TUD Dresden University of Technology, as a University of Excellence, is one of the leading and most dynamic research institutions in Germany. Founded in 1828, today it is a globally oriented, regionally anchored top university as it focuses on the grand challenges of the 21st century. It develops innovative solutions for the world's most pressing issues. In research and academic programs, the university unites the natural and engineering sciences with the humanities, social sciences and medicine. This wide range of disciplines is a special feature, facilitating interdisciplinarity and transfer of science to society. As a modern employer, it offers attractive working conditions to all employees in teaching, research, technology and administration. The goal is to promote and develop their individual abilities while empowering everyone to reach their full potential. TUD embodies a university culture that is characterized by cosmopolitanism, mutual appreciation, thriving innovation and active participation. For TUD diversity is an essential feature and a quality criterion of an excellent university. Accordingly, we welcome all applicants who would like to commit themselves, their achievements and productivity to the success of the whole institution.

At the **Cluster of Excellence „Physics of Life" (PoL),** the **Heisenberg Chair of Biological Algorithms** (Prof. Dr. Benjamin Friedrich) offers a project position as

Research Associate / Postdoc (m/f/x)
for AI-supported image analysis
(subject to personal qualification employees are remunerated according to salary group E 13 TV-L)

starting at the **earliest possible date.** The position is limited until December 31, 2025, with the option of extension subject to the availability of resources. The period of employment is governed by § 2 (2) Fixed Term Research Contracts Act (Wissenschaftszeitvertragsgesetz - WissZeitVG).

The team: How do physical mechanisms shape functional biological patterns? We are a group of curious and motivated theoretical biological physicists who address this question in close collaboration with experimental partners in a range of model systems – from sarcomere patterns in muscle cells to biomineral shells to transport networks in the pancreas and other three-dimensional tissues. A common task in each project is the quantitative analysis of image data – tracing features, tracking objects, segmenting structures – to eventually build data-driven mathematical models.

Your tasks: Your task will be engineering software to support one or several ongoing projects, by benchmarking, extending and standardizing existing custom-built image analysis pipelines (Python, Matlab). A key element will be to design machine-learning classifiers. You will be embedded in a vibrant research group, which includes close communication with modelers and experimentalists.

To learn more about our projects and the type of image data we analyze, we highly recommend to check out two exemplary recent publications (and the corresponding code and image repositories):

- Rodier et al.: Muscle growth by sarcomere divisions. bioRxiv (2024)
- Babenko et al.: Mechanism of branching morphogenesis inspired by diatom silica formation. Proc. Natl. Acad. Sci. U.S.A. (2024)

Of course, you will be involved in writing scientific publications for high-profile peer-reviewed journals, presenting your research at conferences, and possibly establishing software repositories to share image analysis code with the wider scientific community.

Requirements:

- outstanding university and PhD degree in Computer Science, Applied Mathematics or Physics
- advanced programming skills and experience in data and image analysis
- ideally, first exposure to biological physics and biological data analysis
- excellent communication and presentation skills in English
- high self-motivation and independent, target- and solution-driven work attitude

What we offer: The opportunity to contribute to exciting research projects right at the intersection of Physics, Biology and Computer Science, while developing your academic or professional career. You will be embedded within the highly interactive and interdisciplinary research environment of the Cluster of Excellence "Physics of Life" and the Dresden Life Science Campus. Employment conditions include a comprehensive package with full social benefits. Dresden offers a high-quality of life with a relatively low cost-of-living.

TUD strives to employ more women in academia and research. We therefore expressly encourage women to apply. The University is a certified family-friendly university. We welcome applications from candidates with disabilities. If multiple candidates prove to be equally qualified, those with disabilities or with equivalent status pursuant to the German Social Code IX (SGB IX) will receive priority for employment.

Please submit your detailed application with the usual documents by **April 25, 2024** (stamped arrival date of the university central mail service or the time stamp on the email server of TUD applies), preferably via the TUD SecureMail Portal https://securemail.tu-dresden.de by sending it as a single pdf file to **benjamin.m.friedrich@tu-dresden.de** or to: **TU Dresden**, **Heisenberg-Professur für Biologische Algorithmen, Herrn Prof. Dr. Benjamin Friedrich, Helmholtzstr. 10, 01069 Dresden, Germany**. Please submit copies only, as your application will not be returned to you. Expenses incurred in attending interviews can only be reimbursed in exceptional cases.

Reference to data protection: Your data protection rights, the purpose for which your data will be processed, as well as further information about data protection is available to you on the website: https://tu-dresden.de/karriere/datenschutzhinweis.