

All ▾



ADVANCED SEARCH

Conferences > 2020 8th International Confer...

Back to Results

# PMU Time Series Module Adapted for Reduction of Dark Data and the Ensuing Enhanced Analytics for Higher Quality Yields of Ethanol Fuel Production

Publisher: IEEE

Cite This

PDF

Steve Chan ; Ika Oktavianti ; Parnmook Nopphawan All Authors



## Abstract

### Document Sections

- I. Introduction
- II. Background Information on Time Series Module
- III. Background Information on Ethanol
- IV. The Challenge of Fusing Telemetry Sensor Datastreams for Correlation
- V. PMU/PDC TSM for Reducion of Dark Data

Show Full Outline ▾

Authors

Figures

References

Keywords

## Abstract:

To maintain a positive energy balance (i.e. the process of producing ethanol fuel in a way that does not require more energy than the amount of energy contained in the fuel itself), it is crucial to have consistent ethanol quality and yield rates. This is predicated upon high-quality, real time measurement data for various parameters (e.g. moisture levels in the soil, temperature, etc). Our specialized Time Series Module (TSM), which initiates and captures IEEE C37.118 datastreams and writes them to a specialized time series database (with an ultra-low ratio of data to errors, ultra-low data transformation error rates, and ultra-low dropped and/or malformed frames) can facilitate the reduction of dark data (data that is unable to be used effectively due to data quality problems) by way of these value-added propositions: rolling window technique that allows for data being rewritten, as more ideal samples are found; a rolling aggregate technique that enhances raw sensor telemetry datasets with machine learning-driven feature engineering; and a rolling correlation technique for multiple time series. This segues to enhanced analytics in the ethanol production process, which leads to the required consistent qualitative controls and quantitative yields for a positive energy balance for ethanol.

Published in: 2020 8th International Conference on Condition Monitoring and Diagnosis (CMD)

Date of Conference: 25-28 Oct. 2020

DOI: 10.1109/CMD48350.2020.9287175

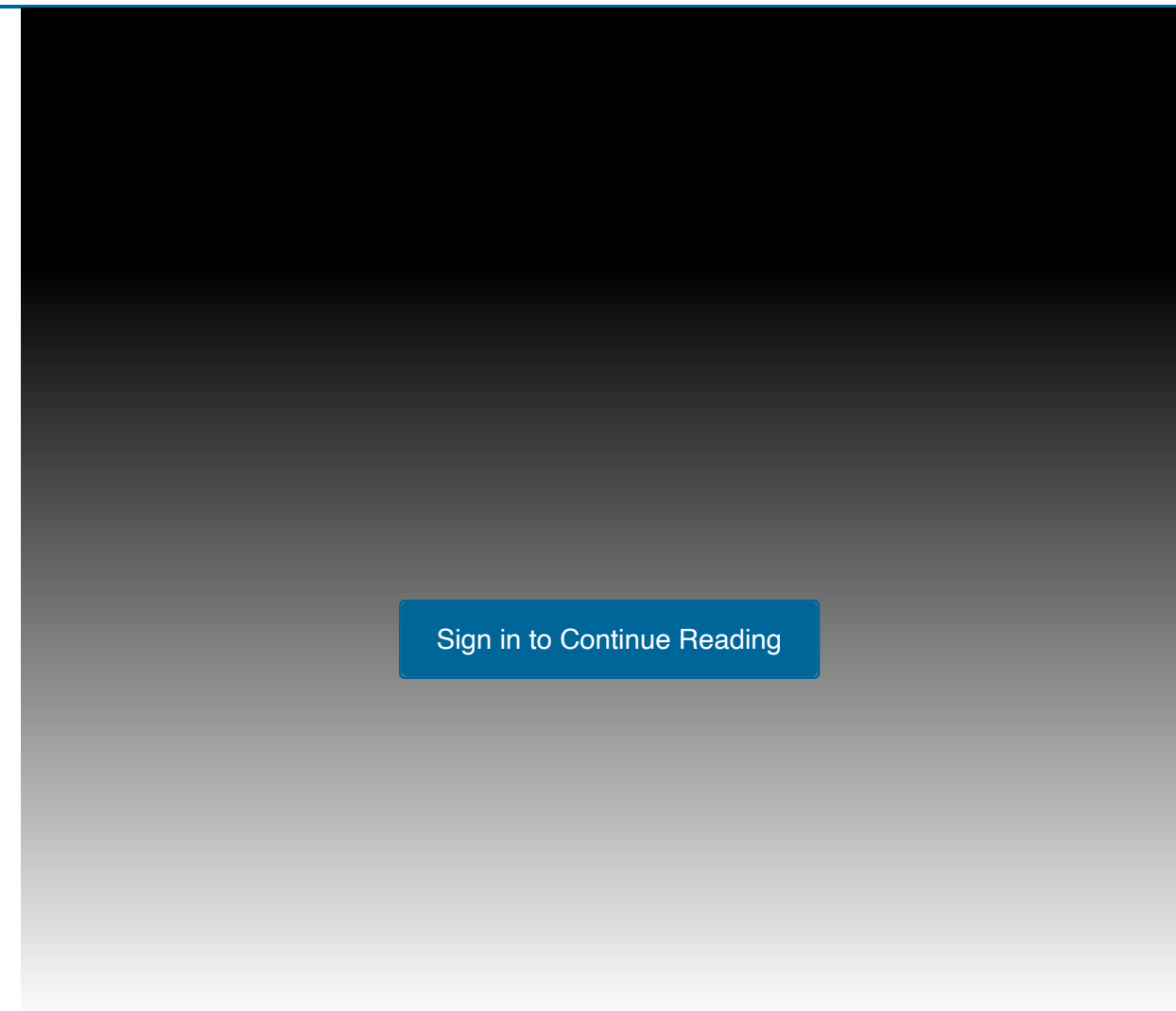
Date Added to IEEE Xplore: 16 December 2020

Publisher: IEEE

► ISBN Information:

Conference Location: Phuket, Thailand

► ISSN Information:



Sign in to Continue Reading

Authors ▾

Figures ▾

References ▾

Keywords ▾

**Need Full-Text**  
access to IEEE Xplore for your organization?  
**CONTACT IEEE TO SUBSCRIBE >**

### More Like This

Noise Cancellation Method of the Telemetry Signal Based on Time Series Analysis  
2015 International Conference on Computer Science and Mechanical Automation (CSMA)  
Published: 2015

Fuel ethanol production from corn cob using dilute acid pretreatment and separated saccharification and fermentation by fed-batch strategy  
2013 International Conference on Materials for Renewable Energy and Environment  
Published: 2013

Show More

**Discover the powerful new API**

IEEE Xplore® Digital Library

**API**

Register now ^

### IEEE Personal Account

CHANGE USERNAME/PASSWORD

### Purchase Details

PAYMENT OPTIONS

VIEW PURCHASED DOCUMENTS

### Profile Information

COMMUNICATIONS PREFERENCES

PROFESSION AND EDUCATION

TECHNICAL INTERESTS

### Need Help?

US & CANADA: +1 800 678 4333

WORLDWIDE: +1 732 981 0060

CONTACT & SUPPORT

### Follow

