Master Thesis Opportunity

Topic: Methods and tools for scientific literature research and text analysis in the context of trade-offs between renewable energies and biodiversity.

Summary: The Forest Entomology Group of the Swiss Federal Research Institute (WSL) is offering the opportunity for an exciting Master thesis project about literature research on the trade-offs between renewable energy production and biodiversity conservation. The goal of the master thesis is to develop the research design to investigate such trade-offs with the aid of computational text analysis tools, and to identify trade-offs between the implementation of renewable energy projects and biodiversity conservation and restauration. This thesis is ideal for Master students who are interested in programming, modelling, natural language processing (NLP), and also in supporting society's sustainability transition.

The master thesis is part of the project *Engage*, a Joint Initiative of the ETH domain. The project *Engage - evidence-based dialogue on trade-offs in wicked societal problems* is a transdisciplinary research project aiming to make explicit and discuss the trade-offs in complex situations where no single best solution exists. In the era of climate change, the transitioning to renewable energy use is paramount, while at the same time, the loss of biodiversity threatens the collapse of ecosystems. In order to navigate the establishment of renewable energy infrastructure and biodiversity restauration, we need to synthesize scientific evidence about the trade-offs and synergies of both endeavors. In this active field of research, new evidence is produced at a fast pace, which requires the development of an automated process to identify new literature, analyze content, and put the latter into context of already existing evidence. The Master student will be part of a research team that investigates the topic of renewable energies and biodiversity from different disciplines and perspectives and which is based at WSL, Eawag, Empa, EPFL and ETH.

Project goal: T The candidate should have good programming skills in R or Python and a strong interest in trade-off analysis in intricate societal problems. Basic knowledge in Natural Language Processing (NLP) and/or language models is an advantage.

Start date: The thesis starts in **summer/ autumn 2024** (flexible starting date possible).

Working Breakdown: Office work: 100%

Requirements: The candidate should have good programming skills in R or Python, a strong interest in trade-off analysis in intricate societal problems, and basic knowledge in Natural Language Processing (NLP) and/or language models is an advantage.

Supervision: the Master project will be jointly supervised by Leila Schuh from the Forest Entomology Group (WSL), Ueli Reber from the Policy Analysis and Environmental Governance Group (Eawag, University of Bern), and by Gerold Schneider from the Linguistics Research Infrastructure Group (UZH).

Contact: Leila Schuh (leila.schuh@wsl.ch)

More information about the Engage project can be found here:

https://www.engage-dialogue.ch/en/

More information about the forest entomology group can be found here: