

The Peter L. Reichertz Institute for Medical Informatics (PLRI) of TU Braunschweig and Hannover Medical School is seeking for a

Research Assistant / Postdoc (w/m/d)

in

Explainable Clinical Decision Support

The Institute

PLRI, one of the largest university-based centers for medical informatics in Germany, is a joint institute of TU Braunschweig and Hannover Medical School. As an academic institution belonging to two leading universities, comprising an institute of technology and a medical school, located in one of Europe's most research-intensive regions, PLRI offers excellent research opportunities. We collaborate in interdisciplinary projects with health care centers, research institutes, enterprises and public organizations in order to shape the future of healthcare and medicine. Our activities range from the local level, as with institutions in Braunschweig and Hannover, through regional, national, and global corporations.

The full position (38.5 working hours per week) is open since the announcement and limited to 31 December 2023. The remuneration is based on the salary level TV-L E14. International applicants will need to complete a visa process before hiring can take place. The position is based at PLRI Campus Hannover and part of *the PLRI research focus Medical Information Systems* (<https://www.plri.de/>).

Your Challenges

Clinical decision support is a key motivation for structuring and documenting medical data in a uniform manner. Due to rapidly growing amounts of data (monitoring systems, process data, patient-generated data, etc.), their heterogeneity and rapidly increasing publication knowledge on the one hand and specific data processing requirements on the other hand (e.g. serial image and genetic sequence analyzes), medical professionals are increasingly overwhelmed with analysis tasks. Clinical decision support systems can take on specific tasks in diagnostic and therapeutic processes and support medical professionals in decision-making, through the abilities to process large amounts of data in a short time and to consider individual patient profiles (genetic information, biomarkers, hundreds of laboratory values) during processing.

Increasingly, such systems contain AI (Artificial Intelligence) components and predictive pathophysiological and pathobiochemical simulations that support diagnosis and therapy decisions. However, trust in such components and simulations in practice is heavily dependent on the explainability and interpretability of the underlying models and the calculated decisions and simulation results. In addition to the application, the development of the models themselves also benefits greatly from explanatory approaches. The successful applicant will develop new concepts, methods, and systems for explainable clinical decision support based on medical image and non-image patient data from clinical routine. Particular challenges arise here in medical data preparation including data quality assessment and wrangling, feature extraction, the generation, verification, and visualization of explainable decision support models, model maintenance, and model translation to the clinic.

The successful applicant is expected to assist in the acquisition of third party funding, publish high-quality scientific publications at renowned conferences and journals, establish interdisciplinary collaborations between computer scientists, engineers, physicians, and industry, and assist in University teaching and the supervision of students.

Your Profile

We are seeking outstanding candidates that have:

- obtained or are in the process of obtaining a PhD degree in the area of computer sciences, information systems, medical informatics, mathematics, or a comparable course of study
- strong research experience in medical information sciences, technology, or data processing as well as programming (Python, R, etc.) and software engineering skills in at least one of the following fields:
 - Clinical Decision Support Systems
 - Explainable Artificial Intelligence
 - Visualization and analysis of medical (image) data
 - Machine learning, data mining, predictive modeling
 - Medical data science, medical knowledge engineering
- outstanding publication profile,
- excellent oral and writing skills in English; German language skills are advantageous,
- willingness to work closely with an interdisciplinary project team,
- self-initiative and result-oriented working style, and
- experience in the acquisition of external funding is preferred.

Application Process

Please prepare your application documents in German or English as a combined PDF document consisting of:

- a cover letter (including your motivation),
- a CV,
- academic performance records (grades during your Bachelor, Master and PhD studies including grading scale details),
- a proof of your language proficiency, and
- a copy of your PhD thesis and/or Master's thesis.

Please upload your documents at <https://mhh.hr4you.org/application/>. Review of applications will begin with submission and will continue until the position is filled. Reimbursement of application costs is not possible.

The Hannover Medical School is a certified family-friendly university and is committed to promoting women in professional life. Applications from women are particularly welcome. Severely disabled applicants will be given preference if they have the same qualifications.

Application Deadline

August 23, 2021

For further questions, please contact:

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