Antonia Golab
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ACADEMIC EXPERIENCE

University and project Assistant — Vienna, Austria
Energy Economics Group, Institute of Energy Systems and Electrical Drives, TU Wien — May, 2021 − today
Lecturer, teaching assistant and examiner | Supervision of Bachelor and Master theses |
Engagement in international scientific collaboration | Management of group-internal IT infrastructure |
Project work and supervision of student research assistants

Research Fellow — Trondheim, Norway
Department of Industrial Economics and Technology Management — June, 2023 − August, 2023
Norwegian University of Science and Technology (NTNU)
Topic: Modeling of fueling infrastructure for alternative fuels | Inviting professor: Assoc. Prof. Steffen Bakker

Project Assistant — Vienna, Austria
Research Unit of Geoinformation, Department of Geodesy and Geoinformation — August, 2020 − September, 2020
Faculty Mathematics and Geoinformation, TU Wien
Development of Python toolbox for preprocessing of data for machine learning applications | Development and implementation of geometrical algorithms | Realization of SCRUM-managed project

Tutor and Project Assistant — Vienna, Austria
Research Unit of Geophysics, Department of Geodesy and Geoinformation — October, 2017 − February, 2020
Faculty Mathematics and Geoinformation
Assistant to lecturer | Grading of student assignments | Generation of 3D meshes for inversions of Electrical Resistivity Tomography (ERT) and refraction seismic data | ERT data acquisition in field surveys

EDUCATION

PhD candidate — Vienna, Austria
Doctoral program in Engineering Sciences, TU Wien — May, 2021 − today
Energy Economics Group, Institute of Energy Systems and Electrical Drives, TU Wien
Working title of the thesis: "Spatial modeling of charging infrastructure for the traffic flow-based charging demand of battery-electric vehicle fleets"
Supervision: Assoc. Prof. Hans Auer, expected graduation: April 2026

Master of Science Geodesy and Geoinformation — Vienna, Austria
Faculty Mathematics and Geoinformation, TU Wien — October, 2018 − March, 2021
Title of the Master thesis: "It's also about timing! When do pedestrians want to receive a navigation instruction outdoors"
Specialization in Numerical Modeling, Mobility and Geoinformatics | Semester abroad at *ETH Zurich*

Bachelor of Science in Geodesy and Geomatics Engineering — Vienna, Austria
Faculty Mathematics and Geoinformation, TU Wien — October, 2014 − September, 2018
Title of the Bachelor thesis: "Delineation of soil structures and the plough horizon through electrical imaging: laboratory investigations"

ORGANIZATION OF INTERNATIONAL CONFERENCES & SEMINARS

14. Internationale Energiewirtschaftstagung (IEWT 2025) — Vienna, Austria
Nb. of attendees: 500 | Role and contribution: Part of organizing committee — February, 2025

31st Young Energy Economics Engineer Seminar (YEEES) — Vienna, Austria
Nb. of attendees: 40 | Role and contribution: Co-organizer, paper review, program coordination, acquisition of reviewers
https://blogs.tu-berlin.de/wip_yeees/event/yeees-31/ — May, 2023

MEMBER OF ACADEMIC COMMITTEES

Habilitation Committee Member — Oct 2024 – Feb 2025
at Faculty of Electrical Engineering and Information Technology, TU Wien

University Professor for *Modeling and Control of Nonlinear Systems* — June 2024
at Faculty of Electrical Engineering and Information Technology, TU Wien

TEACHING (since 2021/2022)

Energy Modelling and Analysis: Theory, application and programmatic implementation of optimization methods in energy system analysis | Compulsory course in for 2nd Semester of Master studies offered at *Faculty of Electrical Engineering and Information Technology, TU Wien*| Semester hours: 3.0 | Credits (ECTS): 4.5 | *Role and contribution*: Organization, lecturing (5/12 lecture units), preparation of assignments and exams, grading

Selected Topics in Energy Economics and Environment: In-depth study of selected research topics of Energy Economics and Environmental topical issues | Mandatory elective for Master study in *Electrical Power Engineering and Sustainable Energy Systems, TU Wien* | Semester hours: 3.0 | Credits (ECTS): 4.5 | *Role and contribution*: Organization, lecturing (3/11 lecture units), preparation of assignments and exams, grading

Selected Topics in Energy Systems: (2021-2024) Introduction into concepts of Energy Economics | Mandatory elective for Bachelor study in *Electrical Engineering and Information Technology* | Semester hours: 4.0 | Credits (ECTS): 5.0 | *Role and contribution*: Organization, lecturing (3/8 lecture units), preparation of assignments, grading

SUPERVISION

Completed

P. Dungl: "Range determination in road networks for battery-powered vehicles", co-supervision of Master thesis, finished: October 2025

J. Friedrich: "Savings potential for investments for fast charging infrastructure through the coordination of charging processes for long-distance journeys", doi: 10.34726/hss.2025.106067 co-supervision of Master thesis, finished: March 2025

A. Patha: "Techno-Economic assessment of pumped hydro power in hybrid operation with floating photovoltaic and battery energy storage", doi: 10.34726/hss.2024.110543, co-supervision of Master thesis, finished: April 2024

J. Roth: "Optimising infrastructure and energy supply for coordinated charging and refuelling of zero-emission fleet at a carrier's depot", doi: 10.34726/hss.2024.113047, co-supervised Master thesis, finished March 2024

A. Khreis: "Schnellladeinfrastruktur für Batterie-LKWs entlang Autobahnen: Vermeidung von Lastspitzen mittels Photovoltaik-Anlagen, Batteriespeicher und Ladekoordination", doi: 10.34726/hss.2024.113048, co-supervised Master thesis, finished: March 2024

A. Dzafic: "Techno-economic analysis of low-carbon fuels in European passenger aircraft: Implementability and impact ticketing pricing", supervision of Bachelor thesis, finished: February 2025

M. A. Zin Alabedin: "Evaluation of deploying an effective charging infrastructure in Semi-rural areas in Austria", supervision of Bachelor thesis, finished: July 2024

E. Krevatsouli: "Cost comparison analysis of different alternative fuels for passenger vehicles", supervision of Bachelor thesis, finished: May 2023

On-going

M. Kovacevic: "Participation of heavy-duty BEVs in the congestion management in distribution grids", co-supervised Master thesis, expected completion: May 2026

T. März: "Optimierung und Bewertung dynamischer Stromtarife in Mehrfamilienhäusern mit integrierter Ladeinfrastruktur für Elektrofahrzeuge", co-supervised Master thesis, expected completion: June 2026

T. März: "Quantifying levers to trigger second-hand market for battery-electric trucks in Europe", supervision of Bachelor thesis, expected completion: June 2026

PUBLICATIONS

Part of PhD thesis

A. Golab, S. Zwickl-Bernhard, H. Auer: "Minimum-Cost Fast Charging Infrastructure Planning for Electric Vehicles along the Austrian High-Level Road Network", *Energies* **15(6), 2147** (2022), doi:10.3390/en15062147

A. Golab, C. Loschan, S. Zwickl-Bernhard, H. Auer: "The value of flexibility of commercial electric vehicle fleets in the redispatch of congested transmission grids", *Energy* **316**, 134385 (2025), doi: 10.1016/j.energy.2025.134385

A. Golab, S. Zwickl-Bernhard, H. Auer: "Public Charger Expansion: Impacts Across Income Classes and Beyond Regional Borders", accepted at *Transportation Research Part D: Transport and Environment*, February 2026

A. Golab, S. Bakker, S. Zwickl-Bernhard, H. Auer: "Spatial flexible charging load allocation for inter-zonal long-haul truck electrification", submitted to *Energy*, March 2026

Others

A. Golab, S. Zwickl-Bernhard, T. Perger, H. Auer: "Spatio-temporal charging model for the identification of bottlenecks in planned highway charging infrastructure for passenger BEVs", *e& i Elektrotechnik und Informationstechnik* **139** (2022), doi: 10.1007/s00502-022-01074-5

J. Martin, A. Golab, G. Durakovic, S. Zwickl-Bernhard, H. Auer, A. Neumann: "Modeling cost-optimal fuel choices for truck, ship, and airplane fleets: The impact of sustainability commitments", *Energy* **308**, 132882 (2024), doi: 10.1016/j.energy.2024.132882

S. J. S. Bakker, J. Martin, E. R. van Beesten, I. S. Brynildsen, A. Sandvig, M. Siqveland, A. Golab: "STraM: A strategic network design model for national freight transport decarbonization", *Transportation Research Part E: Logistics and Transportation Review* **197**, 104076 (2025), doi: 10.1016/j.tre.2025.104076

A. Golab, M. Kattenbeck, I. Giannopoulos: "It's also about timing! When do pedestrians want to receive navigation instructions", Spatial Cognition & Computation **22** (2022), doi: 10.1080/13875868.2021.1942474

S. Zwickl-Bernhard, A. Rodgarkia-Dara, C. Gatzen, L.Sonnen, A. Lane, M. Otti, A. Golab, H. Auer: "Modeling insights from the Austrian national gas grid under declining natural gas demand and increasing domestic renewable gas generation by 2040", *Energy Reports* **11** (2024), doi: 10.1016/j.egyr.2023.12.064

S. Zwickl-Bernhard, A. Golab, T. Perger, H. Auer: "Designing a model for the cost-optimal decommissioning and refurbishment investment decision for gas network: Application on a real test bed in Austria until 2050", *Energy Strategy Reviews* **49** (2023), doi: 10.1016/j.esr.2023.101138

T. Perger, S. Zwickl-Bernhard, A. Golab, H. Auer: "A stochastic approach to dynamic participation in energy communities", *e& i Elektrotechnik und Informationstechnik* **139** (2022), doi: 10.1007/s00502-022-01069-2

S. Zwickl-Bernhard, H. Auer, A. Golab: "Disclosing the heat density of district heating in Austria in 2050 under the remaining European CO2 budget of the 1.5∘C climate target", *Sustainable Energy, Grids and Networks* **31** (2022), doi: 10.1016/j.segan.2022.100775

M. Kattenbeck, I. Giannopoulos, N. Alinaghi, A. Golab, D. R. Montello: "Predicting spatial familiarity by exploiting head and eye movements during pedestrian navigation in the real world", *Scientific Reports* **15**(1), 7970 (2025), doi: 10.1038/s41598-025-92274-4

Citation score

Scopus	Citations: 79	h-index: 5	
Google Scholar	Citations: 117	h-index: 7	i10-index: 6

INVITED TALKS

13. Internationale Energiewirtschaftstagung (IEWT 2023) Vienna, Austria
Plenary session | Title: "Kostenoptimale Investitionspfade in die Verkehrsinfrastruktur für die Dekarbonisierung im Transeuropäischen Verkehrsnetz (TEN-T)" February, 2023

International Conference on Mobility Challenges Gif-Sur-Yvette, France
Title: "Minimum-Cost Fast-Charging Infrastructure Planning for Electric Vehicles along the Austrian High-Level Road Network" December, 2022

CONFERENCE PRESENTATIONS

23rd of September, 2025. Copenhagen, Denmark
A. Golab: *Density and speed of public charging infrastructure rollout: Accelerating the electrification of the passenger car stock at the federal state level.* 11th International Conference on Smart Energy Systems

26th of February, 2025. Vienna, Austria
A. Golab, S. Zwickl-Bernhard, M. Otti, H. Auer: *Modelling local vehicle stock dynamics in the decarbonization of the passenger car sector.* 14. Internationale Energiewirtschaftstagung (IEWT 2025)

26th of June, 2024. Bonn, Germany
A. Golab: *Spatial modeling of the decarbonization of long-distance freight in the Scandinavian-Mediterranean corridor,* 42nd International Energy Workshop (IEW)

19th of March, 2024 Oppdal, Norway
Golab, A.: *Spatial modeling of the decarbonization of long-distance road freight in the Scandinavian-Mediterranean corridor.* Winter School Workshop in Energy Market Modelling

15th of February, 2024 Graz, Austria
A. Golab, S. Zwickl-Bernhard, S. Bakker, J. Martin, H. Auer: *Road freight decarbonization in the TEN-T network in the context of future energy supply infrastructures.* 18. Symposium Energieinnovation (EnInnov 2024)

5th of October, 2023 online
A. Golab: *Road freight decarbonization in the TEN-T network in the context of future energy supply infrastructures.* European Climate and Energy Modelling Platform 2023 (ECEMP): Net Zero, intermediate targets, and sectoral decarbonization facing geopolitical and macroeconomic challenges

11th of May, 2023. Vienna, Austria
A. Golab: *Cost-optimal infrastructure investments for the decarbonization of road transport along the Scandinavian-Mediterranean corridor in the Trans-European Transport Network*, 31st Young Energy Economists and Engineers Seminar (YEEES)

30th of March, 2023 Oppdal, Norway
Golab, A., Auer, H. "Spatial modeling of energy/charging infrastructure investment paths along the Trans-European Transport Network (TEN-T)". Winter School 2023 - Planning under Uncertainty in Energy Markets

17th of March, 2023 Vienna, Austria
A. Golab: *Kostenoptimale Investitionspfade in die Verkehrsinfrastruktur für die Dekarbonisierung im Transeuropäischen Verkehrsnetz* 13. Internationale Energiewirtschaftstagung

9th of December, 2022 Gif-Sur-Yvette, France
A. Golab: *Minimum-Cost Fast-Charging Infrastructure Planning for Electric Vehicles along the Austrian High-Level Road Network.* International Conference on Mobility Challenges

23rd of September, 2022 Athens, Greece
A. Golab, S. Zwickl-Bernhard, T. Perger, H. Auer: "Spatio-temporal modeling of fast-charging along highway networks for stress-testing planned charging infrastructure capacity" *In The Future of Global Energy Systems. 17th IAEE European Energy Conference: The Future of Global Energy Systems*

2nd of August, 2022 Tokyo, Japan (online attendance)
A. Golab, S. Zwickl-Bernhard, H. Auer: *Minimum-cost fast-charging infrastructure planning for electric vehicles along the Austrian high-level road network.* 43rd IAEE International Conference: Mapping the Energy Future -Voyage in Uncharted Territory

13th of May, 2022. Ghent, Belgium
A. Golab: *Spatio-temporal modeling of fast-charging along highway networks for stress-testing planned charging infrastructure capacity.* 29th Young Energy Economists and Engineers Seminar (YEEES)

18th of February, 2022 Graz, Austria (online attendance)
A. Golab, S. Zwickl-Bernhard, H. Auer: *Minimum-cost fast-charging infrastructure planning for electric vehicles along the Austrian high-level road network.* 17. Symposium Energieinnovation: Future of Energy - Innovationen für eine klimaneutrale Zukunft

RESEARCH PROJECTS

iDesignRES (Horizon Europe)   October, 2023 − today
Integrated Design of the Components of the Energy System to Plan the Uptake of Renewable Energy Sources: An Open Source Toolbox | *Role and contribution:* Primary responsible for implementation of data acquisition and modeling task assigned task to TU Wien

Commercial fleet study   May, 2023 − August, 2023
Project partner: *Austrian Power Grid AG* | Analysis of impact of commercial fleet charging on redispatch measures in 2040 | *Role and contribution:* Project acquisition, literature research, development of methodology and implementation

OTHER PROFESSIONAL EXPERIENCE
Surveying assistant   Vienna, Austria
Two summer internships at *VSP Stolitzka & Partner Ziviltechniker GmbH*   July, 2015 − February 2020
Summer internship & part-time at *Vermessung Schmid ZT GmbH*
Field surveys | Editing and refinement of construction plans | Processing of aerial laser scanner data | development of

C++ software

AWARDS AND SCHOLARSHIPS

Short-term scientific studies abroad: Scholarship for research stay at NTNU (2023)

AGEO Award for Master thesis (2022)

Swiss Mobility Program: Scholarship for semester abroad at ETH Zurich (2018)