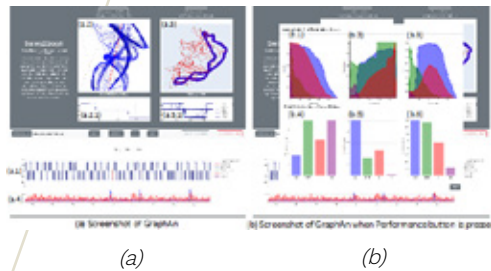**ERGANEO**
L'AVENIR EST FAIT D'AUDACE

SERIE2GRAPH

Automated (unsupervised) subsequence anomalies detection in a time series.

PRESENTATION

Automatically determine the health of a system, equipped with sensors, by detecting and graphically representing subsequence anomalies in a time series, without prior knowledge of the system.

(a)   (b)

(a) Main frame of the proof of concept (web app) applied on simulated data series (a.1). Illustration of the computation steps (a.2 and a.3) and the anomaly score (a.4).
(b) Accuracy comparison between Series2graph (in blue) and other anomaly detection methods.

Anomalies - Subsequence anomalies - Outliers
Time series - Data series

APPLICATIONS

- Internet of Things
- Operations monitoring: aeronautics, automobiles, railways
- Industrial production site monitoring
- Control systems such as SCADA
- Health: monitoring physiological parameters
- Finance: fraud detection
- Computer data center operation health monitoring

DEVELOPMENT PHASE

- ☑ Proof of concept based on large set of synthetical and real datasets

COMPETITIVE ADVANTAGES

- No prior knowledge of the domain and anomaly characteristics
- No need of labeled instances (unsupervised method)
- Identification of anomalies of varying lengths
- Identification of single and recurrent anomalies of various types
- High accuracy and fast computing method

INTELLECTUAL PROPERTY

Patent application filled on May 2020

PUBLICATIONS

Paul Boniol and Themis Palpanas. Series2Graph: Graph-based Subsequence Anomaly Detection for Time Series. PVLDB, 13(12): 1821-1834, 2020.
Paul Boniol and Themis Palpanas and Mohammed Meftah and Emmanuel Remy. GraphAn: Graph-Based Subsequence Anomaly Detection. PVLDB, 13(12): 2941-2944, 202

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