

Akylas Stratigakos

UCL Energy Institute, University College London

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Research Interests

My research develops and validates novel predictive and prescriptive analytics methods, leveraging machine learning, operations research, and statistics, to rapidly improve the planning and operations of low-carbon power and energy systems, reducing consumer costs and accelerating decarbonization.

Academic Appointments

- 08/2025 - Lecturer (Assistant Professor)**
UCL Energy Institute, University College London, UK
Energy Systems and Data Analytics
- 10/2023 - 07/2025 Research Associate**
EEE Department, Imperial College London, UK

Education

- 2023 Ph.D., Energy and Processes**
Mines Paris, PSL University, Sophia Antipolis, FR
Thesis: Towards the Prescriptive Analytics Paradigm for Energy Forecasting and Power System Optimization
- 2016 Meng, Electrical and Computer Engineering**
University of Patras, Patras, GR
Specialization: Power Systems, Control

Visiting Positions

- 09/2022 - 01/2023 Visiting Researcher**
OASYS Research Group, University of Malaga, ES

Publications

Journal Articles

- [1] A. Stratigakos and P. Andrianesis. "Learning Data-Driven Uncertainty Set Partitions for Robust and Adaptive Energy Forecasting with Missing Data". In: *IEEE Transactions on Smart Grid* (2026). URL: <https://arxiv.org/abs/2503.20410>.
- [2] C. Bergmeir, F. De Nijs, E. Genov, A. Sriramulu, M. Abolghasemi, R. Bean, J. Betts, Q. Bui, N. T. Dinh, N. Einecke, R. Esmaeilbeigi, S. Ferraro, P. Galketiya, R. Glasgow, R. Godahewa, Y. Kang, S. Limmer, L. Magdalena, P. Montero-Manso, D. Peralta, Y. P. S. Kumar, A. Rosales-Pérez, J. Ruddick, A. Stratigakos, P. Stuckey, G. Tack, I. Triguero, and R. Yuan. "Predict+Optimize Problem in Renewable Energy Scheduling." In: *IEEE Access* (2025), pp. 1–1. DOI: [10.1109/ACCESS.2025.3555393](https://doi.org/10.1109/ACCESS.2025.3555393).
- [3] A. Stratigakos, S. Pineda, and J. M. Morales. "Decision-focused linear pooling for probabilistic forecast combination". In: *International Journal of Forecasting* (2024). ISSN: 0169-2070. DOI: <https://doi.org/10.1016/j.ijforecast.2024.11.006>. URL: <https://www.sciencedirect.com/science/article/pii/S0169207024001213>.
- [4] A. Stratigakos, S. Pineda, J. M. Morales, and G. Kariniotakis. "Interpretable Machine Learning for DC Optimal Power Flow With Feasibility Guarantees". In: *IEEE Transactions on Power Systems* 39.3 (2024), pp. 5126–5137. DOI: [10.1109/TPWRS.2023.3333165](https://doi.org/10.1109/TPWRS.2023.3333165).

- [5] A. Stratigakos, P. Andrianesis, A. Michiorri, and G. Kariniotakis. “Towards Resilient Energy Forecasting: A Robust Optimization Approach”. In: *IEEE Transactions on Smart Grid* (2023), pp. 1–1. DOI: [10.1109/TSG.2023.3272379](https://doi.org/10.1109/TSG.2023.3272379).
- [6] K. Krommydas, C. Dikaiakos, G. Papaioannou, and A. Stratigakos. “Flexibility study of the Greek power system using a stochastic programming approach for estimating reserve requirements”. In: *Electric Power Systems Research* 213 (2022), p. 108620.
- [7] K. F. Krommydas, A. C. Stratigakos, C. N. Dikaiakos, G. P. Papaioannou, M. G. Jones, and G. C. McLoughlin. “A Novel Modular Mobile Power Flow Controller for Real-Time Congestion Management Tested on a 150kV Transmission System”. In: *IEEE Access* 10 (2022), pp. 96414–96426. DOI: [10.1109/ACCESS.2022.3205589](https://doi.org/10.1109/ACCESS.2022.3205589).
- [8] A. Stratigakos, S. Camal, A. Michiorri, and G. Kariniotakis. “Prescriptive trees for integrated forecasting and optimization applied in trading of renewable energy”. In: *IEEE Transactions on Power Systems* 37.6 (2022), pp. 4696–4708.
- [9] A. Stratigakos, A. Bachoumis, V. Vita, and E. Zafiroopoulos. “Short-term net load forecasting with singular spectrum analysis and LSTM neural networks”. In: *Energies* 14.14 (2021), p. 4107.
- [10] G. P. Papaioannou, C. Dikaiakos, A. C. Stratigakos, P. C. Papageorgiou, and K. F. Krommydas. “Testing the efficiency of electricity markets using a new composite measure based on nonlinear TS Tools”. In: *Energies* 12.4 (2019), p. 618.

Conference Papers

- [11] K. Krommydas, A. Stratigakos, E. Chassioti, and I. Moraitis. “A Two-Stage Stochastic Unit-Commitment Formulation for Evaluating the Impact of Battery Energy Storage Systems on Reserve Requirements”. In: *14th Mediterranean Conference on Power Generation Transmission, Distribution and Energy Conversion*. IEEE. Athens, Greece, Dec. 2024.
- [12] K. F. Krommydas, A. C. Stratigakos, E. Chassioti, and I. Moraitis. “A two-stage stochastic unit-commitment formulation for evaluating the impact of battery energy storage systems on reserve requirements”. In: *IET Conference Proceedings CP904*. Vol. 2024. 29. IET. 2024, pp. 684–689.
- [13] M. Kühnau, A. Stratigakos, S. Camal, S. Chevalier, and G. Kariniotakis. “Resilient Feature-driven Trading of Renewable Energy with Missing Data”. In: *2023 IEEE Power & Energy Society Innovative Smart Grid Technologies conference (ISGT)*. 2023. URL: <https://hal.science/hal-04104548>.
- [14] A. Stratigakos, D. van der Meer, S. Camal, and G. Kariniotakis. “End-to-end Learning for Hierarchical Forecasting of Renewable Energy Production with Missing Values”. In: *2022 17th International Conference on Probabilistic Methods Applied to Power Systems (PMAPS)*. 2022, pp. 1–6. DOI: [10.1109/PMAPS53380.2022.9810610](https://doi.org/10.1109/PMAPS53380.2022.9810610).
- [15] A. Stratigakos, A. Michiorri, and G. Kariniotakis. “A Value-Oriented Price Forecasting Approach to Optimize Trading of Renewable Generation”. In: *2021 IEEE Madrid PowerTech*. 2021, pp. 1–6. DOI: [10.1109/PowerTech46648.2021.9494832](https://doi.org/10.1109/PowerTech46648.2021.9494832).
- [16] K. F. Krommydas, A. C. Stratigakos, C. Dikaiakos, G. P. Papaioannou, E. Zafiroopoulos, and L. Ekonomou. “An improved flexibility metric based on kernel density estimators applied on the Greek power system”. In: *Flexitranstore*. Vol. 610. Springer, 2020, pp. 35–46.
- [17] A. C. Stratigakos, K. F. Krommydas, P. C. Papageorgiou, C. Dikaiakos, and G. P. Papaioannou. “A Suitable Flexibility Assessment Approach for the Pre-Screening Phase of Power System Planning Applied on the Greek Power System”. In: *IEEE EUROCON 2019 -18th International Conference on Smart Technologies*. 2019, pp. 1–6.

Preprints

- [18] A. Stratigakos, H. Wen, E. Spyrou, and P. Pinson. “Level Set Forecasting for Power System Operations”. In: (Mar. 2025). working paper or preprint.
- [19] G. Van Caeenberg, A. Stratigakos, and E. Spyrou. “Dynamic Network-aware Reserves Procurement via Adversarial Deployment Scenarios”. In: (Mar. 2025). working paper or preprint.
- [20] A. Stratigakos, J. M. Morales, S. Pineda, and G. Kariniotakis. “Decision-Focused Data Pooling for Contextual Stochastic Optimization”. In: (Nov. 2023). working paper or preprint. URL: <https://hal.science/hal-04268454>.

Thesis

- [21] A. Stratigakos. “Towards the Prescriptive Analytics Paradigm for Energy Forecasting and Power System Optimization”. Theses. Université Paris sciences et lettres, July 2023. URL: <https://pastel.hal.science/tel-04250526>.

Industry Experience

- 09/2017 - 05/2020 Research and Development Engineer**
Independent Power Transmission Operator (IPTO), Athens, GR
- Developed tools to assess system flexibility under high renewable penetration.
 - Coordinated successfully installing an innovative power flow controller.
 - Contribution to Horizon 2020 projects.
- 01/2022 - 06/2023 Data Scientist - Volunteer**
GIVMED, N.G.O., Athens, GR
- Redistributing surplus medical supplies to socially vulnerable groups and addressing healthcare inequalities through data analytics.

Grants & Awards

- 2024** **Best Thesis Award**
Think Smartgrids Association
- 2022** **Best Student Presentation & Travel Grant Award**
42nd International Symposium on Forecasting

Leadership and Service

- SUPERVISION** PhD: 1. MSc: 2. BSc/MEng: 2.
- REVIEWER** *Journals:* IEEE Transactions on Smart Grids/ Power Systems/ Sustainable Energy; Electric Power Systems Research. *Conferences:* IEEE PES PowerTech; International Conference on Probabilistic Methods Applied to Power Systems (PMAPS); Power Systems Computation Conference (PSCC).
- ORGANIZATION** **Workshop:** Global Power System Transformation Consortium AI Workshop, at ICMS, Edinburgh, 19-23/02/2024 (*co-organizer, session chair*)
Invited Session: Value-oriented Forecasting, 44th International Symposium on Forecasting, Dijon, France (*organizer, chair*).
Seminar Series: Inaugural event of the CIGRE UK London Region Universities Hub, at Imperial College London, London, 06/05/2025 (*co-organizer*).
SERVICE CIGRE UK London Region Universities Hub (*Vice Chair*).

Additional Information

- LANGUAGES** Greek (native), English (proficient), German, French (basic)
- SOFTWARE** Python, MATLAB, R, Julia
- MEMBERSHIPS** IEEE, CIGRE, ESIG, International Institute of Forecasters