

**Technische Universität Berlin**

Technische Universität Berlin offers an open position:

Research Assistant - PostDoc - salary grade E 13 TV-L Berliner Hochschulen

under the reserve that funds are granted - part-time employment may be possible

UWI is research training group (RTG) at Technische Universität Berlin (TUB) and Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB) of engineers and natural scientists focusing on urban water interfaces which will play key roles in the urban water cycle. The processes and fluxes across interfaces are highly complex and their current understanding is notably incomplete.

Over the last years, the study of hydrological processes using remote sensing techniques has advanced greatly with the launch of new sensors and with the development of more sophisticated retrieval algorithms. But due to the enormous complexity of the urban water system, few methods have been adapted to the urban environment. For instance, current remote sensing-based algorithms to determine evapotranspiration do not function in urban or heterogeneous environments. The proposed postdoctoral scientist will fill this gap and provide innovative remote sensing and data retrieval methods to bridge the gap between local field studies and the city scale. The candidate will also provide essential area wide input parameters for advanced ecohydrological models. In particular, PhD students from the RTG will benefit from collaboration with the PostDoc. Hypotheses of systems functioning from various doctoral theses can be tested on a broader scale and applied ecohydrological models can be improved with additional remote sensing-based parameters. Examples of doctoral projects that the PostDoc will collaborate with include the estimation of heat and vapour fluxes of urban vegetation using remote sensing data and modelling of the GHG footprint of a metropolitan area.

The PostDoc will have a close link to the research addressed in UWI. The candidate will work on complex and challenging problems and develop new methodologies in close collaboration with UWI PhD research projects. He or she will benefit from the lively and interdisciplinary environment of UWI, acquiring a broad view on their research fields. The PostDoc will be involved in the supervision of several doctoral theses and work on strengthening the links between different topics. Furthermore, the candidate will gain additional teaching experience by developing and giving lectures in the course program.

Fakultät VI - Institut für Landschaftsarchitektur und Umweltplanung/ FG Geoinformation in der Umweltplanung

Reference number: VI-752/19 (starting at 01/01/20 / limited until 33 months / closing date for applications 29/11/19)

Working field: The main tasks and contributions of the PostDoc will be purely scientific and include:

- Recording and processing of different remote sensing data (optical, radar, hyperspectral, Laser) at different spatial and temporal scales (drone and satellite)
- Adapt parameter retrieval and modelling methods to the urban environment
- Testing local hypotheses of energy and substance flow on the watershed or city-scale by using remote sensing-based data retrieval algorithms
- Improving models by integrating remote sensing input variables

It is planned to use multispectral, hyperspectral, and thermal cameras mounted on a drone to record urban spectral and spatial characteristics of selected study sites. We will run an inverse modelling approach (e.g. SCOPE) where we derive specific biophysical parameters and energy fluxes directly from a set of remote sensing based parameters. Machine learning approaches will also be applied in addition to conventional models to derive biophysical parameters. The methods will be calibrated at the local sites in Berlin and tested at watershed and city-scale.

Requirements:

- PhD in Geoecology, Geography, Hydrology, Environmental Sciences, Geosciences, or a related field with a strong focus on remote sensing
- Strong knowledge in image processing (optical, radar, hyperspectral, Laser) and radiative transfer models
- Demonstrated programming skills for implementing relevant methods and techniques in R, Python and/or C++ and experience in Open Source Code development
- Strong interest in fieldwork and experience in flying drones would be a plus
- Candidate must be enthusiastic about the prospect of working in a collaborative team with international engineers and natural scientists.
- Demonstrated ability to write and publish scientific papers
- very good command of English and/or German required; willingness to learn German is expected

The application should include the following documents:

- CV including relevant professional experience and knowledge.
- Copies of PhD degree.
- Brief explanation of why you want to conduct research, about your academic interests and how they relate to your previous research and future goals; max. 2 pages long.

- Representative publications (Max. 5)
- Contact information for two reference persons.

Please send your **written** application with the **reference number** and the documents to Technische Universität Berlin - **Fakultät VI, Fachgebiet Geoinformation in der Umweltplanung, Prof. Dr. Birgit Kleinschmit, Sekr. EB 5, Straße des 17. Juni 135, 10623 Berlin** or **preferably by e-mail to sekretariat@geoinformation.tu-berlin.de**.

To ensure equal opportunities between women and men, applications by women with the required qualifications are explicitly desired. Qualified individuals with disabilities will be favored. The TU Berlin values the diversity of its members and is committed to the goals of equal opportunities.

Please send copies only. Original documents will not be returned.

The vacancy is also available on the internet at
<http://www.personalabteilung.tu-berlin.de/menue/jobs/>

