04.02.2025

Job advertisement No. 12/2025

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 join the Artificial Intelligence for Scholarly Communication Research Group (Prof. Sahar Vahdati), 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 Artificial Intelligence for Scholarly Communication Research Group is at the forefront of pioneering research that merges the principles of natural sciences with cutting-edge Artificial Intelligence. Our group has a strong emphasis on the mathematical foundations of AI models. Our work is concentrated in key areas such as knowledge graphs, knowledge representation and foundational models, including those that underpin language and vision systems. A distinctive aspect of our research is the focus on enhancing the reasoning capabilities of AI, striving to create systems that are not only powerful and efficient but also deeply informed by the underlying principles of the natural world. By leveraging the insights from natural sciences, we aim to build AI solutions that are more robust, interpretable and capable of sophisticated reasoning, pushing the boundaries of what AI can achieve in understanding and interacting with complex environments.

Your responsibilities include

- **Support Foundational AI Research**: Conduct literature reviews, develop and test mathematical models and validate theoretical approaches in areas such as probability theory, optimization and physics-informed AI, ensuring models are robust and interpretable.
- **Contribute to Language and Vision Models**: Assist in training, fine-tuning and evaluating large-scale language and vision models, conducting experiments to improve their reasoning abilities and integrating them into broader AI systems.
- **General Research Support**: Document, present research progress, contribute to proposals and publications and collaborate with senior researchers to advance the group's mission in nature-inspired machine intelligence.

You will also have the opportunity to

- Promote the development and application of AI-based methods both theoretically and practically.
- Publish and present research findings at prestigious research conferences and in peer-reviewed journals.
- Develop a dissertation in the area of Artificial General Intelligence for science.

Your profile

We are looking for innovative and efficient individuals who are able to grasp new knowledge quickly, combine abstract thinking with practical problem-solving and have a passion for tackling complex challenges. Your expertise and research interests should be rooted in computer science, data science or a related field, with a demonstrated passion for foundational AI research. Key areas of focus include agent-based workflows in large language models (LLMs), effective prompting and fine-tuning of language models, enhancing the reasoning capabilities of LLMs and a solid foundation in mathematics.

The following qualifications are expected

- **Educational Background**: A successfully completed Master's degree or equivalent in computer science, data science, artificial intelligence or a related field with very good grades.
- **Expertise in Artificial Intelligence and Natural Language Processing (NLP)**: Proven experience in AI with a strong focus on large language models, reasoning capabilities and natural language processing methodologies.
- **Passion for Complex Problem-Solving and AGI Development**: A strong motivation to tackle challenging problems and contribute to advancements in artificial general intelligence.
- **Research-Oriented Mindset**: Proven ability to design and execute experiments, analyze complex problems and contribute to cutting-edge research in AI and computational reasoning.
- **Programming and Analytical Skills**: Advanced proficiency in Python and relevant ML frameworks (e.g. PyTorch, TensorFlow) combined with a solid understanding of data structures, algorithms and statistical methods.
- **Collaborative and Solution-Oriented Approach**: A strong interest in collaborating with research communities, understanding their needs and translating their requirements into high-quality AI-driven solutions, especially in the context of language models and AI reasoning.
- **Language and Communication Skills**: Excellent proficiency in written and spoken English, supported by strong communication abilities.
- **Time Management and Critical Thinking**: The candidate is expected to have good time management skills and be able to balance conducting experiments, running simulations, analyzing data and writing papers. This requires the ability to work effectively with critical thinking and attention to detail.

Desirable additions to your profile include

- **Advanced Knowledge in Reinforcement Learning (RL)**: Experience with reinforcement learning techniques, particularly in the context of natural language processing or decision-making systems.
- **Publication Record**: A track record of publishing high-quality papers in top-tier AI/ML and NLP conferences or journals.

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.
- 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

If you are interested, questions regarding the position can be addressed to Daniel Eilers, People & Culture department, by mail at Daniel.Eilers@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 **12/2025** before **March 5, 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.

We kindly invite you to include your annual salary expectation with your application.

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/