

## **Research Engineer and Postdoctoral positions open at Reprogramming and Regeneration Laboratory**

Pia Cosma's group (<http://piacosmalab.com/>) have a long-standing interest in studying gene and chromatin function (Cantone et al., Cell 2009). Using super resolution microscopy (STORM), we recently identified a new model of chromatin fiber assembly and how the fiber changes in somatic, embryonic stem cells and induced pluripotent stem cells (Ricci et al. Cell 2015, Neguembor et al., NAR 2018, Otterstrom et al., NAR 2019; Gomez-Garcia et al. Cell Reports 2020; Cosma and Lakadamyali Nature Methods 2020; Neguembor et al. Molecular Cell 2021). We are currently using artificial intelligence approaches applied to super resolution microscopy data to investigate the changes in chromatin structure and in the 3D genome organization during somatic cell reprogramming and differentiation. Cosma's lab is located at the Center for Genomic Regulation (CRG) Barcelona, Spain and at Bio-Island Laboratory (BIL), Guangzhou, China. Both laboratories received generous funding support from national and international programs and include scientists from different countries with an interdisciplinary background and expertise.

### **Positions:**

#### **One Position for Research engineer**

##### Job Requirements

1. Self-driven individuals who have the ability to solve problems, have high overall quality, are willing to learn and adapt to the needs of the project, have high level of adaptability and team work oriented;
2. Have a master or a doctorate degree in Computer Science, Biophysics, Mathematics, or related disciplines. We are seeking to hire candidates with extensive computational experience;
3. Have the following essential skills: excellent knowledge of Python programming, Linux/Unix OS, High Performance Computing Clusters (HPC) utilization, distributed and parallel computing, bioinformatic pipeline development; High organizational capability.
4. Possessing any of the following professional knowledge and skills can be given priority: knowledge of Matlab, C/C++, R, Shell scripting, experience in image processing, AI algorithms, PyTorch/Tensorflow frameworks, spatial modelling and statistics, biology.

##### Job responsibilities

1. Work hand by hand with wet lab scientists to develop new tools and methods for analyzing single molecule super resolution imaging data as well as bioinformatic genomic data.
2. Maintain and expand the analysis scripts library
3. Develop scripts GUI using Python, R or Matlab code.
4. Contribute in the development of analysis pipelines.

#### **One Postdoctoral position in computational analysis of super resolution imaging data**

Requirements: Phd in Biophysics, Mathematics, Biology, Biomedicine or related disciplines. We are seeking to hire candidates with wet and dry experience as well as with only dry experience, such as expert computational scientists.

#### Projects:

1.-Work hand by hand with our wet lab scientists to develop new tools and methods for analyzing super resolution imaging data. The research projects will make use of the following Super Resolution Imaging Technologies, among others: Nikon N-storm, Vutara 352, Oxford Nanolmager.

2.-Applying Artificial Intelligence approaches to analyze super resolution imaging data with the general aim to find new features and characteristics of the spatial distribution of chromatin.

Technical skills needed: Excellent knowledge of Python programming language and PyTorch/TensorFlow frameworks, Linux/Unix OS, High Performance Computing Clusters (HPC) utilization, distributed and parallel computing. Notions of Matlab and R will be also beneficial. Desirable but not essential: experience in imaging analysis, spatial modelling and statistics.

#### **Application Procedure**

All applications should be addressed to Pia Cosma; and include a full CV with contact details, a cover motivation letter and contacts of 2-3 references. Please submit your application at: [pia.cosma@crg.eu](mailto:pia.cosma@crg.eu), cc to [zhong\\_limei@grmh-gdl.cn](mailto:zhong_limei@grmh-gdl.cn). Applications will be continuously monitored.