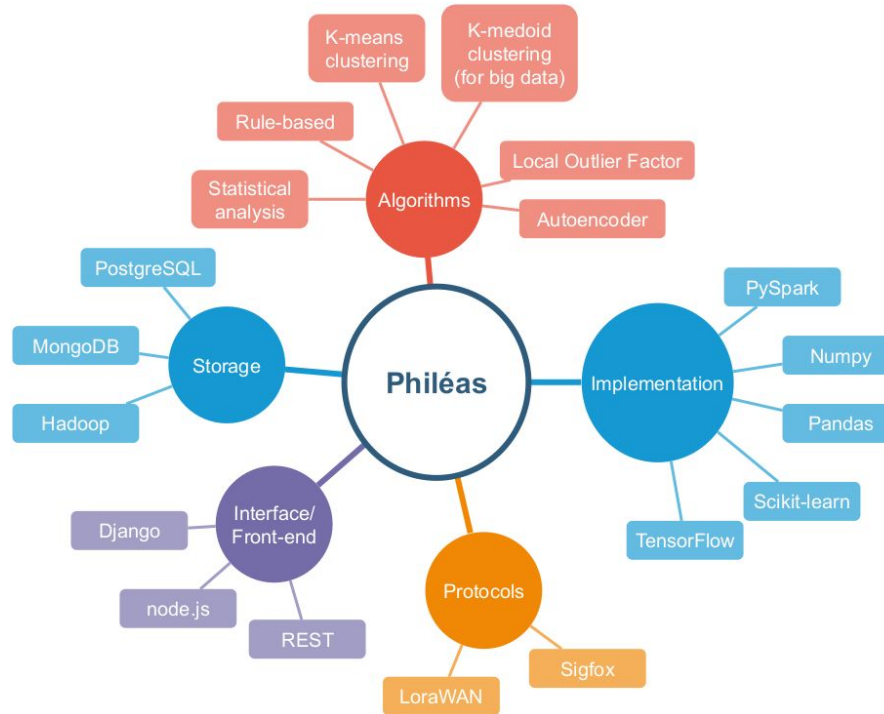
IoT technologies are at the center of the 4th industrial revolution, and come with a huge potential, enabling the collection of Huge amounts of data.

But they also present several challenges: device and network failures, attacks, etc.

Philéas answers a request from the market, and provides a tool for Degetel clients to assist them in the monitoring of their IoT infrastructure from a centralized perspective, spotting or predicting potential issues using Anomaly Detection techniques.

Philéas is an Innoviris-funded project between IRIDIA and Degetel Belgium, whose goal is to bring an AI-based product to the market, and to investigate the use of advanced ML models for IoT metadata.

Philéas is a framework from which it is possible to instantiate a customized application for each client and their specific case.



At the moment we support 2 IoT protocols: LoRaWAN and Sigfox.

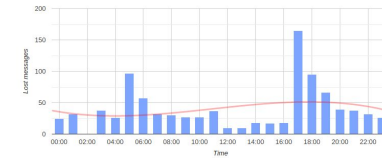
Philéas is designed to be easily extendable to include other protocols and algorithms.

We show an example using the case of Shayp www.shayp.com that uses IoT for intelligent water monitoring.

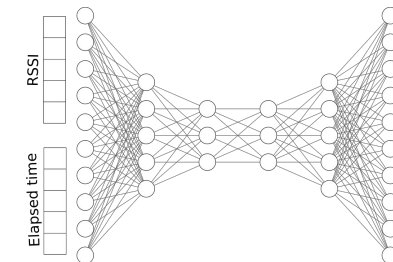
Network Overview

Daily	Weekly	Monthly
Network Health	Bail Devices	Lost Packages
99.99%	4	453

Device ID	Average Periodicity	Average RSSI	✓	✓	▲
3D8260	12h 03min	-160	✓	✓	▲
E646R3	1h 32min	-136	✓	✓	▲
F32T06	0h 42min	-132	✓	✓	▲
7F7521	3h 50min	-112	✓	✓	▲



We implement an autoencoder NN based on the metadata of the received Sigfox packets.



Philéas