31.01.2025

Job advertisement No. 10/2025

As the German National Library of Science and Technology our future-oriented services ensure the infrastructural requirements for a high-quality supply of information and literature for research in science and industry. With the Open Research Knowledge Graph (ORKG), we are working to revolutionise the exchange and use of scientific knowledge in the digital age.

The Technische Informationsbibliothek (TIB) – Leibniz Information Centre for Science and Technology – Program Area D, Open Research Knowledge Graph, is seeking to employ a

Research Associate / Doctoral Candidate (m/f/d)

to work under the supervision of Prof. Sören Auer and Dr. Gollam Rabby in the Data Science & Digital Libraries Research Group, starting at the earliest possible date.

The position is initially limited to 3 years with envisioned extension. The regular weekly working hours are 29.85 (part-time, 75 %). The remuneration is based on pay scale group 13 TV-L.

Your challenge

The Data Science & Digital Libraries Research Group is at the forefront of pioneering research, which combines the principles of the sciences with state-of-the-art artificial intelligence. Our group places a strong emphasis on the mathematical foundations of AI models. Our work focuses on key areas such as knowledge graphs, knowledge representation and basic models, including those that underlie language and image processing systems in the scholarly domain.

A particular aspect of our research is the improvement of the logical abilities of AI, trying to create systems that are not only powerful and efficient but also shaped by the underlying principles of the natural world. By leveraging the insights of the sciences, we want to develop AI solutions that are more robust, interpretable and capable of sophisticated conclusions to push the boundaries of what AI can achieve in understanding and interacting with complex environments in scholarly research.

Your responsibilities include

- **Advancing AI-based tools for ORKG:** Developing and implementing innovative AI-driven tools to enhance the Open Research Knowledge Graph (ORKG).
- **Supporting fundamental AI research in scientific communication:** Conducting literature reviews, designing and validating mathematical models and exploring theoretical approaches in areas such as probability theory, optimization and physics-informed AI to ensure robust and interpretable solutions.
- **Improving knowledge graphs:** Contributing to the design, construction, and optimization of knowledge graphs; developing algorithms for efficient reasoning and testing new methods of knowledge presentation to improve the decision-making ability of the AI.
- **Contributing to language and visual models:** Assisting in the training, fine-tuning and evaluation of large-scale language and visual models; conducting experiments to improve their reasoning and argumentation abilities as well as their integration into broader AI systems.
- **Providing general research support:** Documenting findings, presenting research progress, contributing to funding proposals and publications and collaborating with senior researchers to strengthen the group's presence in the field of machine intelligence.
- **Publishing and presenting research outcomes:** Publishing results in peer-reviewed journals and presenting at prestigious research conferences.

- **Pursuing a dissertation:** Conducting in-depth research and authoring a dissertation focused on advancing AI in the field of scientific communication.

Your profile

We are looking for innovative and results-driven individuals who are able to grasp new knowledge quickly, combine abstract thinking with concrete problem-solving and have an interest in tackling complex challenges with enthusiasm. Candidates should demonstrate strong scientific writing and communication skills. Your expertise and research interests should be rooted in computer science, data science or a related discipline, with a proven passion for foundational AI research, knowledge representation and the application of physics-informed methodologies. Furthermore, a strong dedication to research data management and the implementation of [FAIR](#) data principles is highly valued.

The following qualifications are expected

- A successfully completed Master's degree or equivalent in computer science, data science, artificial intelligence or a related discipline.
- Hands-on experience in development, with a strong track record of publishing high-quality articles in leading AI, machine learning (ML), natural language processing (NLP) or knowledge graph (KG) conferences or journals, as well as expertise in developing real-world applications for tasks related to NLP, ML and KGs.
- Proficiency in developing and fine-tuning large language models (LLMs) and transformer-based architectures.
- Excellent software development skills, particularly in front-end development and/or web-based API and back-end development, as well as knowledge in script-based data processing and analysis (in particular in Python, using frameworks such as TensorFlow, PyTorch or Hugging Face Transformers).
- Practical experience with knowledge graphs, semantic web technologies, ontology development and graph databases, including their integration with LLMs.
- Proven knowledge of data and metadata standards, especially in connection with the management of research data, with an understanding of the challenges and best practices for training and the use of language models on a large scale.
- A strong interest in engaging with research communities, understanding their needs and implementing tailored AI solutions.
- Excellent written and spoken English skills, complemented by strong communication abilities.

Desirable additions to your profile

- Multimodal AI and Explainable AI (XAI): Experience in integrating language with other modalities and developing interpretable AI models, particularly in relation to large language models (LLMs).
- Advanced Expertise in Mixture of Experts (MoE): Proficiency in amplification techniques, especially in the context of natural language processing or decision-making systems.
- Agent Workflows in LLMs: Practical experience in designing agent-based workflows through effective prompting of language models or utilizing agent frameworks.

What we offer

Our mission is to keep rethinking and innovating the provision and use of research data and information. In [TIB's Research and Development Department](#), you have the opportunity to advance your career in a sizable, dynamic and excellent environment. We provide a scientifically and intellectually inspiring environment with an entrepreneurial mindset embedded in a leading technical university and one of the largest technical information centers being part of the [Leibniz Association](#). TIB collaborates closely with the L3S Research Center at Leibniz University Hannover, one of the world's leading research institutes in the field of Web & Data Science, within the

Leibniz Joint Lab Data Science & Open Knowledge. Last but not least, we attach great importance to an open, creative and fun work atmosphere.

Furthermore, we offer

- A job in the public service oriented towards the common good on the basis of the collective agreement for the public service of the German states (TV-L) with a salary in pay scale group 13 TV-L, provided that the requirements are met.
- A flexible workplace in terms of time and space with offers to reconcile work and family life, such as mobile and remote work options as well as flexible working time models (flexitime).
- A special annual payment at the end of the year and 30 days of vacation per year with a five-day working week.
- A modern workplace in a central location of Hannover with a collegial, attractive and versatile working environment.
- An employer with a wide range of internal and external further education and training measures, workplace health promotion and a supplementary pension scheme for the public sector (VBL).
- Employee discount in the canteens of the Studentenwerk Hannover as well as the possibility to use the various offers of the University Sports Hannover at a discount.
- Independent and future-oriented activities that offer variety and room for personal development.
- Funding for necessary equipment, conference and research visit travel.
- Work in the context of a national, European or international research and innovation project.
- A portfolio of technology components to build on, including ORKG, OpenResearch.org, TIB_AV-Portal, DBpedia.org and other

For inquiries about the position, please contact Dr. Gollam Rabby, Postdoctoral Researcher in the Data Science & Digital Libraries Research Group, at Gollam.Rabby@tib.eu.

How to apply

We look forward to receiving your application. To submit your application, please click here.

Paper applications are also possible on an equal basis. In this case, please send your complete application documents with the subject **10/2025** before **March 1, 2025** addressed to

Technische Informationsbibliothek (TIB)
Personalservice
Herrn Daniel Eilers
Welfengarten 1 B
30167 Hannover
Germany

or alternatively as a single PDF document file to bewerbung@tib.eu. For applications in digital from, please send a PDF file with a maximum size of 10 MB.

In the case of foreign university degrees, it is mandatory to submit a Statement of Comparability from the Central Office for Foreign Education (ZAB) for the final assessment of the hiring requirements during the hiring process (link for more information). A fee will be charged for this. This obligation does not apply if the foreign university degree has already been assessed by an expert and is listed in the ANABIN database of the ZAB as an equivalent university degree (link to ANABIN database).

Who we are

TIB, being part of the Leibniz Research Association, is with around 600 employees one of the largest technical information centres in Germany, having three main functions:

1. Acting in the capacity of the Leibniz Information Centre for Science and Technology, our forward-looking services secure the infrastructural requirements for providing researchers in science and industry with high-quality information and literature.
2. Carrying out cutting edge research to further expand TIB's role as a German information centre for the digitisation of science and technology.
3. Offer library services for the Leibniz University Hannover.

TIB is an equal opportunity employer, providing ideal working conditions, and continuously taking action to enable its employees to combine career interests with family life. It wants to promote equal career opportunities for women and men in particular and therefore urges qualified women to apply.

Severely disabled candidates with comparable qualifications will be given preferential treatment. We welcome applications from all nationalities.

Please indicate in the subject of your application which job exchange brought our offer to your attention.

Please note that your application documents will not be returned and application and travel costs cannot be reimbursed.

For more information about the TIB, please visit: www.tib.eu/en/