![NASPI North American SynchroPhasor Initiative logo]

Engineering Analysis Task Team (EATT)

Evangelos Farantatos (EPRI) – Lead

NASPI Meeting

October 24 2018

Philadelphia, PA

NASPI White Paper: Data Mining Techniques and Tools for Synchrophasor Data

- **Lead: Brett Amidan (PNNL)**
- **Being reviewed by the NASPI Leadership Team**
- **Expected completion: Nov 2018**

Outline

1. Introduction
2. Data Mining Techniques
3. Software Tools and Big Data Platforms for Data Mining
4. Use Case Applications of Data Mining Techniques with PMU Data
5. Conclusions

NASPI WHITE PAPER

Data Mining Techniques and Tools for Synchrophasor Data

NASPI North American SynchroPhasor Initiative

Authors

Prepared for/by

Date

Discussion at the breakout session:

- Sensitivity of AI/ML techniques to data quality
- Practices for labeling data – supervised learning
- Importance of training datasets

Data Repository for Benchmarking Algorithms & Tools

- Data availability is a challenge for AI applications development, testing and evaluation
- Synthetic data & actual data
- Anonymized data
  - Automating the process
  - Location information not allowing back engineering
- Data confidentiality and associated legal issues is a concern
- Different datasets for different applications

Discussion at the breakout session:
- ISO-NE - Public repository of PMU data for oscillatory events
- PJM to publish generator trip datasets
- PJM generic grid model – available upon request to PJM
- Link between generic model and public datasets

NASPI White Paper on High-Speed Synchronized Data – Value Proposition & Use Cases

- Why high-speed synchronized point-on-wave (POW) data are needed?
- Complement PMU data with POW data - Not to replace synchrophasor data
- State-of-the-art PMUs/DFRs/relays can provide POW data – firmware update, no new hardware
- Local processing and applications of POW data
- On demand POW data transfer to control center when needed

Next:
- **Outline to be drafted and discussed in EATT calls**
- **Coordinate with other NASPI Task Teams**