

Three PhD Positions in Data Science (f/m/d)

Project MINE-THE-GAP

Vienna University of Economics and Business (WU)
Institute for Ecological Economics

WU's Institute for Ecological Economics invites applications for three PhD positions within the ERC Consolidator Grant project **MINE-THE-GAP**. The project will develop the methodological foundation to enable global spatial-temporal information on mineral extraction, revealing where and when mining occurs, how much material is displaced, and what commodities and minerals are associated with individual mining operations. The project integrates data from various sources, including mining inventories, mining statistics, and satellite imagery, to develop scalable AI models for mapping mine-level indicators.

We are seeking three doctoral candidates within the MINE-THE-GAP project. The project offers a unique opportunity to accelerate your career by developing a skillset in AI and multimodal data fusion. Within the project, you will conduct high-impact research on environmental pressures and the impacts of the global mining sector, equipping you with scientific expertise and problem-solving skills urgently sought across academia, governments, industry, and NGOs to drive the global sustainability transition. Are you a creative and highly motivated data scientist eager to build and test cutting-edge AI models while tackling urgent sustainability challenges? Then come and build your PhD with the MINE-THE-GAP team.

Your responsibilities

As a PhD candidate, you will be a core member of the MINE-THE-GAP research team. Your primary responsibility will be to conduct your PhD research within one of the project's work packages, collaborating with the PI, postdoctoral researchers, other team members, and an international network of collaborators. You will collect data, develop, train, and validate AI models for analyzing satellite image time series and work with large-scale, multi-modal Earth observation data (e.g., radar Sentinel-1, multi-spectral Sentinel-2, LIDAR, hyperspectral). You will publish your research findings in high-impact international journals and present your work at international conferences. Your PhD research will be within one of the project's topic areas:

1. **Topic 1 - Mining Land Use:** Develop scalable models for semantic segmentation of mining areas (e.g., open pits, waste rock piles, tailings dams).
2. **Topic 2 - Mining Waste:** Develop scalable models to map indicators of mining waste generation.
3. **Topic 3 - Minerals and Commodities:** Develop scalable models to detect and identify minerals and commodity groups associated with mining sites.

Your profile

- A Master's degree in a **quantitative, data-intensive field** (e.g., Data Science, Geoinformatics, Remote Sensing, Computer Science, Economics, Statistics, *but not limited to these*)
- Demonstrated expertise in applying machine learning and/or deep learning methodologies
- Excellent programming skills (preferably Python)
- Excellent command of written and spoken English

Bonus qualifications

- Experience with cloud computing and relevant AI and machine learning libraries (e.g., TensorFlow, PyTorch, scikit-learn)

- Background on Earth observation data and geospatial analysis
- Skills with collaborative software development platforms (e.g., GitHub) and commitment to open-source principles

What we offer

- Being part of a cutting-edge ERC research program that will develop innovative solutions for global sustainability challenges
- Working within a dynamic, supportive, and interdisciplinary team of leading experts and collaborating with a wide international network of scholars
- Funding for conference travel, workshops, and publications
- Flexible working hours
- Meaningful work in an open-minded, inclusive, and family-friendly environment
- Career development programs for pre-doctoral researchers
- German language courses and other continuing education opportunities
- A modern campus with spectacular architecture in the heart of Vienna
- Excellent accessibility by public transportation

Start date: As soon as possible

Fixed-term: 2 years, with a planned 2-year extension after a positive progress assessment

Part-time: 30 hours/week

Location: Vienna, Austria

Salary: The monthly gross salary amounts to €2,786.10 (14 times per year). Compensation is in accordance with the Austrian collective agreement for university employees.

Application process

Please submit your application via email to **Dr. Victor Maus** at victor.maus@wuu.ac.at. Your application must include the following documents in a single PDF file:

1. A letter of motivation (max 2 pages). State your preferred PhD research topic and focus on skills and experiences relevant to the research topic
2. Curriculum Vitae (CV) including a list of publications (e.g. data, software, articles)
3. Contact information for two academic or professional references
4. Copies of your Master's and Bachelor's degree certificates

We encourage applicants of all genders, backgrounds, and identities!

Application deadline: The positions are open until suitable candidates are found.

We look forward to receiving your application!

December 3, 2025