

We are seeking a student or PhD candidate to join our team as scholarship holder no. 1 for the project “Taming aggregation with AmyloGraphem 2.0: database and predictive model of amyloid self-organization of modulators”. The project is part of National Science Center Poland SONATA 19 contest (DEC-2023/51/D/NZ7/02847).

Name of entity: Bioinformatics and Multiomics Analysis Laboratory, Clinical Research Centre, Medical University of Białystok

Project Manager: Michał Burdukiewicz, PhD

Type of NCN contest: SONATA 19

Project number: 2023/51/D/NZ7/02847

Name of post: student/PhD candidate - scholarship holder

Project description:

Amyloids are proteins present in many diseases, i.e. Alzheimer’s disease, Parkinson's disease, Creutzfeldt-Jakob's disease and type 2 diabetes. They are characterized by their ability to self-aggregate into unique supramolecular fibrils. AmyloGraph, an amyloid interactions database developed by our team (<https://amylograph.com/>), is the largest source of information on the effect of modulators on amyloid self-aggregation. During the project, we will design and develop machine learning-based tools to process data. Moreover, we will rebuild user interface to facilitate access to newly gathered information. Apart from creating the new version of AmyloGraph, gathered data will be used to train predictive models to design new chemical compounds inhibiting self-aggregation, which might be used to treat various amyloid diseases. More information about our team and the project itself may be found at <https://biogenies.info/>.

Requirements:

Student Status: Currently enrolled in first-cycle studies (3rd year), second-cycle studies (1st year), or long-cycle master’s studies (2nd to 4th year) at universities within the Republic of Poland in the fields of IT, Mathematics, Biotechnology, Bioinformatics, Biostatistics, or related disciplines; or a PhD candidate without a doctoral degree (participant of doctoral studies as defined by the Act of 27 July 2005 Higher Education Law, or a doctoral student in a doctoral school as defined by the Act of 20 July 2018 on Higher Education and Science).

Knowledge or experience:

- Proficiency in designing machine learning models.
- Experience in creating and implementing databases.
- Advanced knowledge of the R language, particularly within the tidyverse environment and the Shiny package.
- Knowledge of Python and JavaScript is an advantage.
- Familiarity with version control systems.
- Strong teamwork skills and motivation to conduct research.
- Very good command of English, both written and oral.

Task description:

1. Automating the search for new sources of information.
2. Developing tools for automated data validation.
3. Creating tools for automated data acquisition from new sources.
4. Designing and implementing a new version of the AmyloGraph database.
5. Implementing the new version of the AmyloGraph database.
6. Training and conducting a comparative analysis of the prediction model for modulators.
7. Implementing generative models for designing small molecules.

Employment conditions:

- **Place of task performance:** Bioinformatics and Multiomics Analyses Laboratory, Clinical Research Centre, Medical University of Białystok, Poland.
- **Scholarship payment period:** 01.10.2024 – 31.09.2025 (with the possibility of extension until at least 31.06.2027) based on a scholarship contract.
- **Scholarship amount:** PLN 2 500,00 gross per month.
- **Planned start date for project work:** 01.10.2024,
- covering conferences costs.

Additional Information:

Submission deadline: **06.09.2024, 15:00 (GMT+2)**

Submit documents: via e-mail: michal.burdukiewicz@umb.edu.pl in topic: **“scholarship holder in project no. 2023/51/D/NZ7/02847”**.

We reserve the right to grant responses solely to the selected candidates.

Qualification interviews (online, Google Meet) with persons who submit the required documents will be held on **16-17.09.2024**

Required documents:

1. Cover letter,
2. CV with:
 - so far scientific achievements, including publications in renowned publishing houses/scientific journals
 - achievements stemming from the conducted scientific research, scholarships, awards and scientific experience in the country or abroad, workshops and scientific training, participation in research projects

Please include an email and phone number in the current CV.

3. Certificate on the status of student/doctoral student.
4. Signed below information containing Information on the processing of personal data by the Medical University of Białystok with regards to persons applying for the scholarship and consent for the processing of personal data, elaborated in the form of a separate document:

Please merge all files in one file, preferably pdf, with your initials and position number.