OptiPLANT: Event Correlation and root-cause analysis for optimised industrial predictive maintenance

GOALS

- Verify existing resource outcomes for industrial event correlation using computational resources in a real setting.

- Developed a bulletproof, fully validated software that can further be exploited commercially as a product.

- Apply the results to other industries.

CHALLENGES

- To adapt and extend conventional event analytics to comply with and fulfil the Fed4FIRE+ technical and operational requirements.

- To integrate event correlation algorithms with Fed4FIRE+ and use Tengu in terms of condition-based maintenance and diagnosis.

- To provide a set of best practices and practical recommendations to wireless network experimenters, especially for domain of health monitoring of the industrial system.

DEMO SETUP

- Tengu - big data (imec)

- Kubernetes instance on Vmware cluster
    - Minio pod
    - Jupyter notebook pod
    - Apache Spark pod

- Input: ~200GB raw sensor data

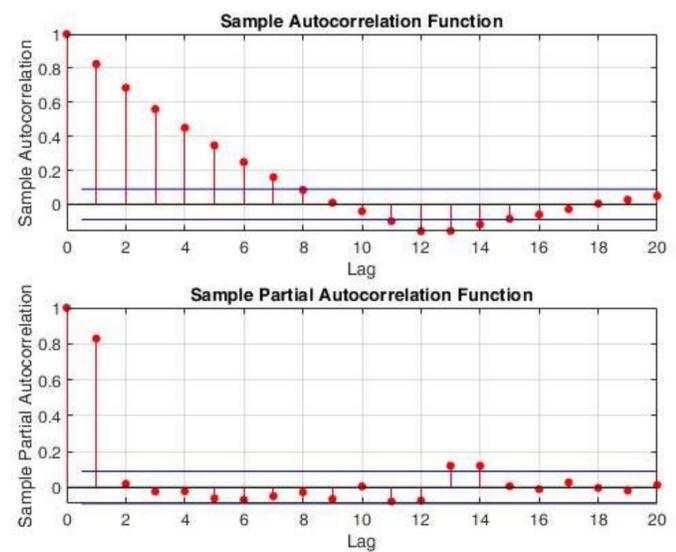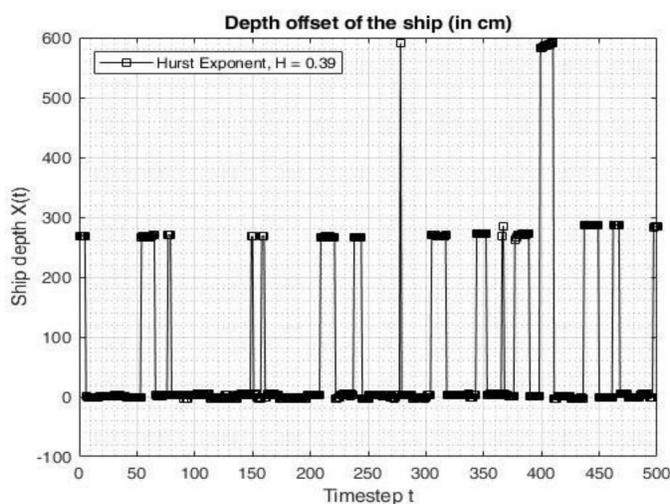- Scenario: Event correlation & root cause analysis

RESULTS

Measurements – Precision & Recall
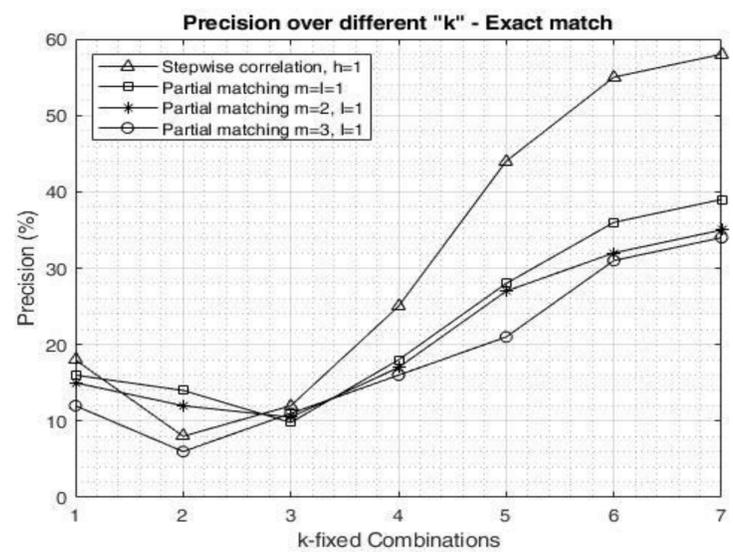
MORE RESULTS

Measurements – Hurst Exponent & Autocorrelation

CONCLUSIONS

- Validation of a real business-driven scenario

- The importance of an event correlation and root cause analysis in the industrial domain.

- The results can be applied to other products/industries.

POST MORTEM

- Incorporate the added value within our current products.

- Publish the results and allow big commercial players to take advantage of optimized fault diagnosis and performance in terms of minimized system failures.