

# Akylas Stratigakos

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## Research Interests

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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

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- 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

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- 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

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

## Publications

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### 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. Esmailbeigi, 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. Zafropoulos. “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. Zafropoulos, 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 Caelenberg, 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>.

## Teaching Experience

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- 2025 - 2026**      **Energy Data Analytics in the Built Environment (BENV0092)**  
*Energy Systems and Data Analytics MSc (core module)*
- Designed and led a core MSc module (>60 students) on data analytics methods to analyze, predict, and optimize building energy demand and use.

## Industry Experience

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- 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

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- 2025**      **Outstanding Reviewer**  
*IEEE Transactions on Sustainable Energy*
- 2024**      **Best Thesis Award**  
*Think Smartgrids Association*
- 2022**      **Best Student Presentation & Travel Grant Award**  
*42nd International Symposium on Forecasting*

## Leadership and Service

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- 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 University Hub | London Region (*Vice Chair, 2025-2026*).  
13th ACM International Conference on Systems for Energy-Efficient Buildings,  
Cities, and Transportation (BuildSys 2026) (*technical program committee member*)

Additional Information

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LANGUAGES

Greek (native), English (proficient), German, French (basic)

SOFTWARE

Python, MATLAB, R, Julia

MEMBERSHIPS

IEEE, CIGRE, ESIG, International Institute of Forecasters