IEEE WG on Big Data & Analytics for Transmission Systems

Register to receive more information and news of our activities

Officers
Rafael Segundo (Chair)
Yanli Liu (Vice-Chair)
Emilio Barocio (Secretary)
Petr Korba (Secretary)

Subcommittee on Big Data & Analytics for Power Systems

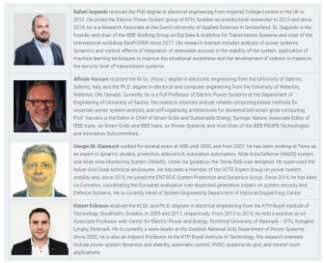
Update of General Activities 2023

Successful Events

- **25-29 June 2023, IEEE PowerTech, Belgrade, Servia**
  - Special Session:

    "The role of Big data and AI for the secure operation of transmission systems"

    Thursday 29th June 2023, 15:30-17:00.



- **16-20 July 2023, IEEE PESGM, Orlando**
  - Chairs: Mladen Kezunovic and Rafael Segundo

    "Application of Big Data and AI/ML in monitoring, operations, planning and protection"

    Wednesday 19th July 2023, 10:00-12:00

23PESGM2707-Topology aware Machine Learning for Transmission System Operation
Patrick Panciatici; RTE

23PESGM2708-Machine Learning Based State Estimation for Transmission Systems
Evangelos Farantatos; Electric Power Research Institute

23PESGM2709-ML-Assistant For Human Operators in Processing Power System Alarm Data
Ricardo Bessa; INESC TEC

23PESGM2710-Application of Real-Time Digital Twin Simulation with WAMS for Dynamic Security Improvement of Power Systems
Jaime Cepeda; CENACE

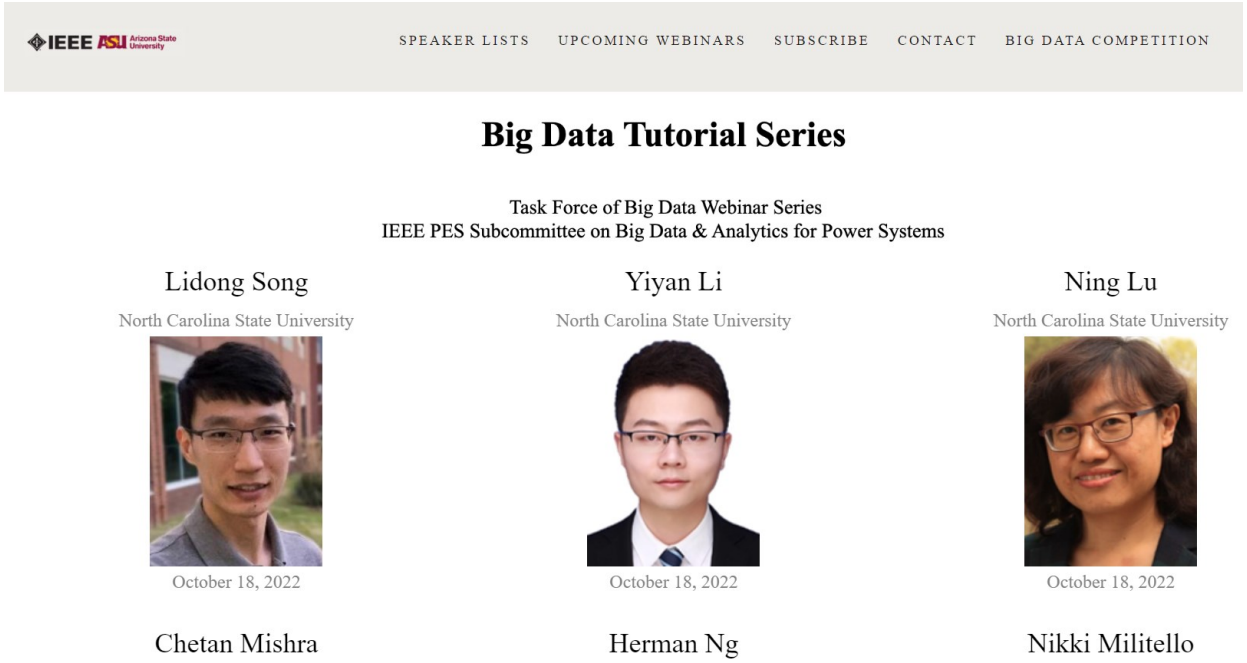
23PESGM2711-Koopman operator techniques applied to data analytics in transmission systems
Yoshihiko Susuki; Kyoto University

23PESGM2712-Machine Learning to Prevent Blackouts in Power Systems
Jochen Cremer; TU Delft, The Netherlands

23PESGM2713-Early Warning and Prevention of System Stability Problems
Hjörtur Jóhannsson; Technical University of Denmark

Launched a Call for Webinar Speaker

- Launched a call to find a potential speaker within the WG for the **IEEE WG on Big Data Webinar Series** (call was not open for everyone)
- After receiving proposals, the WG officers forward he best candidate to officers of IEEE WG on Big Data Webinar Series
  - 3 applications were received, one forwarded to WG officers
- The successful candidate presents a Webinar following the guidelines and forms of the host WG



Timeline

- Deadline : **30 June 2023**
- Notification to successful candidate: 23 July 2023 (after PESGM)
- Webinar Date: To be scheduled by Chair of the Big Data Webinar Series

Submitted Paper for Conference

Summarized version of TR-104

Dear Rafael Segundo,

This is an automatically generated email to confirm your abstract for the **ISGT IEEE Congress** has been submitted successfully.

Please find below details about your submitted abstract:
Title: **Spatio-temporal Data-Driven and Machine Learning based Applications for Transmission Systems**
Submission ID: **A8772RS**
Session: **Innovative methods and tools for power systems - Data science for power systems: the use of artificial intelligence for smart grids edge computing and autonomous control#Innovative methods and tools for power systems - Digital twins and computer modelling**
Type of presentation: **Oral presentation**

Please note that you will be able to modify your abstract until the submissions closing date: **April 17th, 2023.**
After this date, no further modifications will be possible.
The notification will be sent on **July 21st, 2023.**

For any queries, please do not hesitate to contact: isgt-europe2023@inviteo.fr

Thank you for your contribution.

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Acceptance or rejection of the paper by **21 July 2023**.

International Workshop

- **25 September 2023, TU Delft, Netherlands**

  Registration, program and detailed information available in August 2023

Session 1: Stability Challenges of Transmission Systems Chairs: Rafael Segundo and Petr Korba, ZHAW, Switzerland			
Name	**Affiliation**	**Country**	**Status**
Jorrit Bos	TenneT	Netherlands	Confirmed
Thibault Prevost	RTE	France	Confirmed
Jaime Peralta	Coordinador Electrico Nacional	Chile	Confirmed
Kjetil Uhlen	Statnett	Norway	Confirmed

Session 2: Secure Low-Inertia Grids Through Intelligent Systems Chair: Jochen Cremer, TU Delft, Netherlands			
Name	**Affiliation**	**Country**	**Status**
Kati Sidwall	RTDS	Netherlands	Confirmed
TBD	National Grid ESO	UK	Invited
Aleksandra Lekic	TU Delft	Netherlands	Invited
Bri Mathias	NREL	USA	Invited

Official Sponsors 2023

Report of Subgroups Activities 2023

WG on BDA for Transmission Systems

Period of Time: 48 months (2023, 2024, 2025 & 2026)

Officers: Rafael Segundo (Chair), Yanli Liu, Emilio Barocio (Co-Chairs), Petr Korba (Secretary)

Working Group on

"Big Data & Analytics for Transmission Systems"

I. Application of BDA for advanced metering infrastructure
Lead: Mario Arrieta
UNAM, Mexico

II. Integration of data-driven solutions for low Inertia power systems
Lead: Jochen Cremer
TU-Delft, Netherlands

III. Real-time lab demonstrations and open access databases
Lead: Hector Chavez
USACH, Chile

1. Application of BDA for advanced metering infrastructure (Lead: Mario Paternina, UNAM, Mexico)

Activity 1- 2023: Development of Technical Report

- State-of-the-art on AMI (type of PMUs, PDCs, Clients and Servers), Methods for Modal Analysis (Data handling, clustering, inertia estimation) and applications (protocols, architecture, operation and visualization)
  - **Aim to have first draft before the end 2023**

Activity 2- 2023: Creation of contents for tutorials, panels, and didactic events

- Special Session "*Real-time simulation and Big Data & Analytic on Modern Power Grids*" with dedicated papers within the 2023 IEEE Autumn Meeting on Power, Electronics and Computing ROPEC 2023
  - **Papers to be presented 18-20 October 2023, Ixatapa, Mexico**

2. Integration of data-driven solutions for low Inertia power systems (Lead: Jochen Cremer, TU Delft, Netherlands)

Activity 1- 2023: Development of Technical Report

- State-of-the-art on data-driven methods for low Inertia Power Systems
  (Taxonomy of security, requirements, challenges, taxonomy of data-driven methods, training models, LI test networks and screening of available data)
  - **Aim to have first draft before the end 2023**

Activity 2- 2023: Design of test network and datasets

- To verify and study, data-driven approaches to stability on low-inertia systems

3. Real-time lab demonstrations and open access data bases (Lead: Hector Chavez, USACH, Chile)

Activity 1- 2023: Set-up website for open source PMU data and algorithms

- SANDI: Synchrophasor Analytics Data- exchanging Initiative
  - **Ambitious activity, objective is to have an initial phase before the end of 2023**

- Already successful interconnection with PMU measurements (only frequencies) from ZHAW, Switzerland.
- Working on tuning the frequency disturbance capturing algorithm to offer a library of significant events
- Objective to collect as many PMU measurements as possible.

Thank you for your attention

Officers:

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Hector Chavez, hector.chavez@usach.cl

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