JÜLICH
Forschungszentrum

Platzhalter

As a member of the Helmholtz Association, Forschungszentrum Jülich makes an effective contribution to solving major challenges facing society in the fields of information, energy, and bioeconomy. It focuses on varied tasks in the area of research management and utilizes large, often unique, scientific infrastructure. Come and work with around 5,900 colleagues across a range of topics and disciplines at one of Europe's largest research centres.

IEK-10 focuses on the development of models and algorithms for simulation and optimization of decentralized, integrated energy systems. Such systems are characterized by high spatial and temporal variability of energy supply and demand as well as by a high degree of interdependence of material and energy flows. Research at IEK-10 aims to provide scalable and real-time capable methods and tools which enable the energy-optimal, cost-efficient and safe design and operation of future energy systems.

Verstärken Sie diesen Bereich zum nächstmöglichen Zeitpunkt als

2017-291 - PhD position: Dynamic models for cloud-based energy system optimization

Your Job:
Forschungszentrum Jülich aims at a full digitalization of the energy system on its campus, including energy conversion units, distribution networks, and buildings. This creates a foundation on which measurement data and dynamic system models can be utilized to optimize control of the energy system's equipment and subsystems. Your tasks include:

- development of methods to use dynamic system models for a cloud-based optimization of system operation
- modeling of components and subsystems for use in model-predictive control strategies
- using these models in an automated process to assemble complete system models within a cloud-based optimization environment
- Connecting the optimization environment to the control system of the energy system
- demonstration and evaluation of the developed methods in the actual operation of the real system

Your Profile:

We look forward to receiving your application via our **Online-Recruitment-System!**

Contact
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- Excellent university degree in computational engineering science, chemical engineering, mechanical engineering, electrical engineering, physics, industrial engineering, or a relevant discipline
- Expertise in energy system modeling
- Expertise in the field of mathematical optimization
- Programming experience in Python and Modelica is highly welcome
- High motivation for pursuing a PhD within 3 years
- Excellent organizational skills and the ability to show initiative and work independently
- Excellent cooperation and communication skills and ability to work as part of a team
- Excellent skills in spoken and written English

Our Offer:

- A highly motivated research group in one of the biggest research centers in Europe
- An excellent scientific and technical infrastructure: both necessary conditions for a successful PhD thesis within three years
- Participation in project meetings and conferences
- Strong support and mentoring for setting up a future career in science and/or the industry
- International, interdisciplinary working environment on an attractive research campus, ideally situated between

the cities of Cologne, Düsseldorf, and Aachen

- A comprehensive further training programme, including English language courses
- Limited for 3 years
- Salary and social benefits according to the provisions of the Collective Agreement for the Civil Service (TVöD).

Forschungszentrum Jülich aims to employ more women in this area and therefore particulary welcomes applications from women.

We also welcome applications from disabled persons.