

The environment  
needs people like you  
to move heaven and  
earth with us →



**Equal opportunities** are an integral part of our personnel policy; we therefore particularly welcome applications from qualified women. Severely disabled persons are given priority where applicants are equally qualified.

**Your contact for any questions you may have about the job:**

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**Closing date for applications:**  
18.02.2019

**Place of work:** Leipzig

Please use our online application system for your application.

More information about jobs at the UFZ:  
[www.ufz.de/career](http://www.ufz.de/career)

Helmholtz-Zentrum für  
Umweltforschung GmbH - UFZ  
Permoserstraße 15  
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Erfolgsfaktor  
Familie

The Helmholtz Centre for Environmental Research (UFZ) with its 1,100 employees has gained an excellent reputation as an international competence centre for environmental sciences. We are part of the largest scientific organisation in Germany, the Helmholtz association. Our mission: Our research seeks to find a balance between social development and the long-term protection of our natural resources.

Modern flow cytometry is a data-rich endeavor where huge data sets are routinely created. We generate data sets with optical properties of millions of cells in a high-throughput fashion. The analysis of microbial communities as done in our lab has applications in medical diagnosis, health, yield improvement in bio-reactors, the analysis of eco-systems, and many more.

The amount of data created makes manual curation and analysis infeasible, naturally requiring a computational approach. The scientific questions to be tackled in this project are interdisciplinary and bridge data extraction, algorithm development, and statistical analysis.

The group has wide experience in microbial community analysis in natural and artificial ecosystems, in quantification of their structure-function relationships and interpretation of their ecological behavior. We provide extensive scientific networks both nationally and internationally and a young and highly collaborative research environment.

This PhD project will be supervised in cooperation with the Chair for Bioinformatics, Faculty of Mathematics & Computer Science of the University of Leipzig. The research of the Flow Cytometry group at the Department of Environmental Microbiology of the Helmholtz Centre for Environmental Research UFZ is focused on understanding of the activity and survival strategies of complex microbial communities on the basis of individual microbial cell states and functions.

The Department of Environmental Microbiology, Working group Flow Cytometry is inviting applications for a

## PhD student (m/f)

**Subject: Development of automated model-based clustering tools for microbial cytometric data**

starting date: 01.04.2019, working time: 75% (29,25 hours per week), duration of the project: 3 years

### Your tasks:

- The development and implementation of efficient algorithms for automatic microbial cluster analysis.
- Visualization of huge single cell data sets, and time series data.
- Development of an integrative approach that combines information of ecosystems into microbial cytometric data.
- The prediction of microbial community behavior over time using novel ecological models.

### Your profile:

- The applicant should hold a Master degree (or comparable) in Computer science, bioinformatics, data science, applied mathematics, statistics, or a related field.
- The ideal candidate has a background in at least one of the following areas: algorithm development, statistics, bioinformatics, modelling and basic microbiology.
- Experience in at least one programming language is required, as is the willingness to acquire knowledge about development and implementation of efficient algorithms for high-throughput data.
- The ability to communicate in an inter-disciplinary team.

### We offer:

- Top level interdisciplinary research at a research centre which enjoys an excellent reputation within Germany as well as internationally
- Excellent technical facilities
- Work in inter-disciplinary and multinational teams
- Excellent links to national and international research networks
- Support and optimal training courses by our graduate school (HIGRADE)
- Remuneration in accordance with the TVöD public-sector pay grade 13 (75%)

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» back

