

Dr. Leonie Hodel
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Curriculum Vitae

EDUCATION

ETH ZURICH, SWITZERLAND

Doctor of Science ETH, Science and Policy,

Defense date: November 28, 2023

Thesis: "[*Cattle, Culture, and Feminist Ecologies in the Brazilian Amazon: Advances in Theoretical and AI-Driven Land System Science*](#)"

UNIVERSITY OF ZURICH, SWITZERLAND

Visiting Student at the Institute for Computational Sciences - EcoVision Lab, 2022

ETH ZURICH AND UNIVERSITY OF ZURICH, SWITZERLAND

Master of Science in Computational Biology and Bioinformatics, 2016-2018

Core Courses: Machine Learning, Deep Learning, Computational Statistics, Computational Biology

Thesis: "Lewis' law holds in lung epithelial tissue independent of spatio-temporal neighbor exchanges"

UNIVERSITY OF ZURICH, SWITZERLAND

Bachelor of Science in Computer Science (1st year), 2015-2016

Core Courses: Computer Science, Programming, Technical Informatics, Modelling

ETH ZURICH, SWITZERLAND

Bachelor of Science in Biology, 2012-2015

Natural Sciences Basic Courses with a focus on Cell Biology, Plant Sciences, Zoology, Botany.

PROFESSIONAL APPOINTMENTS

Postdoctoral Fellow | Cambridge Conservation Initiative, Geography Department, University of Cambridge, United Kingdom, April 2025- now

Mapping Artisanal Gold Mines and their Environmental and Biodiversity Impacts in Tropical Forests

Postdoctoral Researcher | Global Land Use and Environment Lab, Nelson Institute of Environmental Studies, University of Wisconsin-Madison, WI, USA, April 2024- March 2025

AI-derived Cattle Mapping, Cattle Supply Chain Environmental Impacts, Gender and Land Use in the Brazilian Amazon

PhD Candidate | ETH Zürich, Zürich, CH, 2020-2024

Land System Science and Environmental Policy in Tropical Areas

Scientific Consultant | Evidensia, London, UK, 2022

Scientific Advising on the Impact of Private Policies in Food Supply Chains.

Academic Intern, EFTA-Free Trade Agreements | Swiss State Secretariat for Economic Affairs SECO, Bern, Switzerland, 2020

Sustainability Requirements from the EFTA-Indonesia Trade Agreement for Palm Oil.

Accompaniment of an Environmental Impact Assessment for the Swiss-Mercosur Trade Agreement.

Coordinator and ETH Ambassador | NYP@NYC, New York, USA, 2018

Mediation of Swiss Apprentices in Information Technology to various Tech Start-ups. Promotion of the Swiss Educational System.

SCIENTIFIC PUBLICATIONS

Hodel, L., Wegner J. D., Sainte Fare Garnot V., Rocha Gomes F., Valentim J. F., and R. D. Garrett. "Deep Learning-Based Cattle Counts on Satellite Imagery Offer Evidence Regarding Land Use and Policy Impact in the Brazilian Amazon." *Nature Sustainability, R&R* (2024). Preprint DOI: <https://doi.org/10.21203/rs.3.rs-5134147/v1>

zu Ermgassen, E. K. H. J. Adami M., Chaves M., Garcia A., and **L. Hodel** "Halting the Expansion of Pasture in the Brazilian Amazon" *One Earth* (2024). DOI: [10.1016/j.oneear.2024.10.012](https://doi.org/10.1016/j.oneear.2024.10.012)

Hodel, L., le Polain de Waroux, Y. and R.D Garrett. Characterizing culture's influence in land systems. *Nature Sustainability* (2024). DOI: <https://doi.org/10.1038/s41893-024-01381-z>

le Polain de Waroux Y, Garrett R. D., Chapman M., Friis C., Hoelle J., **Hodel L.**, Hopping K., and J.G. Zaehring. The role of culture in land system science, *Journal of Land Use Science*, 16:4, 450-466 (2021). DOI: <https://doi.org/10.1080/1747423X.2021.1950229>

Garrett, R.D., Levy, S.A., Gollnow, F., **Hodel, L.** and X. Rueda. Have food supply chain policies improved forest conservation and rural livelihoods? A systematic review. *Environmental Research Letters*, 16(3), p.033002. (2021). DOI: <https://doi.org/10.1088/1748-9326/abe0ed>

Gómez, H. F., **Hodel, L.**, Michos, O. and D. Iber. Morphological study of embryonic *Chd8*^{+/-} mouse brains using light-sheet microscopy. *BMC Res Notes* pp.1-8 (2021). DOI: <https://doi.org/10.1186/s13104-020-05436-0>

Gómez H. F., Dumond M. S., **Hodel L.**, Vetter R. and D. Iber. 3D cell neighbour dynamics in growing pseudostratified epithelia. *eLife* 10:e68135 (2021). DOI: <https://doi.org/10.7554/eLife.68135>

OTHER PUBLICATIONS

Hodel, L. (2024) "Culture's influence in land systems." Blog post for Springer Nature Research Communities. [Link](#)

Hodel, L. (2018) "Swiss IT-talents prove age is just a number in NYC." Invited blog post for ETH Ambassadors. [Link](#)

CONFERENCE PARTICIPATION

2024: PyData Global (Online)

- Oral Presentation: "Using AI to Spot Deforestation-Related Cows on Satellite Images"

2024: Global Land Programme Open Science Meeting (Oaxaca, Mexico)

- Science Committee Member
- Oral Presentation: "GeoAI-Derived Cattle Detection and Its Avenues to Break Deforestation Lock-Ins in the Brazilian Amazon"
- Session Leader: "From Myth to Action: Women, Minorities, and the Path to Sustainable Land Use"

2023: FLARE Annual Meeting (Nairobi, Kenya)

- Oral Presentation: "Gender Dimensions in the Brazilian Cattle Ranching Sector"

2019: Women in Data Science Zurich, 2nd Annual Conference (Zurich, Switzerland)

- Lead Organizer responsible for funding, logistics, speakers and scholarships.

2019: 3rd Network of European Bioimage Analyst Conference (Luxembourg, Luxembourg)

- Participant

2018: Women in Data Science Zurich, 1st Annual Conference (Zurich, Switzerland)

- Organizer responsible for logistics and speakers and scholarships.

GRANTS, FELLOWSHIPS, RESEARCH STAYS & AWARDS

2024. Swiss National Science Foundation Postdoc.Mobility (CHF 132,000) over 2 years.

2020. ETH Grant (CHF 165,000 over 3 years [in the name of PI Rachael D. Garrett]). Project title: "Novel cattle detection for improved assessment of drivers and impacts of pasture intensification in South America"

2019. Research stay at the Instituto de Ecología Regional, Universidad Nacional de Tucumán and CONICET, Yerba Buena, Argentina

2019. Research stay grant at Max Planck Institute-Molecular Cell Biology – Florian Jug Lab, Dresden

2017. Machine Learning Course: Winner of Best Project Award: Classifying brain health status from MR images, ETH Zurich, Zurich

TEACHING

2025 (Spring): Env. St 309 (UW Madison): '**People, Land and Food**': Module 'Culture and Gender in Land System Science'. TEACHER - with Prof. Holly Gibbs

2025 (Spring): Env. St. 403 (UW Madison): '**Advanced Land System Analysis**'- TEACHER. - with Prof. Holly Gibbs

2024-25: UW Madison: Supervision of graduate and undergraduate data science and statistics students.

2022 (Spring): 701-1653-00 G (ETH Zürich): '**Policy and Economics of Ecosystem Services**' – HEAD TEACHING ASSISTANT. – with Prof. Rachael Garrett

2017 (Autumn): 252-0839-00 G (ETH Zürich): '**Informatics**' – TEACHING ASSISTANT - with Professor Lucas Fässler.

LANGUAGES

German (native) - English (professional working proficiency) - Spanish (fluent) - French (beginner) - Portuguese (beginner)

PROGRAMMING LANGUAGES

Python: Professional proficiency for geospatial analysis and deep learning (PyTorch, rasterio, geopandas).

R: Professional proficiency for statistical analysis, spatial data manipulation, and visualization.

SQL: Working knowledge for database querying and management of geospatial data.

GIS: Working knowledge of GIS software (QGIS) and spatial analysis techniques.

PROFESSIONAL MEMBERSHIPS

Global Land Programme (2021-present)
