Postdoctoral Researcher Position (m,f,x) for 2 years within ERC Starting Grant (TV-L E 13, 39.83 hours per week)

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Stellenbeschreibung

The Chair of Artificial Intelligence and Formal Methods at the Faculty of Computer Science is looking for a

Postdoctoral Researcher (m,f,x) for 2 years with 39,83 hours per week, TV-L E13

The newly founded Chair of Artificial Intelligence and Formal Methods at the Ruhr-University Bochum, headed by Prof. Dr. Nils Jansen, has a clear mission:

Increasing the trustworthiness of Artificial Intelligence (AI).

We conduct broad foundational and application-driven research. Our vision of neurosymbolic AI brings together the areas of machine learning and formal methods, particularly formal verification. We tackle problems inspired by autonomous systems, industrial projects, and planning problems in robotics.

The following goals are central to our efforts:

* Increase the dependability of AI in safety-critical environments.
* Render AI models robust against uncertain knowledge about their environment.
* Enhance the capabilities of formal verification to handle real-world problems using learning techniques.

We focus on various aspects of dependability and safety in AI, intelligent decision-making under uncertainty, and safe reinforcement learning. A key aspect of our research is to achieve a thorough understanding of the (epistemic or aleatoric) uncertainty that AI systems may encounter in real-world scenarios.

There will be freedom to shape the chair in an excellent research environment, in close collaboration with Radboud University Nijmegen, RWTH Aachen University, The University of Oxford, and The University of Texas at Austin. We publish regularly in top venues and journals in Artificial Intelligence (AAAI, IJCAI, ICLR, NeurIPS, JAIR), Formal Methods (CAV,

TACAS), and Control Theory (Transactions on Automatic Control). Our latest results can be found at https://ai-fm.org/publications/.

The Postdoc position is part of Nils Jansen's ERC Starting Grant DEUCE: Data-Verification and Learning Under Uncertainty. The project aims to advance the scalability and expressiveness of formal verification techniques to support the real-world deployment of reinforcement learning systems. In particular, the project seeks to tackle significant challenges in ensuring the safety of reinforcement learning methods in complex environments characterized by:
* High degrees of freedom and high-dimensional feature spaces.
* Realistic, continuous spaces.
* The inherent uncertainty faced by reinforcement learning agents in real-world scenarios.
The project combines interdisciplinary approaches from Machine Learning, Artificial Intelligence, Formal Methods, Robotics, and Control Theory.

In this role, you will be a key member of a dynamic research team, focusing on high-impact research in the context of the ERC Starting Grant project. You will have the opportunity to shape the direction of the research and contribute to cutting-edge advancements in the field.

Your tasks:

- Conduct research within the chair's key areas, contributing to publications and developing a strong research profile.

- optional: Support the chair's teaching program by conducting exercises and organizing seminars and practical courses, particularly in the areas of artificial intelligence, formal verification, and programming languages.

- optional: Supervise Bachelor's and Master's projects and theses.

- Develop your own independent research line while leading a team of PhD students and Bachelor or Master students to work towards a joint research goal aligned with the chair's focus areas.

- Engage in shaping the future direction of the new chair and contribute to the development of innovative research approaches.

Anforderungsprofil & Qualifikationen

Your profile:

- PhD in Computer Science, Electrical Engineering, or related fields.

- Strong interpersonal and communication skills in English.

- Background in one or more of the following areas is beneficial, but not mandatory: Formal Methods, Artificial Intelligence, Machine Learning, Control Theory, and Robotics.

- Experience in software development, including proficiency in programming languages such as Python, Java, or C/C++, is a plus.

Our offerings:

- A position with a primary focus on research in a cutting-edge and highly relevant field.

- The opportunity to work in a collaborative and supportive international research environment.

- A dynamic research group with strong ties to leading institutions worldwide.

- Employment at one of Germany's largest universities, part of the University Alliance Ruhr.

Additional information:

At the request of the applicant (m,f,x), the staff council may be involved in selection interviews. https://www.wpr.ruhr-uni-bochum.de/

If the position is funded by third-party funds the employee has no teaching obligation.

German language courses are offered by the University Language Center (ZfA) in the field of German as a Foreign Language (DaF).
https://www.daf.ruhr-uni-bochum.de/sbgk/index.html.en

You can find information about TV-L at: https://oeffentlicher-dienst.info/

At the request of the applicant (m/f/x), the position can also be taken up on a part-time basis.

Your application should contain:
* A motivation letter. Highlight, why you think that your research profile is a good fit for the position. As a hint, if you have published at the same venues as us, then your profile might very well be a good fit.
* Your CV.
* The names and email addresses of at least two other researchers that we may ask for reference letters.
* Optional: For potential interviews, we will ask you to read one of our papers and discuss it (critically) with us. Such a discussion may already be part of the application documents.

The Ruhr-Universität Bochum is one of Germany's leading research universities, addressing the whole range of academic disciplines. A highly dynamic setting enables researchers and students to work across the traditional boundaries of academic subjects and faculties. To create knowledge networks within and beyond the university is RUB's declared aim.

Contact details for your application:

Verena Schramm, Phone: +49234 32 15270
Öznur Takil, Phone: +49234 32 28579

Travel expenses for interviews cannot be refunded.

For information on the collection of personal data in the application process see: https://www.ruhr-uni-bochum.de/en/information-collection-personal-data-application-process.

We are looking forward to receiving your **application with the specification ANR: 3889 until 28/10/2024, send by e-mail ONE SINGLE PDF file (max 10 MB) to the following address: applications-aifm@ruhr-uni-bochum.de**

Please get in touch with the contact person named above if you would like to use an alternative application channel.

Vorteile für Mitarbeitende

- Sport- und Freizeitangebote

- Weiterbildungsmöglichkeiten

- Vergünstigtes Jobticket

- Arbeitsplatz in lebendiger Metropolregion

Stellenmerkmale

Beschäftigungsart	**Wissenschaftliche:r Mitarbeiter:in**
Beschäftigungsumfang	**Vollzeit (befristet)**
Home Office	**Nein**
Bewerbungslink	**https://jobs.ruhr-uni-bochum.de/jobposting/ f3de276dc2da6c5d415f59f48a0b8d30db33f0cb? ref=stellenwerk**

Kontaktdaten

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