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Become part of our international team!

ZIB
ZUSE INSTITUTE BERLIN

3 June 2021

The Zuse Institute Berlin (ZIB) is a non-university research institute under public law of the state of Berlin. Within the research group „Explainable A.I. for Biology", part of the „Visual and Data-Centric Computing" department, we are offering a

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Research Position (m/f/d)
Reference Code: WA 28/21
Pay Grade: E13 TV-L Berlin (100%)

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in the *Berlin Institute for the Foundations of Learning and Data* (BiFOLD). With an opportunity to start at the earliest possible date, this vacancy offered is a fixed-term contract until 31 December 2022 (end of project).

Background

Deep neural networks are becoming ubiquitous in modern applied sciences. In the research group Explainable A.I. for Biology, we work towards understanding how and why DNN architectures function. Given architectures like DCNNs are becoming a primary tool in disease diagnoses, we think that understanding the underlying mechanisms of such architectures is imperative. In light of this, we are looking for a topologist who is passionate about data and theory to help transition key measures from the theory of Machine Learning (the calculation of which is currently computationally unfeasible) to more computationally tractable metrics in topology.

Job description

The goal of the project is to:

- investigate the persistent homology of the space of activations,
- extend notions of mutual information and entropy into topological constructs,
- incorporate symmetry groups of activations to layers of deep convolutional neural networks,
- publish the results in peer-reviewed journals and to present them at international conferences.

You will be part of an interdisciplinary environment, closely working with bioinformaticians, biologists, and clinicians.

Requirements

- Master's Degree in mathematics or a related field of study (with focus on topology)
- Good programming skills (Python, or similar)
- Experience in the area of algebraic topology (TDA)
- Good command of spoken and written English

Additionally, you are

- a team player
- and interested in interdisciplinary collaborations.

We are offering a friendly working atmosphere with flexible work and meeting times, excellent equipment and a challenging professional environment

as well as

- a varied, future-oriented and demanding field of activity,
- comprehensive training in a competent and cooperative team,
- an additional pension scheme (VBL),
- 30 days annual leave, flexible working hours (flexitime),
- a salary in accordance with TV-L (Collective Agreement for the Public Service of the Federal States), taking into account the relevant professional experience,
- an end-of-year bonus,
- discounted BVG (public transport) ticket as part of the capital city allowance,
- and the use of canteens and sports programs of the Freie Universität Berlin (FUB) at reduced rates.

Female applicants are highly encouraged to apply. Since women are underrepresented in information technology, the ZIB is trying to increase the proportion of women in this research area.

Applicants with disabilities will be given preference if equally qualified.

Please send your application, quoting the reference code **WA 28/21**, including a cover letter containing a statement of your research interests, a CV with a list of publications, academic transcripts, and contact details of two references, by **2 July 2021** (date of receipt) by email to: jobs@zib.de

Our private policy statement regarding application data is available at www.zib.de/impressum.

For further information about the position, please refer to our website www.zib.de or contact Dr. Vikram Sunkara (sunkara@zib.de).

For further job offers please visit our website at www.zib.de/jobads.