Universitat Pompeu Fabra Barcelona | Master in Bioinformatics for Health Sciences

Master project 2020-2021

Personal Information

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Project

Computational genomics

Project Title:

Decoding genome by imaging

Keywords:

protein engineering, image processing, machine learning, NGS data analysis

Summary:

We are developing technologies to estimate the epigenetic state of the cell from the super-resolution live cell imaging. The project includes the following four sub-projects, and the intern student can choose one according to his/her interest. 1) Development of the prove for visualization, which includes structure-based designing of the mutant protein probes, imaging of the designed probes, and analysis of the binding sites in the genome by genome-wide sequencing. 2) Development of the program for automation of the microscope system, which includes automatic search for the cell by deep learning. 3) Image processing, which includes denoising, regularization, and quantification, through the combination of the traditional algorithms and machine learning. 4) Development of the computational models to link the image data to the sequence data.

Expected skills::

no

Possibility of funding::

To be discussed

Possible continuity with PhD: :

To be discussed