Philipps Universität Marburg

Within the interdisciplinary research project MOSLA (MOlecular Storage for Long-time Archives), the **Faculty of Mathematics and Computer Science** - Bioinformatics Group, Prof. Dr. Dominik Heider, offers one position as

Research Assistant
(PhD student)

The position is offered for a period of 3 years, if no former times of qualification must be considered. The starting date is January 1st 2020. The positions are part-time (**65 %** of regular working hours) with salary and benefits commensurate with a public service position in the state Hesse, Germany (TV-H E 13, 65 %).

The candidate will be responsible for the development of bioinformatics software to improve the comparability and reproducibility of state of the art methods to evaluate efficient data storage. That is to say, encoding information in biological molecules or chemical compounds. The action of encoding and decoding information is a process that we perform on a daily basis. Language is a great example as words carry different meanings. There exists many levels of processing information, the successful candidate will examine information theory metrics (e.g., compression ratio), error correction, and decoding accuracy (e.g., parity checks) for a quantitative assessment of information processing. A foundational aspect of this project is the creation of an evaluation framework that integrates state of the art methods for text mining (e.g., Markov chains, Long short-term memory or LSTM, etc). Her/His efforts include but are not limited to developing novel algorithms, implementing different state of the art methods into an open source framework, and maintaining a code base to benefit both the community and the research project.

In the research project MOSLA, the University of Marburg and the University of Giessen will jointly develop novel approaches and solutions for long-time archives based on molecular and chemical storage systems. Besides the technical solutions of data storage, they will also research in (de-)coding of information for long-time storage, which will be achieved by a combination of genetic and chemical information encoding. The project is funded by the Hessian Ministry for Science and Arts.

The positions are limited to a time period deemed adequate for the completion of a doctoral degree. As part of the assigned duties, there will be ample opportunity to conduct the independent scientific research necessary for the completion of a doctorate. The limitation complies to § 2, 1 WissZeitVG.

We expect the candidate to have a Master in bioinformatics, computer science, data science, physics or a similar field, good programming skills, and the willingness to work in an interdisciplinary collaborative project together with partners from different areas. Disposition to own scientific qualification (e.g. a doctorate project in the area bioinformatics) is expected.

We actively support the professional development of junior researchers, e.g., by the offers of Marburg Research Academy (MARA), the International Office, and the Human Resources Development Office.

We support women and strongly encourage them to apply. In areas where women are underrepresented, female applicants will be preferred in case of equal qualifications. Applicants with children are welcome – Philipps-University is certified as a family-friendly university. A reduction of working time is possible. Applicants with a disability as described in SGB IX (§ 2 Abs. 2, 3) will be preferred in case of equal qualifications. Application and interview costs cannot be refunded.

Application documents are to be submitted as one pdf-file to the Department of Mathematics and Computer Science, moslajob@synmikro.uni-marburg.de, until October 11th 2019, quoting the reference number fb12-0024-MOSLA-wmz-2019.