Ph.D. Student in Artificial Intelligence for the Life Sciences

The junior research group led by Dr. Andrea Mastropietro is looking for a motivated Ph.D. student to join the Department of Life Science Informatics and Data Science at the University of Bonn and Lamarr Institute for Machine Learning and Artificial Intelligence.

The Lamarr Institute is dedicated to advancing both the theory and application of high-performance, trustworthy, and resource-efficient machine learning and artificial intelligence. The Institute comprises several interconnected research areas. The Department of Life Science Informatics and Data Science at The University of Bonn is part of the "Life Sciences & Health" Interdisciplinary Research Area, chaired by Prof. Dr. Jürgen Bajorath, which connects machine learning, explainable artificial intelligence, and data science with the life sciences. Its primary application domains include drug discovery, medical research, and healthcare.

The Lamarr Institute collaborates with leading interdisciplinary and domain partners in the area of Life Sciences and Health. Among others, partners include the University Hospital Bonn, the Tübingen Center for Academic Drug Discovery, and the Nara Institute of Science and Technology in Japan.

Research Topics

The candidate should be interested in one or more of the following research areas, which reflect the main directions of the junior research group:

- Graph learning and graph neural networks for chemo- and bioinformatics
- Molecular diffusion models
- Graph transformer models
- Explainable artificial intelligence
- Agentic AI

Requirements

- M.Sc. in Computer Science, Engineering, Data Science, Artificial Intelligence, Bioinformatics, Computational Life Sciences/Chemistry/Biology, or related fields

- Advanced programming skills (Python is the preferred language)
- Knowledge of machine and deep learning techniques and frameworks (e.g., PyTorch)
- In case you have a computer science/engineering/data science background, knowledge of chemistry and biology is a plus, but basic knowledge is recommended
- Strong communication skills in written and spoken English
- Will to learn and engage in challenging research

If your background does not perfectly match every requirement but you are interested in the position, we **strongly encourage you to apply**. As an interdisciplinary group, we highly value diverse backgrounds and expertise.

You will

- Conduct research in a multidisciplinary environment at a German University of Excellence
- Participate in teaching activities within the international M.Sc. program in Life Science Informatics
- Have the opportunity to collaborate with national and international partners
- Get access to high-end computing facilities (GPU clusters and workstations)

Position

- **PhD Position**: TV-L E13 50%
- **Duration**: 3 years
- **Start date**: flexible; early start preferred
- **Location**: Bonn, Germany

Application

Students with a strong interest in computational research at interfaces between computer science, life sciences, and artificial intelligence are encouraged to apply. If you are interested in this Ph.D. position, send an email to mastropietro@bit.uni-bonn.de with the following:

- Subject: **APPLICATION PHD POSITION - [FIRST_NAME LAST_NAME]**
- CV
- Cover/motivation letter (specifying also the research topics you are most interested in – feel free to propose your own ideas)
- Preferred start date/period

Applications will be reviewed on a rolling basis.

We value and actively promote diversity in our team and therefore welcome all applications – regardless of age, gender, nationality, ethnic and social background, religion, worldview, disability, sexual orientation, or identity. Applications from women and non-binary candidates are explicitly encouraged. Applicants with severe disabilities will be given preference in the case of equal qualification and professional performance. Our tasks are diverse and adaptable – for applicants with disabilities, we will jointly find solutions that optimally foster their abilities.

If you have any questions regarding the position, send an email to mastropietro@bit.uni-bonn.de.