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!

The Bioinformatics Division of the Institute of Biological and Geosciences (IBG-4) processes and develops methods and algorithms to achieve a fundamental understanding of high-dimensional data and processes in the bioeconomy in particular. Bioinformatics at Forschungszentrum Jülich plays a leading role at the international level, for example in the field of plant and microbial data management, in the evaluation of new methods of genome analysis, in the integration, interpretation, and visualization of high-dimensional omics data from the field of bioeconomics, and in the modeling, simulation, and engineering of biomolecular systems, including enzymes.

Are you interested in plant sciences? Do you have a passion for applying cutting-edge methods to explore the bioeconomic relevance of plants? Then join the Bioinformatics division (IBG-4) at the Institute of Bio- and Geosciences, Forschungszentrum Jülich! We are seeking a highly motivated doctoral researcher to integrate state-of-the-art machine-learning algorithms with structural-functional plant models.

**We are offering a**

# PhD Position - Machine Learning & Plant Structural-Functional Modelling

**Your Job:**

- Develop AI pipelines that translate -omic signatures into dynamic model parameters
- Implement reinforcement-learning agents that optimise model performance
- Collaborate closely with modellers, molecular biologists and data scientists across IBG-3 and IBG-4
- Communicate your science by presenting at conferences, publishing software and peer-reviewed publications

**Your Profile:**

- Master's degree (or equivalent) in Data Science, Computational Biology, Bioinformatics, Computer Science, Physics or a related field

We look forward to receiving your application until 14.09.2025 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

- Solid programming skills and knowledge in deep learning, statistical modelling or reinforcement learning
- Interest in (or willingness to learn) plant physiology, genomics and process-based modelling; any prior exposure to crop or ecological models is a plus
- Proven ability to work independently, communicate clearly in English and thrive in an interdisciplinary team

**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:

- Structured doctoral training through the CASA School for Data and Life Sciences, including transferable-skill workshops and conference funding.
- Flexible, family-friendly working hours and a vibrant campus.
- Active support for career development in academia or industry.
- A large research campus with green spaces, offering the best possible means for networking with colleagues and pursuing sports alongside work
- Outstanding scientific and technical infrastructure
- Creative and international team that conducts research at the frontiers of science
- The Forschungszentrum Jülich is one of the largest research centres in Europe with excellent scientific equipment, including the fastest supercomputer in Europe, is located on a green campus, and near the cultural centres of Cologne, Düsseldorf and Bonn
- A highly motivated group and an international and interdisciplinary working environment in one of the largest research institutions in Europe
- 30 days of annual leave
- Targeted services for international employees, e.g. through our International Advisory Service
- 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

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 65% 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 euro can be found on the BMI website: https://go.fzj.de/bmi.tvoed.entgelt  Further information on doctoral degrees at Forschungszentrum Jülich (including its various branch offices) is available at https://www.fz-juelich.de/en/careers/phd

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