Akylas Stratigakos

UCL Energy Institute, University College London
+44-7355346108 | a.stratigakos@ucl.ac.uk | akylas-stratigakos | ORCID: 0000-0002-9954-5558 | H-index: 10

Education

PhD - Energy and Process Engineering 05/2020 – 07/2023
MINES Paris, PSL University *Sophia Antipolis, FR*
- Title: Towards the Prescriptive Analytics Paradigm for Energy Forecasting and Power System Optimization
- Research areas: Power systems, machine learning, optimization, predictive and prescriptive analytics
- Advisors: G. Kariniotakis, A. Michiorri

MEng - Electrical and Computer Engineering (GPA 6.75/10) 09/2009 – 06/2016
University of Patras *Patras, GR*
- Specialization: Power systems, control
- Diploma thesis: Design and Analysis of a Unified Power Flow Controller

Experience

Lecturer in Energy Systems and Data Analytics 08/2025 – Present
UCL Energy Institute, University College London *London, UK*
-

Research Associate 10/2023 – Present
Department of Electrical and Electronic Engineering, Imperial College London *London, UK*
- Accelerating the transition toward 100% renewable-based grid with innovative data-driven and AI-based methods.
- Leading research on machine learning for low-carbon power systems within the UK - Electric Power Innovation for a Carbon-free Society Center (UK-EPICS).
- Co-supervising a PhD student, supervising undergraduate and graduate students, assisting and mentoring group members, and developing coursework.

Visiting Researcher 09/2022 – 01/2023
OASYS Research Group, University of Malaga *Malaga, ES*
- Developed machine learning-based optimization proxies for power system operations and methods to aggregate data from heterogeneous sources, leading to high-impact journal publications (hosted by J. M. Morales and S. Pineda).

Data Scientist - Volunteer 12/2021 – 06/2023
GIVMED, N.G.O. *Athens, GR*
- Developed an optimization-based tool for redistributing surplus medical supplies to socially vulnerable groups, improving access to vital resources, and addressing healthcare inequalities.

Research and Development Engineer 09/2017 – 05/2020
Independent Power Transmission Operator (IPTO), S.A. *Athens, GR*
- Developed tools to assess power system flexibility under high renewable penetration.
- Coordinated successfully installing an innovative power flow controller in the transmission grid.
- Developed a reliable short-term load forecasting tool, increasing forecast accuracy by 5%.
- Contributed to several Horizon 2020 Projects' success by collaborating with academic and industrial partners.

Private - IT Support 09/2016 – 05/2017
Military Service, Hellenic Army Academy *Athens, GR*
- Contributed to the maintenance, support, and configuration of the Academy's IT infrastructure.

Electrical Engineer - Internship 06/2013
T.E.M.E.K. SA *Athens, GR*
- Assisted the installation and maintenance of photovoltaic systems.

Honors and Awards

Think Smartgrids Association: Best Thesis Award in France 2024
42nd International Symposium on Forecasting: Best Student Presentation Award 2022
42nd International Symposium on Forecasting: Travel Grant Award 2022
Erasmus + grant 2022

Teaching Experience

Power System Planning, MSc Course, Imperial College London 2024
- Designed and taught a lecture on modeling uncertainty and generating scenarios for planning problems.
- Designed accompanying Jupyter notebook with hands-on coding exercises.

Guest Lecturer-The Energy Market and Energy Trading, MSc Course, City University of London 2021
- Proposed, co-designed, and taught a two-part tutorial on the participation of renewables in electricity markets.
- Developed hands-on exercises and interactive coding material.

Mentoring and Supervision (Selected Projects)

Guillaume Van Caelenberg, PhD, Imperial College London 2024
Topic: Market Services for 100% VRE-based Power Systems. Co-supervised with Elina Spyrou.

Himanish Joshi, MEng thesis, Imperial College London 2024
Topic: Machine Learning for Energy Forecasting and Trading.

Matias Kühnau, MSc thesis, Technical University of Denmark (DTU) 2023
Topic: Resilient Prescriptive Analytics for Power Systems. Co-supervised with Samuel Chevalier.

Research Projects

Title: Electric Power Innovation for a Carbon-free Society (EPICS) Centre, **Sponsor**: NSF, UKRI 10/2023 – Present
Role: Research Associate, Thrust 1: Scale-up Decision Support

Title: System Services for 100% Renewable Grids, **Sponsor**: Leverhulme trust 10/2023 – Present
Role: Research Associate, Data Science & Machine Learning Lead

Title: Smart4RES, **Sponsor**: Horizon 2020 (No. 864337) 05/2020 – 07/2023
Role: Research Engineer
Goal: Modeling and forecasting of variable renewable generation for large-scale system integration

Title: REgions, **Sponsor**: ADEME and ERA-Net (No. 646039) 05/2020 – 07/2023
Role: Research Engineer
Goal: Provision of ancillary services from regions with large shares of renewable energy sources

Title: FARCROSS, **Sponsor**: Horizon 2020 (No. 864274) 10/2019 – 05/2020
Role: Research Engineer
Goal: Hardware and software solutions to "unlock" cross-border flows and regional cooperation

Title: FLEXITRANSTORE, **Sponsor**: Horizon 2020 (No. 774407) 01/2017 – 05/2020
Role: Research Engineer
Goal: Towards a highly flexible and interconnected pan-European transmission network

Leadership and Service

Reviewer 2021 – Present
- **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 and Academic Service 2020 – Present
- **Working Group Member:** Probabilistic VRE and Markets User Group (ESIG)
- **Vice Chair:** CIGRE UK London Region Universities Hub
- **Events:**
  - Co-organizer of the inaugural event of the CIGRE UK London Region Universities Hub, at Imperial College London, London, 06/05/2025.
  - Organizer of the Global Power System Transformation Consortium AI Workshop, at ICMS, Edinburgh, 19-23/02/2024.
  - Organizer and chair of an invited session on Value-oriented Forecasting at the 44th International Symposium on Forecasting, Dijon, France.

Additional Information

Spoken Languages:	Greek (native), English (proficient), German, French (basic)
Programming Languages:	Python, MATLAB, R, Julia
Optimaztion Modellers:	Gurobi, CVX, YALMIP, JuMP
Memberships:	IEEE, CIGRE, ESIG, International Institute of Forecasters

Publications

Thesis

[1] **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.

Journal Articles

[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.

[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.

[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.

[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.

[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. Zafiropoulos. "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.

Preprints, Working Papers

[11] **A. Stratigakos** and P. Andrianesis. "Learning Data-Driven Uncertainty Set Partitions for Robust and Adaptive Energy Forecasting with Missing Data". In: (2025). arXiv: 2503.20410. URL: https://arxiv.org/abs/2503.20410.

[12] **A. Stratigakos**, H. Wen, E. Spyrou, and P. Pinson. "Level Set Forecasting for Power System Operations". In: (Mar. 2025). working paper or preprint.

[13] G. Van Caelenberg, **A. Stratigakos**, and E. Spyrou. "Dynamic Network-aware Reserves Procurement via Adversarial Deployment Scenarios". In: (Mar. 2025). working paper or preprint.

[14] **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.

Conferences (peer-reviewed)

[15] 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.

[16] 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.

[17] 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.

[18] **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.

[19] **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.

[20] K. F. Krommydas, **A. C. Stratigakos**, C. Dikaiakos, G. P. Papaioannou, E. Zafiropoulos, 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.

[21] **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.

Selected Presentations

[22] **A. Stratigakos** and W. Xu. *Energy forecasting for reliable power system operations*. Invited webinar. Energy Systems Integration Group, Feb. 26, 2025. URL: https://www.esig.energy/event/reliable-energy-forecasting/.

[23] **A. Stratigakos**, P. Andrianesis, A. Michiorri, and G. Kariniotakis. "Making Energy Forecasting Resilient to Missing Features: a Robust Optimization Approach ". In: *42nd Int. Symp. on Forecasting*. ★Best Student Presentation Award. Oxford, United Kingdom, July 2022. URL: https://minesparis-psl.hal.science/hal-03718668.

[24] **A. Stratigakos**. "A robust fix-and-optimize matheuristic for timetabling problems with uncertain renewable energy production". In: *IEEE Symposium Series on Computational Intelligence 2021*. Invited. IEEE. Orlando, United States, Dec. 2021. URL: https://hal.science/hal-03449920.

[25] **A. Stratigakos**, S. Camal, T. Blondel, and G. Kariniotakis. "Short-term trading of wind energy production using data-driven prescriptive optimization". In: *Wind Energy Science Conference*. Hannover, Germany, May 2021. URL: https://hal.science/hal-03238445.