

IEEE PES
Analytic Methods for Power Systems (AMPS) Committee
Intelligent Systems Subcommittee (ISS)

Working Group on Multi-Agent Systems (MAS)
Denver, Colorado, 12:00 PM - 01:00 PM, 18 July 2022

Chair: Tiago Pinto, Universidade de Trás-os-Montes e Alto Douro

The meeting started at 12:00 PM with the following Agenda:

1. Welcome and introduction
2. Approval of the minutes of the 2021 online meeting
3. WG Activities in the past year
4. Future activities roadmap and plan
5. Any Other Business
6. Adjournment

1. Welcome and introduction

The Chair welcomed everyone present in the meeting and each attendee introduced him/herself. The meeting has been attended by 29 people fully or partially. 23 people have attended in person and 6 virtually via zoom.

2. Approval of the minutes of the 2021 online meeting

The minutes were approved unanimously.

3. WG Activities in the past year

Two panels at PESGM 2022 (both by Wednesday, July 20, 2022, 10:00 AM - 12:00 PM)

- i. Intelligent Decision Making in Power and Energy Systems Using Multi-agent Systems

Plaza Ballroom A

Panel chair

- Tiago Pinto, Universidade de Trás os Montes e Alto Douro
- Amin Kargarian, Louisiana State University

Speakers

- Danial Esmaeili Aliabadi, Helmholtz Centre for Environmental Research - UFZ, Competition, Risk and Learning in Electricity Markets: An Agent-based Approach
- Enrico Gerding University of Southampton, Market Design and Trading Strategies for Community Energy Markets

- Phuong Nguyen, Eindhoven University of Technology, Cyber-Physical Agent-based Applications
 - Luis Gomes, Polytechnic of Porto, Intelligent Multi-agent Systems for Building Energy Management
 - Hayden Reeve PNNL DSO+T transactive energy simulation study
- ii. Multi-agent systems for distributed optimal power flow in integrated Microgrids
Governor's Square 15
- Panel chairs
- Ashkan Rahimi-Kian, I-EMS Group Ltd
 - Tiago Pinto, Universidade de Trás os Montes e Alto Douro
- Speakers
- Masoud Bashari, Software & Technology, I-EMS Group Ltd, Multi-agent distributed OPF software for large power networks with numerous DER, DG and DR assets
 - Amin Kargarian-Marvasti, Louisiana State University, Learning-assisted distributed multi-agent optimal power flow
 - Javad Mohammadi, UT Austin, Decentralized Power Dispatch in Multi-agent Energy Systems

The WG website is back online and updated (<https://site.ieee.org/pes-mas/>).

A brainstorm on core areas to be addressed by the WG has been conducted during the last year. A file with this purpose has been shared and updated by the WG members.

4. Future activities roadmap and plan

The need for the submission of papers related to the WG topics for IEEE PES GM 2023 has been discussed.

Several topics for panel proposals for PES-GM 2023 has been discussed, and will be elaborated to be submitted to ISS, namely:

- Industrial applications of multi-agent systems
- MAS for techno-economic performance of future low inertia multi-energy systems (e.g. for energy markets, ancillary services, and coordination of control actions).
- Multi-Agent Systems meet machine learning
- Multiagent decision support for local electricity market participation
- MAS applications of DER coordination

Foreseen activities in other conferences have been discussed, with highlight to IEEE PES Gridedge and 2023 IEEE PES T&D, in which specific sessions will be planned to be organized in the scope of the WG.

The brainstorm file that has been filled during last year has been analysed by the WG members and several topics of interest to be included in the WG website and with potential interest to the joint review

paper to be developed by the WG have been discussed and updated. The possibility of writing a white paper focusing on Standardization and guidelines for industry uptake of MAS has been discussed. The organization of a series of webinars/online seminars has been discussed, and it will be organized according to the definition of the contents for the website and review paper.

5. Any Other Business?

No other business has been brought up.

6. Adjournment

The meeting was adjourned at 1:00 PM.

Respectfully submitted,

Tiago Pinto