



Conducting research for a changing society: This is what drives us at Forschungszentrum Jülich. As a member of the Helmholtz Association, we aim to tackle the grand societal challenges of our time and conduct research into the possibilities of a digitized society, a climate-friendly energy system, and a resource-efficient economy. Work together with around 7,500 employees in one of Europe's biggest research centres and help us to shape change!

Help us shape the future of energy! The energy transition is one of the greatest challenges of our time. At the Institute of Climate and Energy Systems – Jülich System Analysis (ICE-2), we conduct scientifically sound and data-driven research into what sustainable energy systems could look like. To this end, we analyze complex scenarios based on heterogeneous data sources and develop innovative software workflows. However, much of the available data and models remain unused because integrating them has been too costly and time-consuming. As part of a national joint project, we are using semantic technologies and modern data science methods to change this. Join our team and help us develop solutions for transparent, automated, and reproducible energy systems research!

We offer you to the next possible date an exiting

PhD Position – AI-driven integration of heterogeneous research data into energy systems models

Your Job:

As part of an interdisciplinary team, you will develop approaches for the automated and large-scale provision and integration of energy systems data and models and apply data science methods to make them usable for transparent energy systems analyses. The collected data will be processed and semantically enriched using methods you develop before being transferred to a knowledge graph-based metadata platform that you will help develop. In collaboration with stakeholders from energy research, you will develop methods to increase data and software interoperability, enabling the automated reuse of energy systems analysis processes. In line with FAIR and Linked Open Data principles, you will design interfaces that enable the smooth processing of big data in the context of scientific, AI-driven energy systems research – scalable, transparent, and interoperable. Your tasks in detail:

- Development of a structured description format for the unambiguous and machine-readable characterization of software interfaces and data models

The job will be advertised until the position has been successfully filled. You should therefore submit your application as soon as possible. We look forward to receiving your application via our

Online-Recruitment-System!

Questions about the vacancy?

Get in touch with us by using **our contact form**.

Please note that for technical reasons we cannot accept applications via email.
www.fz-juelich.de

- Selection and configuration of algorithms for annotating and organizing research data and software using state-of-the-art AI technologies
- Ensuring the sustainability and continuous expandability of data and software assets through the use of innovative knowledge graph structures
- Development of interfaces for the automated integration of research data into efficient open-source energy system model workflows

Your Profile:

- Master's degree in computer science, data science, natural sciences, economics, engineering, mathematics or a related field of study
- Huge interest in data science and energy technologies
- Basic knowledge of artificial intelligence and data analysis methods
- Programming skills, ideally in Python
- Independent and analytical way of working
- Reliable and thorough working style
- Fluent written and spoken English; German language skills are advantageous

Please feel free to apply for the position even if you do not have all the required skills and knowledge. We may be able to teach you missing skills during your induction.

Our Offer:

We work on the very latest issues that impact our society and are offering you the chance to actively help in shaping the change! We offer ideal conditions for you to complete your doctoral degree:

- A highly motivated working group as well as an international and interdisciplinary working environment in one of the largest research institutions in Europe
- Participation in an exciting consortium project with top-class partner institutions
- Excellent training, interdisciplinary collaboration, and practical insights in questions regarding negative emission technologies within the 'Helmholtz Research School for Negative Emission Technologies'
- The opportunity to complete a doctoral thesis within 3 years through professional supervision and internal support services; time taken to submit the final thesis for the last 16 doctoral students at ICE-2: 2.7 - 3.4 years
- Excellent scientific and technical infrastructure
- Opportunity to participate in (international) conferences and project meetings
- Continuous professional support by your scientific supervisor(s)
- Best conditions for successful work in home office
- 30 days of annual leave and provision for days off between public holidays and weekends (e.g. between Christmas and New Year)
- Further development of your personal strengths, e.g. through an extensive range of training courses; a structured program of continuing education and networking opportunities specifically for doctoral researchers via JuDocS, the Jülich Center for Doctoral Researchers and Supervisors: <https://www.fz-juelich.de/en/judocs>
- Targeted services for international employees, e.g. through our International Advisory Service

In addition to exciting tasks and a collaborative working atmosphere at Jülich, we have a lot more to offer: <https://go.fzj.de/benefits>

The position is initially for a fixed term of 3 years. Pay in line with 75% of pay group 13 of the Collective Agreement for the Public Service (TVöD-Bund) and additionally 60 % of a monthly salary as special payment („Christmas bonus“). The monthly salaries in euros can be found on page 66 of the PDF download: <https://go.fzj.de/bmi.tvloed> Further information on doctoral degrees at Forschungszentrum Jülich including our other

locations is available at: https://www.fz-juelich.de/gp/Careers_Docs

We welcome applications from people with diverse backgrounds, e.g. in terms of age, gender, disability, sexual orientation / identity, and social, ethnic and religious origin. A diverse and inclusive working environment with equal opportunities in which everyone can realize their potential is important to us.

Further information on diversity and equal opportunities: <https://go.fzj.de/equality>