

2 PhD positions, 40h/week (f/m/d)

Probabilistic & Physic-Informed Machine Learning for Wind Power

(Computer Science / Physics / Maths / Engineering etc.)

Institute of Theoretical Computer Science, TU Graz
Institute of Theoretical & Computational Physics, TU Graz
Intelligent Energy Systems Lab

We are seeking 2 highly motivated PhD students to join our interdisciplinary team and work on a cutting-edge applied project in the space of machine learning for thermal management and predictive maintenance of wind power generators. The focus of the two positions will be probabilistic and causal machine learning (e.g. probabilistic circuits) and physics-informed learning, respectively, and in collaboration with the Intelligent Energy Systems Lab and industry partners. We seek candidates with collaborative interdisciplinary mindset and passion for both mathematical and coding aspects. We seek 1 candidate with physics background (or similar), and 1 candidate with computer science background (or similar). This project is generously funded by FFG.

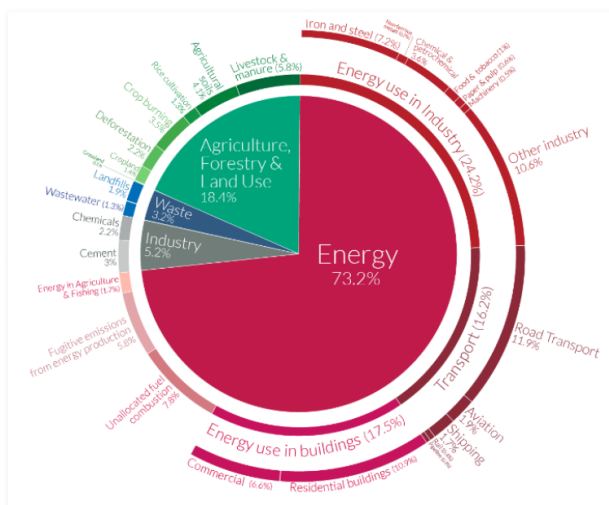
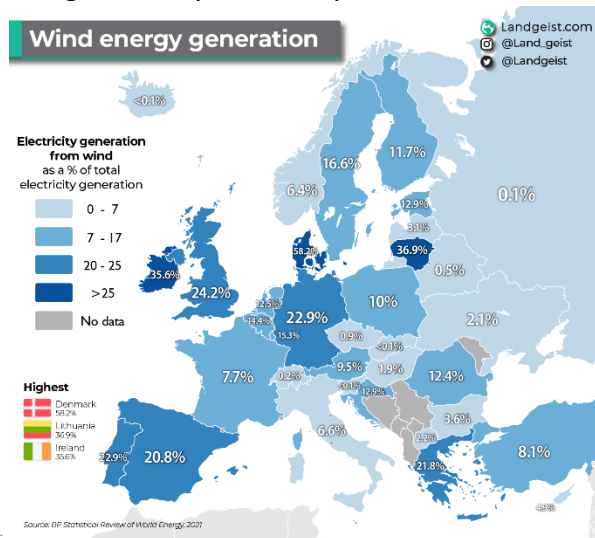


Abbildung 1.1.1: Global greenhouse gas emissions by sector. Source: Climate Watch, the World Resources Institute (2020).



Tasks:

- Contribute to an interdisciplinary research & development project at the intersection of machine learning, physics and energy systems.
- Develop mathematical models and theory on paper
- Code and test numerical implementations
- Collaborate with engineers, physicists and computer scientists
- Disseminate results (e.g. write papers, present at international conferences etc.)
- It is expected that the candidates will develop a PhD thesis

Your profile:

- Background in computer science, physics, maths, engineering or similar (Master's degree)
- Passionate about machine learning, modeling and the physics of wind power / energy systems
- Solid programming skills: Python or similar preferred
- Excellent analytical, problem-solving and communication skills, ability to learn quickly
- Ability to work independently and collaboratively in team environment

What we offer:

- The opportunity to obtain a doctoral degree based on the project's research results
- Extensive, cooperative training and mentoring on an individual basis at eye level
- Collegial atmosphere
- R&D experience in a young, auspicious and interdisciplinary field
- Flexible working hours, options for home office / tele-working
- The salary is 3578,80 €/month gross for a 40 h/week employment

Start date and duration: September 2024. This is a temporary position of up to 40/week for up to 36 months.

This is a unique opportunity to work on an interdisciplinary project that has the potential to make a significant impact in the field of climate change action. Please apply with your CV and cover letter, emphasizing your research/coding experience and interests. Recommendation letters will be considered.

Applications will be considered on a rolling basis until position is filled starting from July 1st, 2024.

Please send applications and/or inquiries for further information using the subject header [Application VENTUS - YOUR FAMILY NAME] to both Dr. Sascha Ranftl (ranftl@tugraz.at) and Prof. Robert Peharz (robert.peharz@tugraz.at)

Contact:

Prof. Dr. Robert Peharz
Institute of Theoretical Computer Science, TU Graz
Inffeldgasse 16b/I, A-8010-Graz

Dr. Sascha Ranftl
Institute of Theoretical Physics & Computational Physics, TU Graz
Petersgasse 16/II, A-8010-Graz