

## PhD project: A Framework for Meta Data Analysis and Interactive Exploration of large FAIR data sets: A Plant Phenotyping example

The Helmholtz School for Data Science in Life, Earth and Energy (HDS-LEE) provides an interdisciplinary environment for educating the next generation of data scientists in close contact to domain-specific knowledge and research. All three domains – life & medical sciences, earth sciences, and energy systems/materials – are characterized by the generation of huge heterogeneously structured data sets, which have to be evaluated in order to obtain a holistic understanding of very complex systems. Visit HDS-LEE at: [www.hds-lee.de](http://www.hds-lee.de)

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 infrastructures. Come and work with around 5,900 colleagues across a range of topics and disciplines at one of Europe's largest research centres.

### Project overview

The Institute of Bio- and Geosciences (IBG) at the Forschungszentrum Jülich GmbH in Germany investigates important questions in the Bioeconomy. The department IBG-2 Plant Sciences, at the Forschungszentrum Jülich GmbH has a nationally and internationally leading role in quantitative assessment of structural and functional plant traits with non-invasive methods, plant genome analysis and using data management and machine learning.

Within the IBG-2 our group focuses on the establishment of database resources for omics and phenotyping data, statistical and machine learning, the analysis of high throughput data and data visualization. In order to further improve these resources we are looking for a Doctoral Student (m/f) to strengthen its international and interdisciplinary team.

### Your Job:

- Conceptualization, development and implementation and development of FAIR data standards
- Cooperating with the MIAPPE consortium as a proof of concept study
- Development of services for metadata analysis for data analysis using interactive visualization and (potentially web-based) deep learning and approximate data embedding approaches for data visualization and interpretation

### Your profile

- MSc degree (or comparable) in computer science or in the natural sciences with a strong background in software development and engineering;
- Good expertise in JAVA, javascript and modern web technologies on \*nix systems.
- Preferably, knowledge in browser based data visualization and mining tools such as DC, D3 and tensor-flow.js and in numerical analysis;
- Experience with plant data and metadata and corresponding acquisition/storage technologies as well as familiarity with R is a plus
- Excellent communication skills in English are mandatory: TOEFL or equivalent evidence of English-speaking skills
- A high level of scholarship as indicated, for example, by bachelor and master study transcripts and two reference letters
- You are convincing with your confident attitude and good communication skills
- Outstanding organizational skills and the ability to work independently
- Very good cooperation and communication skills and ability to work as part of a team in an international and interdisciplinary environment

### Our offer

- Outstanding scientific and technical infrastructure – ideal conditions for successfully completing a doctoral degree
- Unique HDS-LEE graduate school program
- Creative and international team that conducts research at the frontiers of science

- Themes ranging from computational neuroscience to simulation technology
- The Jülich Research Center is one of the largest research centers in Europe, with excellent scientific equipment including the fastest supercomputer in Europe, is located on a green campus, and near the cultural centers Cologne and Düsseldorf and Bonn
- A highly motivated group as well as an international and interdisciplinary working environment at one of Europe's largest research establishments
- Chance of participating in (international) conferences
- Continuous scientific mentoring by your scientific advisor
- Doctoral degree conferred by RWTH Aachen University
- A contract for the duration of 3 years
- Pay in line with 100 % of pay group 13 of the Collective Agreement for the Public Service (TVöD-Bund)

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

We also welcome applications from disabled persons.

Become a part of HDS-LEE and apply at [https://www.fz-juelich.de/SharedDocs/Stellenangebote/\\_com-mon/dna/2019D-141-EN-IBG-2.html;jsessionid=2839CBB32B664872CA650B2E8810A5E7?nn=718260](https://www.fz-juelich.de/SharedDocs/Stellenangebote/_com-mon/dna/2019D-141-EN-IBG-2.html;jsessionid=2839CBB32B664872CA650B2E8810A5E7?nn=718260)

Starting date: at the next possible date