



CeNT-34-2024

Director of Centre of New Technologies of the University of Warsaw, with the Project Leader, announce opening of the competition for the position of Student in the Interdisciplinary Laboratory of Biological Systems Modelling – Centre of New Technologies of the University of Warsaw.

JOB OFFER

Position in the project:	Student
Laboratory:	Interdisciplinary Laboratory of Biological Systems Modelling
Scientific discipline:	Chemical Sciences, Physical Sciences, Pharmaceutical Sciences
Keywords:	structural biology, cysteine – bonds, X-ray, cryo-EM, non-trivial topology
Job type (employment contract/stipend):	stipend
Part-time/full-time:	Part-time or full time, to be agreed with a candidate
Number of job offers:	2
Maximum stipend amount/month:	2000 - 3000 PLN gross gross, depending on experience and qualifications
Position starts on:	1.12.2024
Maximum period of contract/stipend agreement:	12 months, with the possibility of extension
Institution:	Centre of New Technologies, University of Warsa
Project leader:	Professor Joanna Sułkowska
Project title:	Topological classification of proteins with cysteine bridges and the effect of knotting on protein folding
Competition type:	OPUS 24
Financing institution:	NCN
Project description:	<p>The goal of this project is to create a state-of-the-art AI methods to design with AlphaFold and AI methods proteins with non-trivial topology based on cysteine-bridges. Identification of lasso, links, theta curves and cysteine knots in proteins based on AlphaFold/ESMFold databases, big-data approach.</p> <p>The project is interdisciplinary and involves aspects of computer simulations, biophysics, and both in vivo and in silico studies. The role of the applicant will be to conduct experimental investigation to develop a method/protocol to obtain a sample of protein and then determine the structure using either X-ray or cryo-EM methods. The results obtained will then be used as</p>



	training data for the AI model so as to create a state-of-the-art methods to design biomolecules.
Key responsibilities include:	Establishing methods for selected proteins expression and purification. Preparing samples for X-ray and cryo-EM measurements. Participation in structure determination and description.
Profile of candidates/requirements:	<p>The competition is open for persons who meet the conditions specified in the regulations on the allocation of resources for the implementation of tasks financed by the National Science Centre for OPUS 24 grant.</p> <p>BSc. degree in chemistry or biology/pharmacy will be an asset. Experience in protein expression and purification. Candidate should have strong background in protein biochemistry or biophysics or molecular microbiology (should have experience with a protein expression from an E. coli bacterium, chromatographic methods of their purification, kinetics study). Experience in conducting computer simulations, knowledge of Python, scientific computing libraries, and Linux environment will be an advantage.</p>
Required documents:	<ol style="list-style-type: none">1. Cover letter;2. Current curriculum vitae;3. Lectures completed during the course of study with marks;4. Signed information clause on the processing of personal data, available at: https://cent.uw.edu.pl/en/wp-content/uploads/sites/5/2020/11/Information-clause_personal-data-processing.pdf5. Copy of document confirming the student status. <p>Before entering the competition, candidates are obliged to familiarise themselves with Internal Reporting Procedure.</p>
We offer:	An opportunity to participate in a multidisciplinary project in one of the best scientific institutions in Poland. Stimulating, young and friendly work environment. Access to high quality structural biology laboratory, as well as, high-end computing equipment (CPU clusters). Opportunity to participate in various practical EMBO workshops.
Please submit the following documents to:	j.sulkowska@cent.uw.edu.pl with 'CeNT-34-2024' as the email title
Application deadline:	12.11.2024
Date of announcing the results:	No earlier than 22.11.2024
Method of notification about the results:	e-mail, CeNT website