

Two (2) Master's students fellowships

[Ref # PAR-0515]

The research group of Developmental Morphogenesis of IMBB-FORTH under the Human Frontiers Science Program Research Grant Ref. RGP022/2023 entitled "Cellular and molecular basis of bilaterian symmetry" (Program Coordinator Dr. Anastasios Pavlopoulos) invites applications for two (2) motivated Master's students to develop and apply computational tools for bioimage data analysis.

About the lab:

The Developmental Morphogenesis Lab at IMBB-FORTH in Crete Greece studies the origin of biological form during animal development and evolution. Our research aims to understand the molecular, cellular and biophysical mechanisms that sculpt different tissue shapes and sizes to suit the lifestyle of the organisms. To achieve this goal, we are focusing on genetically and optically tractable arthropod species that satisfy a number of appealing biological and technical requirements. We combine advanced microscopy and image analysis pipelines with genetic and mechanical perturbations to reconstruct and analyze intact developing embryos from a bottom-up cellular perspective, and to understand how the genomic information is translated into morphogenetic cellular activities like patterned cell proliferation, change of shape and movement.

About the project:

Bilateral symmetry is a hallmark of most animals. The external left and right sides of bilaterians develop separately but somehow manage to produce symmetric matching halves. Bilateral symmetry is astonishing considering the number of constituent cells, the long developmental times and the pervasive occurrence of destabilizing factors. How animals build and maintain bilaterally symmetric tissue architectures remains a mystery. This HFSP-funded project will take a holistic strategy bridging the molecular, cellular and tissular scales in live developing, crustacean embryos to elucidate the control mechanisms that establish their bilateral symmetry during normal embryogenesis and restore it during healing after experimentally induced left/right asymmetries. An international team led by Dr. Anastasios Pavlopoulos at IMBB-FORTH in Greece, Dr. Liangqi (Frank) Xie at the Cleveland Clinic Foundation in USA and Dr. Léo Guignard at the Marseille Developmental Biology Institute in France will integrate experimental and computational frameworks to understand how the information encoded in the genome instructs cells to divide, change shape or position to sculpt correctly proportioned matching halves. These studies will resolve how tissue-level patterns emerge from cell-level properties. They will also reveal how autonomous mechanisms in each side are combined with feedback mechanisms between sides to coordinate growth and promote symmetry.

Position Description:

The selected candidates will develop and apply image analysis pipelines in time-lapse fluorescence microscopy datasets obtained from the optically and genetically tractable crustacean model organism *Parhyale hawaiiensis*. Major tasks include the segmentation and tracking of cells and nuclei, the reconstruction and analysis of cell lineages, the generation of cell atlases and quantification of cell descriptors.

Required qualifications:

- B.Sc. degree in physical or natural sciences.
- Enrollment in a graduate program leading to a Master's degree.
- Experience with open-source bioimage data analysis platforms.
- Very good oral and written communication and presentation skills in English.

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Desired qualifications:

- Programming skills (e.g. Python, Java, Matlab).
- Ability to collaborate closely with more senior and junior scientists.

	Evaluation criteria	Maximum score
1.	Experience with bioimage data analysis (0-6 months = 10 points, 6-12 months = 20 points, 12-18 months = 30 points, 18-24 months = 40 points, >24 months = 50 points)	50
2.	B.Sc. degree grade (Score points = grade x 3)	30
3.	Oral and written skills in the English language (B1 = 5 points, B2 = 10 points, C1 = 15 points, C2 = 20 points)	20
Total score		100

Contract Duration: 12 months with the possibility of extension according to project needs

Total budget: 500€ monthly

Envisaged starting date: 1 November 2023

Application submission: Interested applicants should submit their application electronically by **22 September 2023 @ 13:00 (Greece time)**

The application should consist of:

1. Application Form (see below)
2. CV
3. Expression of interest highlighting qualifications relevant to position (1 page max.)
4. The names and contact details of two referees
5. Scanned copies of academic titles
6. Scanned copies proving all the qualifications

Submission of applications: par0515@imbb.forth.gr

Evaluation procedure

Applications will be evaluated by a three-member evaluation committee. In case of interview procedure, applicants will be invited to participate in person or teleconference.

In case of titles and qualifications awarded by foreign Higher Education Institutions, the provisions of the Law 55/2023 (article 36) and 4957/2022 (article 304) are implemented.

The results of the selection will be announced on the website of IMBB-FORTH. Applicants have the right to appeal the selection decision, by addressing their written objection to the IMBB secretariat within five days since the results announcement on the web. Objections are submitted in one of the following ways: in person, by an authorized person, by post, by courier. They also have the right to access (a) the files of the applicants as well as (b) the table of applicants' scores (ranking of applicants results). All the above information related to the selection procedure will be available at the secretariat of IMBB-FORTH in line with the Hellenic Data Protection Authority. Access to personal data of co- applicants shall be limited to personal data (and relevant data) and supporting documents which have been the basis of the evaluation of the applicants for the specific post(s). Prior to the announcement of the personal data and/or documents of the co- applicants to the applicant, FORTH will inform the data subjects in an appropriate way.

The selected applicants will be notified personally regarding the success of his/her application and will be requested to submit certified copies of his/her degrees. If the submitted documents do not agree with the original application, the applicant will be dismissed.

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GDPR Disclaimer

FORTH is compliant with all legal procedures for the processing of personal data as defined by the Regulation EU/2016/679 on the protection of natural persons with regard to the processing of personal data. FORTH processes the personal data and relevant supporting documents that applicants have submitted. Processing of that data is carried out exclusively for the needs and purposes of this specific call. Such data shall not be transmitted to or communicated to any third party unless required by law.

FORTH retains the above data up to the announcement of the final results of the call, unless further process and reservation is required by law or for purposes of exercise, enforcement, prosecution of certain one's legitimate legal rights' as defined in the Regulation EU/2016/679 and/or in national law. Under the Regulation EU/2016/679, applicants have the rights to be informed about their personal data, access to, rectification and erasure, restrictions of process and objection to as provided by applicable regulation and national laws. Applicants have the right to file a complaint to the national Data Protection Authority. For any further information regarding exercise of personal data protection rights, applicants may contact the Data Protection Officer at FORTH at dpo@admin.forth.gr.

Applicants have the right to withdraw your application and consent for the processing of personal data at any time. In this case, FORTH shall destroy such documents and/or supporting documents submitted and shall delete the related personal data.

APPLICATION FORM

Name: _____
Surname: _____
Date of birth (dd/mm/yy): _____
Address: _____
Telephone number: _____
Email address: _____

TO
FOUNDATION OF RESEARCH AND TECHNOLOGY (FORTH)
INSTITUTE OF MOLECULAR BIOLOGY AND BIOTECHNOLOGY

Hereby I submit my application for the position:

In the framework of the project: _____

Position code [Ref #] _____

Submitted with this application:

1. _____
2. _____
3. _____
4. _____
5. _____

I certify that:

- A) I accept the terms and conditions of the job announcement
- B) I possess all the necessary certificates and documents and I can present them in their original form to the committee without any delay if I am asked to do so
- C) I am able to complete the project within the foreseen time -frame
- D) all the information given in the framework of this application are accurate and true.

Date: _____

Applicant name

(signature)