SGSMA2021 Panel Session #5

Panel Chair:
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The use of machine learning ML and AI in analysis of historical and on-line synchrophasor data

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Panelists

Scope:

- Philip Hart, GE Research “PMU-Based Data Analytics Using Digital Twin and Phasor Analytics Software,”
- Bruno Leao, Siemens Technology “MindSynchro: innovation and challenges in application of ML to PMU big data,”
- Zoran Obradovic, Temple University, “BDSmart: Automated Analysis of Large synchrophasor datasets,”
- Nanpeng Yu, University of California, Riverside, “Physics-Informed Machine Learning for Power System Event Detection and Identification with Synchrophasor Data,”

Objectives:

- Share experiences from on-going projects awarded under the same DOE FOA
- Review the uses of AI and ML in analyzing synchrophasor data
- Discuss challenges for future deployment of methods for automated event detection and classification

Background of the DOE Projects

- FOA-1861, initiated in 2018; project started in 2019
- Actual PMU recordings from all three Interconnections were anonymized and provided to all the project teams;
- Neither the system topology nor the PMU locations were provided
- Basic properties of training data are shown below:

Information	Interconnect A	Interconnect B	Interconnect C
Time period	07/2018-08/2019	01/2016-12/2017	01/2016-12/2017
Data Volume	4.10 TB	6.87 TB	16.03 TB
# of PMUs	212	43	188