# Giacomo Falchetta

*Contact:*
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*falchetta@iiasa.ac.at*

Personal website – BlueSky – Linkedin – Google Scholar – ResearchGate – ORCID – Github

**Researcher with expertise in:**
Infrastructure assessment and planning, Energy systems, Climate change impacts and adaptation, Water-Energy-Food Nexus, Geospatial analysis, Applied statistics and econometrics

## Current positions

- **Junior Scientist (tenured) at** the **Euro-Mediterranean Center on Climate Change (CMCC), ECIP division – RFF-CMCC European Institute on Economics and the Environment (EIEE)** in Venice, Italy. **(January 2024 – present).**

- **Research Scholar** at the **Energy, Climate and Environment** program at **IIASA – International Institute for Applied Systems Analysis (IIASA)** in Laxenburg, Austria. **(October 2021 – present).**

- **Editorial board member,** Environmental Research: Infrastructure and Sustainability journal (IOP Science, impact factor 2.7). (May 2024 **–** present).

## Previous experience

- **Visiting Researcher** at the **Department of Earth and Environment, Boston University**, Boston, USA. Collaborating with Prof Ian Sue Wing on CGE model development (**April - May 2024).**

- **Postdoctoral researcher** at the **Department of Economics**, **Ca' Foscari University of Venice** in Venice, Italy. Scientific affiliations with **Euro-Mediterranean Center on Climate Change (CMCC)** and **RFF-CMCC European Institute on Economics and the Environment (EIEE) (January 2022 – December 2023).**
    - **Project:** ERC – ENERGYA (PI: Prof. Enrica De Cian)

- **Postdoctoral researcher** at the **Department of Economics** of the **Free University of Bozen-Bolzano** in Bolzano, Italy. **(January 2021 – January 2022).**

- **Advisory Council Member at EarthArXiv.** (December 2020 – December 2022).

- **Doctoral researcher** at **FEEM - Fondazione Eni Enrico Mattei** in Milan, Italy. **(November 2017 – December 2021).**

    - **Visiting PhD student** at **PBL Netherlands Environmental Assessment Agency** in The Hague, the Netherlands. **(January 2020 – March 2020).**

    - **Guest Research Scholar (visiting PhD student)** at the *Energy Program (ENE)* of **IIASA, International Institute for Applied Systems Analysis** in Laxenburg, Austria. **(November 2018 – February 2018).**

- **Trainee** at **Terra Institute**, in Bressanone - Brixen, Italy. (February 2016 – July 2016). Consultancy for sustainability, sustainability reporting, CSR and sustainable development, business strategy, product development and sales for organic and sustainable agriculture.

- **Intern** at the *European and International Affairs Office* at the **Comune di Venezia**, in Venice, Italy (July 2014 - September 2014). Collaboration and support activities in the management of projects funded by the European Union including PUMAS, Eurocities, Central Markets and Sustcult.

## Teaching experience and habilitation

- **Italian National Habilitation (Associate Professor) in sector 13/A2 – Economic policy (2025 – 2037)**
- **Adjunct Professor** in Data Analysis, Foundation Year, A.Y. 2023/2024, **Ca' Foscari University of Venice**
- **Adjunct Professor** in Cities and Territories in the Ecological Transition, BSc. Urban Planning, A.Y. 2023/2024, **IUAV University of Venice**
- **TA** for MSc. course in Econometrics (Prof.Erika Uberti). Winter semester A.Y. 2019/2020, **Catholic University of Milan**
- **TA** for BSc. course in Spatial Statistics (Prof. Erika Uberti). Spring semester A.Y. 2018/2019, **Catholic University of Milan**

## Theses (co-)supervision

- Anna Pistorio (**MSc** dissertation in Global Change and Sustainability), Ca' Foscari University of Venice. Systemic Cooling Poverty at the urban scale: evidence from the Venice Provincial Area. June 2025
- Fhazhil Wamalwa (**PhD dissertation** in Sustainability, Golisano Institute for Sustainability,Rochester Institute of Technology). *Sustainable energy access and irrigation planning in Sub Saharan Africa.* June 2024
- Giammauro Soriano (**MSc.** Comparative International Relations – Global Studies, Ca' Foscari University of Venice). The role of hydropower in the broader context of climate change and sustainable development. Evidence from sub-Saharan Africa. March 2022
- Su-Min Choi (**MSc.** Sustainable Energy Systems, Utrecht University), Developing a Bottom-Up Methodology to Project Electricity Demand for Productive Uses in sub- Saharan Africa in 2030 in IMAGE. October 2020
- Paolo Cornali (**MSc.** Energy Engineering, Politecnico di Milano), Integrating agricultural uses of water in geospatial electrification planning. The case study of Kenya. April 2020

## Education

- **PhD** at the **Department of International Economics, Institutions and Development** of the **Catholic University of Milan**, in Milan, Italy. **(November 2017 – July 2021).** *Grade: Cum Laude.* **Dissertation: "***Essays on Energy and Development in sub-Saharan Africa: Energy Access, Climate Change, and the Nexus*" **Supervisors:** Prof. Roberto Zoboli and Dr. Shonali Pachauri

  **TA experience:**
  - Econometrics (Stata) for the MSc. course in Policy Evaluation and Decision Techniques (Prof. Uberti) (9 hours)
  - Spatial Statistics (GeoDa) for the BSc. course in Quantitative Methods for Social Sciences (Prof. Uberti) (16 hours).

- **Master of Science** in Environmental Economics and Climate Change at **the London School of Economics and Political Science** (LSE) in London, UK**. (September**

**2016 – September 2017).** *Grade: Merit.* **Dissertation: "***Ecosystem Services, Land Use Change, and Economic Growth: The long-run trends in the significance and in the value of natural capital".* **Supervisor:** Dr. Roger Fouquet. Grade: *Distinction*.

- **Erasmus+ student** at the Faculty of Economics and Social Sciences at the **University of Hamburg**, in Hamburg, Germany. **(October 2014 – March 2015).**

- **Bachelor of Science** in Economics and Social Sciences at the **Free University of Bolzano-Bozen**, in Bolzano-Bozen, Italy. **(October 2012 – October 2015).** *Grade: 107/110.* **Dissertation**: **"***The Sunk Cost Fallacy: A Literature Review and an Empirical Test".* **Supervisor:** Prof. Alessandro Fedele. Grade: *Distinction*.

## Technical skills

- Data analysis, statistics, machine learning (XGboost, Random Forests, CNN), and econometric analysis with R (proficient), Python (intermediate) and Stata (intermediate)
- Geo-spatial analysis: R, QGIS, Google Earth Engine (proficient)
- LaTeX typesetting
- Git and version control

## Language skills

- **Italian**: native speaker
- **English**: professional working proficiency **(C1/2)** certified by the **IELTS English Language Certificate, Band 8 (**released by the *British Council* on Dicember, 15th 2015)
- **German**: professional working proficiency **(C1)** certified by the **Goethe Zertifikat C1,** score 80.5/100 (released by the *Goethe Institute* on June 10th 2015)
- **French**: intermediate knowledge (**B2).**

## Grant fundraising and awards

- 2024, IIASA IBGF Grant **URGED**, individual grant, €25k
- 2023, **IAMC Conference** Best Poster award
- 2021-2024, **LEAP-RE RE4AFAGRI**, H2020. Role: co-PI, collaborative project, €1M
- 2021, **Cum Laude** grade in the PhD defense

## Peer-reviewed publications

1. De Cian, E., **Falchetta, G.,** Pavanello, F., Romitti, Y., & Sue Wing, I. (2025). The impact of air conditioning on residential electricity consumption across world countries. *Journal of Environmental Economics and Management*
2. **Falchetta, G.,** Vinca, A., Troost, A., Tuninetti, M., Ireland, G., Byers, E., Hafner, M., & Zulu, A. (2024). The role of agriculture for achieving renewable energy-centered sustainable development objectives in rural Africa. *Environmental Development*
3. Pachauri, S., Coldrey, O., **Falchetta, G.,** & Pelz, S. (2024). Innovation in distributed energy services for sustainable development: Case studies from sub-Saharan Africa. *Environmental Research Letters*
4. **Falchetta, G.,** De Cian, E., Pavanello, F., & Wing, I. S. (2024). Inequalities in global residential cooling energy use to 2050. Nature Communications.

5. **Falchetta, G.**, De Cian, E., Sue Wing, I. et al. (2024). Global projections of heat exposure of older adults. *Nature Communications*
6. Wamalwa, F., Maqelepo, L., Williams, N., & **Falchetta, G.** (2024). Solar irrigation potential in Sub-Saharan Africa: a crop-specific techno-economic analysis. Environmental Research: Food Systems.
7. Creutzig F. et al. (2024). Shared pooled mobility: expert review from nine disciplines and implications for an emerging transdisciplinary research agenda. *Environmental Research Letters*
8. Husein, M., Moner-Girona, M., **Falchetta, G.** et al. (2024) The impacts of incentive policies on improving private investment for rural electrification in Nigeria – A geospatial study. *Heliyon*
9. Mazzone, A., De Cian, E., **Falchetta, G.** et al. (2023). Understanding systemic cooling poverty. *Nature Sustainability*
10. Malpede M., **Falchetta, G.** & Shayegh. S. Mosquitoes and Potatoes: How Climate-Induced Diseases Impede Development. *Environmental and Resource Economics*
11. **Falchetta G.,** Semeria, F., Giordano, V. Pachauri, S., Byers, E. and Tuninetti, M. (2023). Solar irrigation in sub-Saharan Africa: economic feasibility and development potential. *Environmental Research Letters*
12. Dagnachew, A., Choi, S., and **Falchetta, G**. Energy planning in Sub-Saharan African countries needs to explicitly consider productive uses of electricity *Scientific Reports*
13. Carr, D., **Falchetta, G.;** Wing, I.S. (2023) Population Aging and Heat Exposure in the 21st Century: Which U.S. Regions Are at Greatest Risk and Why? *The Gerontologist*
14. Pelz S., Pachauri, S. and **Falchetta, G**. (2023). Short-run effects of grid electricity access on rural non-farm entrepreneurship and employment in Ethiopia and Nigeria. *World Development Perspectives*
15. Di Lascio, M., **Falchetta, G**., Ferrari, D. (2022) Change detection from high-resolution airborne laser scans using penalized composite likelihood screening. *Spatial Statistics*
16. Hammad, A.T. and **Falchetta, G.** (2022). Probabilistic forecasting of remotely sensed cropland vegetation health and its relevance for food security. *Science of the Total Environment*
17. **Falchetta, G.** et al. (2022). A renewable energy-centred research agenda for planning and financing Nexus development objectives in rural sub-Saharan Africa. *Energy Strategy Reviews*
18. **Falchetta, G.**, Michoud, B., Hafner, M., and Rother, M. (2022). Harnessing finance for a new era of decentralised electricity access: A review of private investment patterns and emerging business models. *Energy Research & Social Science*
19. **Falchetta, G.** (2021). Energy access investment, agricultural profitability, and rural development: time for an integrated approach. *Environmental Research: Infrastructure and Sustainability*
20. Moner-Girona, M., Kakoulaki, G., **Falchetta, G.**, Taylor, N. and Weiss, D. (2021). Achieving universal electrification of rural healthcare facilities in sub-Saharan Africa with decentralised renewable energy technologies. *Joule*
21. **Falchetta, G.,** Hammad, H., Noussan, M. (2021). Comparing paratransit in seven major African cities: an accessibility and network analysis. *Journal of Transport Geography.*
22. **Falchetta, G.,** Stevanato, N., Moner Girona, M, Mazzoni, D., Colombo, E., Hafner, M. (2021). The M-LED platform: advancing electricity demand assessment for communities living in energy poverty. *Environmental Research Letters.*
23. **Falchetta, G.,** Golinucci, N., Noussan, M., and Rocco, M.V. (2021). Environmental and energy implications of meat consumption pathways in sub-Saharan Africa. *Sustainability.*
24. Hammed, A. T., **Falchetta, G.,** Wirawan, I. B. M**.** (2021). Back to the fields? Increased agricultural land greenness after a COVID-19 lockdown. *Environmental Research Communications.*
25. **Falchetta, G.** and Mistry M. (2021). The role of residential air circulation and cooling demand for electrification planning: implications of climate change in sub-Saharan Africa. *Energy Economics*.
26. **Falchetta, G.**, Dagnachew. A, Hof, A. and Milne D. (2021). The role of regulatory, market and governance risk for electricity access investment in sub-Saharan Africa. *Energy for Sustainable Development*.

27. **Falchetta, G.** and Noussan M. (2021) Electric vehicle charging network in Europe: an accessibility and deployment trends analysis. *Transportation Research Part D.*
28. **Falchetta, G.**, Hammad, A.T., Shayegh S. (2020). Planning universal accessibility to public healthcare in sub-Saharan Africa. *Proceedings of the National Academy of Sciences (PNAS)*.
29. **Falchetta, G.**, Pachauri, S., Byers, E., Danylo, O. & Parkinson, S. C. (2020). Satellite Observations Reveal Inequalities in the Progress and Effectiveness of Recent Electrification in Sub-Saharan Africa. *One Earth*.
30. **Falchetta G.**, Kasamba C., and Parkinson S. (2020). Monitoring hydropower reliability in Malawi with satellite data and machine learning. *Environmental Research Letters.*
31. **Falchetta, G.**, Hafner M., Tagliapietra S (2020). Least-Cost Pathways to 100% Electrification in East Africa by 2030. *The Energy Journal*.
32. Johnson N., Burek P., Byers E., **Falchetta G.** et al. (2019) Integrated solutions for the waterenergy-land nexus: Are global models rising to the challenge? *Water.*
33. **Falchetta, G.**, Pachauri, S., Parkinson, S., Byers, E. (2019) A high-resolution gridded dataset to assess electrification in sub-Saharan Africa. *Nature Scientific Data.*
34. **Falchetta, G.**, Gernaat, D., Hunt, D., Sterl, S. (2019) Hydropower dependency and climate change in sub-Saharan Africa: a nexus framework and evidencebased review. *Journal of Cleaner Production.*
35. **Falchetta, G.**, Noussan, M. (2019) Interannual Variation in Night-Time Light Radiance Predicts Changes in National Electricity Consumption Conditional on Income-Level and Region. *Energies.*

## Book contributions

o **Falchetta, G**. and Tagliapietra, S. (2021) Economics of access to energy. In*:* Hafner, M. & Luciani, G. *Handbook of International Energy Economics*. Palgrave Macmillan.

o Hafner, M.; Tagliapietra, S.; Occhiali, G.; **Falchetta, G**. (2019). Renewables for Energy Access and Sustainable Development in East Africa. SpringerBriefs in Energy.

## Invited talks and high-level workshop contributions

- World Bank: Experts Convening on Measuring Adaptation in Household Surveys, Washington DC, May 20th-21st 2025
- Keynote presentation at the workshop on Climate Change & Health during the 17th European Public Health (EPH) Conference, Lisboa, Portugal, 14 November 2024
- High-level policy panel presentation “The science-policy interface bringing the experience of the H2020 project RE4AFAGRI (Renewables for African Agriculture)", LEAP-RE 2nd Stakeholder Forum, Kigali, Rwanda, 8 October 2023

## Main scientific conferences presentations

- European Association of Environmental and Resource Economists (EAERE) Annual Meeting 2025, Bergen, June 2025
- *European Geoscience Union 2024:* Vienna, May 2025
- Italian Association of Environmental and Resource Economists (IAERE) Annual Meeting 2025, Rome, February 2025
- LEAP-RE 3rd stakeholder forum, Milan, Italy
- Beating the Heat Conference, September 2024, Bern, Switzerland
- International Energy Workshop 2024, Bonn, June 2024
- *European Geoscience Union 2024:* Vienna, April 2024
- *IAMC Conference 2023:* Venice, Italy, December 2023. **Winner of the best poster award**
- LEAP-RE 2nd stakeholder forum, Kigali, Rwanda
- *European Geoscience Union 2023:* Vienna, April 2023
- *IAMC Conference 2022:* Maryland, December 2022

- LEAP-RE 1st stakeholder forum, Pretoria, South Africa
- *European Geoscience Union 2022: Quantifying the economic feasibility of solar irrigation in sub-Saharan Africa. Online. 23rd May 2022. Oral presentation.*
- *AMENET: Africa, the Mediterranean and Europe in the era of global integration 2021. Private investment in decentralised energy access: towards new financing strategies? October 2021, online.*
- *Night lights workshop 2021. Satellite observations reveal inequalities in the progress and effectiveness of recent electrification in sub-Saharan Africa. February 2021, online.*
- *AGU Fall Meeting 2020: M-LED: a Multi-sectoral Latent Electricity Demand Assessment Platform for Energy Access Planning and Nexus Implications Evaluation. Online. December 2020. Poster*
- *European Geoscience Union 2020: Energy and environmental implications of meat consumption pathways in sub-Saharan Africa. Online. 7th May 2020. Oral presentation.*
- *International Energy Workshop 2019: A high-resolution gridded dataset to assess electrification in sub-Saharan Africa. Paris, 4th June 2019. Oral presentation.*
- *European Geoscience Union 2019: Monitoring Climate Impact on Hydropower and Electricity Consumption with Satellite Data: Preliminary Evidence from Malawi. Vienna, 8th April 2019. Oral presentation.*

## Peer-review activities

- Expert Reviewer of the Second Order Draft of the **IPCC's WGII and WGIII contribution to the Sixth Assessment Report (AR6)**

- Referee for (among others) **Science (AAAS); Nature (Nature); Nature Climate Change (Nature) Nature Communications (Nature) Nature Energy (Nature) Scientific Data (Nature)** Mitigation and Adaptation Strategies for Climate Change (Elsevier) Energy Economics (Elsevier) Energy Policy (Elsvier) The Energy Journal (IAEE) Energy Research and Social Science (Elsevier) Energy Strategy Reviews (Elsevier) Sustainability: Science, Practice and Policy (Taylor & Francis) African Geographical Review (Taylor & Francis) Advances in Geosciences (Copernicus) Resources, Environment and Sustainability (Elsevier) F1000Research and others

- Reviewer for a STEREO IV programme funding proposal submitted to the Belspo (Federal Public Planning Service Science Policy)

## References

- Dr. Shonali Pachauri – International Institute for Applied Systems Analysis, pachauri@iiasa.ac.at
- Prof. Enrica De Cian – Ca' Foscari University of Venice, enrica.decian@unive.it
- Prof. Manfred Hafner – Sciences Po & John Hopkins SAIS, manfred.hafner@sciencespo.fr

## Besides work

I'm into guitar jams, cooking, and water-related activities.