

In cooperation with the University of Wuppertal, the Center for Advanced Internet Studies (CAIS) in Bochum fills the position of a

University professor for computer science
“Design of trustworthy Artificial Intelligence”
(m/f/d)

The position will be based within the School of Mathematics and Natural Sciences and is to be taken up by 1 January 2024 (acc. to § 36 Higher Education Act of North-Rhine Westphalia, legal basis: W 2 LBesG NRW).

The successful candidate is expected to head the research programme “Design of trustworthy Artificial Intelligence” (“Design vertrauenswürdiger Künstlicher Intelligenz”) which is conducted in cooperation with the School of Mathematics and Natural Sciences of the University of Wuppertal.

The research professorship at the CAIS is associated with a professorship at the University of Wuppertal, which is limited to a period of 5 years (Jülicher Modell). Afterwards, the position will be transformed into a tenured professorship. Immediately after being appointed professor, the successful candidate will be released from his or her duties at the University of Wuppertal in order to carry out his or her research tasks at the CAIS. During the leave of absence, the holder of the post is obliged to continue teaching a two-hour course during the semester.

As part of an institutional funding by the state of North-Rhine Westphalia, the CAIS has been developed and turned into a central institute for digitization research since 2021. The institute aims at participating actively in a social and technological shaping of the digital transformation through research, which focuses on the potential and challenges for people. Humanistic and engineering subjects are interrelated in interdisciplinary research programmes, which range from application-oriented problems to fundamental questions in digital ethics. The transfer of knowledge to society and the cooperation with players from politics, economics and civil society are key aspects in this context. At the CAIS four research programmes will be implemented during the coming years: “Digital Democratic Innovation”, “Educational Technology and Artificial Intelligence”, “Digitalization and Sustainability”, and “Design of trustworthy Artificial Intelligence”.

The programme “Design of trustworthy Artificial Intelligence” is part of the European agenda to establish principles of a trustworthy artificial intelligence, to realise them technically, and to test them in practical fields of application in collaboration with users. Research in computer science and the development of new methods and algorithms is supposed to be realized through interdisciplinary collaboration with the Department of Social Science, the Department of Psychology, the Department of Education Research and the Department of Ethics and through the exchange with other research programmes of the CAIS.

Possible topics of the programme are

- Dimensions of trustworthy artificial intelligence and their technical implementation,
- Explaining artificial intelligence providing scientific explanations to different user groups,

- Development, analysis, and evaluation of improved methods of artificial intelligence with regard to trustworthiness and reliability, e.g., when ensuring non-discrimination,
- Empirical research on trusting artificial intelligence in consideration of interactive and participative approaches, e.g., human-machine-interaction,
- Development and integration of artificial intelligence methods proved reliable in the field of technology and natural sciences,
- Quantifying uncertainty and recognizing Out of Distribution Data (OOD) which is considered to be an indicator of trustworthy Artificial Intelligence,
- Technical implementation of ethics guidelines for trustworthy artificial intelligence in terms of Ethical by Design together with the development of metrics and test data sets to record ethical compliance as a foundation for certifications.

The university professor's area of responsibility at the CAIS

The university professor is expected to head the research programme "Design of trustworthy Artificial Intelligence" ("Design vertrauenswürdiger Künstlicher Intelligenz") and undertakes content-related and coordinating activities within the programme. The holder of the post supervises projects and doctoral theses as a first or second assessor. The professor is particularly responsible for the interdisciplinary cooperation and consolidation of content in the research programme and ensures that research groups as well as individual projects provide general results. The professor supports the internal and external networking of the CAIS with research initiatives at universities and research institutions. In cooperation with the CAIS team of Knowledge Transfer, the successful candidate participates in the programme's knowledge transfer and public relations. Moreover, the holder of the post is willing to participate in the acquisition of external research fundings at the University of Wuppertal or the CAIS.

In agreement with the executive board and the committees of the CAIS, the holder of the post clearly defines the agenda of the research programme "Design of trustworthy Artificial Intelligence, develops the profile of project positions and chooses the candidates for these positions jointly with the commission of the CAIS. For the time being, there are one position of a post-doc and four positions for doctoral candidates to be filled, ideally with candidates from different disciplines.

The university professor's area of responsibility at the University of Wuppertal

The University of Wuppertal and the School of Mathematics and Natural Sciences expect the prospective colleague to participate actively in the university's research activities and to link the university with the research conducted at the CAIS. After his/her temporary leave, the holder of the post is also expected to continue his/her research programme referring to the center's research focuses on High Performance Computing, Data Analytics and Algorithmic and to meet his/her teaching obligation. Furthermore, the candidate is expected to teach to the extent required by law (currently nine hours of instructions) mainly in basic lectures and advanced lectures of the courses Computer Science and Information Technology, including service offerings of other courses. The prospective colleague is expected to participate actively in the university's research activities and to link the university with the research conducted at the CAIS.

The successful candidate is particularly expected to cooperate with the Interdisciplinary Center for Machine Learning and Data Analytics (IZMD). Moreover, a cooperation with research groups from the Institute for Mathematical Modelling, Analysis and Computational Mathematics is desired. The successful candidate is expected to actively support academic self-governance at the university after the end of his or her temporary leave.

Skills profile for the post of a research professorship at the CAIS

- Completed doctorate in Computer Science or a similar field.
- The successful candidate is recognised internationally for excellent publications.
- The applicant is known for his or her research excellence in the field of artificial intelligence or machine learning with clearly identifiable relations to the research programme “Design of trustworthy Artificial Intelligence” (“Design vertrauenswürdiger KI”).
- A record of successful acquisition of third-party funding for research projects.
- Substantial interest in the relation between information technology and society and in studying and shaping the interaction of technological and social innovations.
- The successful candidate is open and willing to participate in the integration of digital and algorithmic systems and their ethical evaluation and legal regulation.
- The applicant is willing and able to work in an interdisciplinary research environment with the departments of humanities and social sciences.
- Organisational skills, communication skills and the willingness to work in a team.
- Interest in knowledge transfer and scientific communication and the cooperation of participants from politics, economics and civil society.
- Clear references to the research groups in computer sciences at the School of Mathematics and Natural Sciences and the Interdisciplinary Center for Machine Learning and Data Analytics (IZMD) including the willingness to participate in collaborative research projects.
- Pedagogical suitability and willingness to give basic lectures in the university’s computer science courses.
- Excellent knowledge in German and English.
- Compliance with the conditions set out in § 36 Higher Education Act of North Rhine-Westphalia (Hochschulgesetz NRW).

Requirements:

Besides pedagogical suitability, which has to be proven by appropriate previous experience or, in exceptional cases, demonstrated by excellent performance during the appointment procedure, the applicant is expected to have a particular aptitude for scientific work substantiated by the outstanding quality of a doctorate. Further scientific achievements must be demonstrated additionally and will be evaluated exclusively and comprehensively during the appointment procedure. In case of a successful first appointment to a professor, these scientific achievements will be performed by the successful candidate either as a junior professor, in the form of a post-doctoral lecture qualification (habilitation), as a research assistant at a university or at a non-university research institution or in the form of a scientific position in business, in administration or another social field in Germany or abroad.

The University of Wuppertal and the Center for Advanced Internet Studies consider gender equality as an integral part of their human resources policy. The holder of the post will be involved in implementing the University's gender equality approach.

We offer

- Attractive conditions for research and networking.
- Development and implementation of innovative research and scientific collaboration in a socially highly topical field.
- An exciting and challenging leading position including the opportunity to shape one's work autonomously.
- Working with an experienced and excellent team.
- The remuneration will be agreed upon individually in accordance with the Federal Civil Remuneration Act of North-Rhine Westphalia (Landesbesoldungsgesetz Nordrhein-Westfalen) supplemented by the option of defined benefit commitment.

Informative application documents, including a sketch of ideas on possible objectives and scientific issues of an interdisciplinary research programme "Design of trustworthy Artificial Intelligence", merged into one pdf document, should be submitted to KI@cais-research.de and [und \[bewerbungen@uni-wuppertal.de\]\(mailto:bewerbungen@uni-wuppertal.de\)](mailto:bewerbungen@uni-wuppertal.de) .

Reference number: P22020.

Application deadline: **28 February 2023.**

For further information please contact the scientific director of the CAIS, Prof. Dr. Michael Baurmann: michael.baurmann@cais-research.de or Prof. Dr. Andreas Frommer of the University of Wuppertal: frommer@uni-wuppertal.de.

The University of Wuppertal and the Center for Advanced Internet Studies consider gender equality as an integral part of their human resources policy. Both institutions actively promote equality of all persons in the workplace. Applications from persons of any age or gender (m/f/d) regardless of their cultural or social background are highly welcome.

In accordance with the Gender Equality Act of North Rhine-Westphalia, women will be given preferential consideration unless there are compelling reasons in favour of an applicant who is not female. The same applies to applications from disabled persons, who will be given preference in the case of equal suitability.