Scholarship for PhD student

in the NCN project, *Understanding the biophysical limiting factors of patterning precision in developing tissues*, SONATA BIS, 2021/42/E/NZ2/00188.

Principal investigator: PhD Marcin Zagórski

Requirements

The scholarship is aimed for applicant with computational background. The applicant should have MSc in biophysics, physics, mathematics, computer science or similar. The applicant should successfully apply to PhD school in Polish research institution or university.

The applicant should have:

- interest in the interdisciplinary aspect of the project,
- experience with numerical solvers (C++, Python),
- proficiency in written and spoken English.

Experience in developmental biology, image segmentation algorithms and cell-based models will be an asset.

Project description

In the developing organism cells proliferate, rearrange, and physically interact with other cells in the growing tissue. Chemical signals spread through the tissue to specify spatial patterns of different cell types with remarkable precision and reproducibility. Surprisingly little is known about how precision of this pattern is limited by cellular and mechanical factors in a growing tissue. The project will focus on understanding: (1) how growth is related to patterning precision, (2) how cellular dynamics and biomechanical feedbacks are limiting patterning precision, (3) how global mechanical constraints acting on a growing tissue are affecting patterning precision.

Scope of work

The PhD student will identify possible cellular mechanisms and biomechanical feedbacks affecting patterning precision in vertebrate tissues. The PhD student will derive estimates of bio-mechanical tissue properties from high resolution experimental data provided by external collaborators. The estimates will be used to inform computational models of biomechanical feedbacks. The PhD student will actively take part in group research activities, including dissemination of project results through publications, scientific conferences, research seminars and general audience talks.

Scholarship

The NCN funded scholarship for PhD students is provided for 4-years.

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Documents

Scientific CV, list of publications, one recommendation letter.

The documents should be sent to: marcin.zagorski@uj.edu.pl. I highly encourage inquiries before the application deadline.

Important dates

Call opening:	22 March 2024
Doctoral School recruitment at Jagiellonian University:	June 2024
Application deadline:	**1 October 2024**
Results:	by 15 October 2024.

Additional information

Selected candidates will be invited for an interview. Successful candidate will be selected by a committee chaired by the project leader.

The condition of successful application to Doctoral School in Polish research institution or university needs to be fulfilled to be considered in this opening. Please consult details at https://science.phd.uj.edu.pl/en_GB/start. Please contact me in advance to prepare application to Doctoral School at Jagiellonian University.

More information about research projects and group activities can be found at http://zagorskigroup.com/.