

**Working Group on Intelligent Data Mining and Analysis (IDMA)
Intelligent Systems Subcommittee**

2024 IEEE PES General Meeting

Monday, July 22, 2024, 11:00 AM-12:00 PM (GMT-7)

**Seattle Convention Center | Summit
Seattle, Washington**

Chair: Zita Vale, Polytechnic of Porto

The meeting started at 11:00 AM with the following **Agenda:**

- 1 – Approval of the meeting agenda
- 2 – Welcome and introduction of attendees
- 3 – Approval of the minutes of the 2023 IDMA Working Group online meeting
- 4 – Publications and panel session organization
- 5 – Activities follow-up, roadmap, and plan
- 6 – Working group website
- 7 – Adjournment.

1 – Approval of the meeting agenda

The agenda was unanimously approved.

2 – Welcome and introduction of attendees

The Chair welcomed everyone present in the meeting and each attendee introduced him/herself. The meeting has been attended by more than 50 people in fully or partially with the vast majority attending the full meeting. 43 people signed the attendance list. Several WG members communicated that they would not be able to be present due to cancelled and/or delayed flight

3 – Approval of the minutes of the 2023 IDMA Working Group online meeting

The minutes were approved unanimously.

4 – Publications and panel session organization

Regarding publications in view of the recent published Wiley book and due to restricted meeting duration, the attendances did not go on with further discussion at this point giving preference to other points of the meeting.

Regarding panel session organization, the following list of panels sessions were approved and included in PES GM 2024:

- Intelligent management of distributed storage for sustainable energy communities (Zita Vale Polytechnic of Porto, Portugal and Petr Musilek University of Alberta) – July 24, 024 – 1:00 pm to 3.00 pm – Room 439

Additionally, the ODS TF has the following one approved:

- Benchmarking of artificial intelligence methods for energy generation and consumption forecasting (Zita Vale Polytechnic of Porto, Portugal and João Soares Polytechnic of Porto) – July 25, 2024 – 10:00 am to 12.00 pm – Room 439

Different topics were discussed and proposed for the organization of panel sessions for 2025. The most concrete proposals have the following tentative titles:

- Explainability for Machine Learning Applications in Power and Energy Systems
- Artificial intelligence-based methods for energy communities: how to address fairness, privacy and security issues
- Intelligence and sustainable retraining of online machine learning methods in power and energy systems.

The following proposals already submitted for GM 2024 but not scheduled for this year will be resubmitted for inclusion in GM 2025 program:

- Storage-based business models for intelligent and sustainable energy systems
- Artificial Intelligence based energy management systems and market models for 100% renewable energy power systems
- Intelligent methods for planning and operation of electric and autonomous vehicles

Participants will send more ideas and expression of interest to contribute and to organize panel sessions by email to the chair.

Panel Sessions can be proposed and organized by the working group members in the scope of other IEEE conferences and get the support of the support of the working group. Speakers for the panel sessions should be planned considering relevant contributions from industry panelists.

5 – Activities follow-up, roadmap, and plan

In reply to one participant question regarding the importance of the WG and its purpose, the WG chair briefly describing the WG scope and explained the roles and the main activities of the WG.

Participants have highlighted the importance of data in this domain, namely public good quality data, related privacy issues and how difficult is the process to obtain good data. Many questions were raised looking for further discussion with other experience peers in the field. The chair reminded that the working group emailing list can be used along the year to remote discussion and seeking concrete help in this topic to contribute to better data to each cases studies. The chair also mentioned the importance of participating in the ODS TF.

The annual meeting has been scheduled to Monday afternoon at 2:00 PM to 3:00 PM in Room 321. The working group members are invited to participate in the TF meeting and to contribute with new inputs to the data sets published in the subcommittee web site (<http://sites.ieee.org/pes-iss/data-sets/>). Moreover, IEEE Dataport has been discussed as alternative to Zenodo.org and other data servers, and is under consideration by the working group.

A new competition on forecasting under the scope of TF ODS is being prepared and was discussed during the meeting.

The chair presented the list of research topics that has been built since the last year's meeting:

- Estimation of energy consumption by machine learning software (Consumption vs. precision)
- Characteristics of useful explanation for ML methods. What do we really want to have as explanations?
- When to retrain ML models?
- How to choose the best ML model for each context?
- What computational resources should be used for ML (local resources, cloud computing, edge)

The participants are invited to discuss these topics, to volunteer to organize material and information for each of them and to propose new topics to be further discussed. It is important to keep in mind that the list is not intended to cover the full scope of the working group but to address a limited number of topics that are currently of extreme importance.

6 – Working group website

Working group members are encouraged to contribute to the material published in the working group webpage by sending suggestions of relevant information to be included (please email them to zav@isep.ipp.pt or to email.zitavale@gmail.com).

The competition website was shown

<https://www.gecad.isep.ipp.pt/smartgridcompetition-forecast/>

7 – Adjournment

The meeting was adjourned at 12:00 PM.

Respectfully submitted,

Zita Vale