PhD scholarship in Cancer Bioinformatics – Description

FUNDED BY	Institut Paoli Calmettes (IPC)
SUPERVISED BY	Dr Pedro Ballester
STIPEND	INSERM gross monthly salary of €1759.51 for three years
CLOSING DATE	Wednesday 7 September 2016
STARTING DATE	November 2016

Working environment

The Cancer Research Center of Marseille (CRCM) is the basic science and translational research unit of the private cancer hospital Institut Paoli Calmettes (IPC). Also affiliated to INSERM, CNRS and Aix-Marseille University, the 250 researchers working at the CRCM form a strongly multi-disciplinary research environment characterized by frequent and close collaborations with IPC clinicians. IPC and CRCM form part of the comprehensive cancer centre Marseille SIRIC (http://www.siric-marseille.fr/Les-SIRICS.html). Further information available at http://crcm.marseille.inserm.fr/uploads/media/presentation_CRCM_2015_EN.pdf

Project

This project will address the question of how to leverage public and in-house pharmacogenomic data to improve our ability to predict which patients will respond to a cancer drug from the molecular profiles of their tumours. Thus, the PhD student will investigate and implement methods to build patient-tailored predictive models exploiting these data resources. A substantial part of the project involves the application of machine learning techniques to reduce the dimensionality of data and build predictive models. Other project components are mining preclinical and clinical pharmacogenomic data as well as research on optimal ways to use model predictions to support clinical decision-making and assess uncertainty.

Selection criteria - Essential

- An excellent first or master degree with a major focus on computational analysis of experimental data, preferably in an area directly relevant to the project.
- Skilled in the implementation of R or Python scripts for scientific data analysis.
- Comfortable working in linux platforms.
- Ability to communicate effectively in English, both orally and in writing.

Selection criteria - Desirable

- Master project and/or internship in the application of machine learning to solve real-world problems in the context of biomedical research.
- Prior use of computational tools and resources involving pharmacogenomic data.
- Knowledge of cancer biology and drug discovery
- Hands-on experience in the design and implementation of relational databases using MySQL and/or PostgreSQL.
- Familiarity with the processes of handling, integrating, processing and analysing omics data (especially genomic and transcriptomic data from NGS technologies).
- Software engineering skills using C++, C and/or Python (numPy/SciPy/scikit-learn) including version control tools (e.g. git or mercurial).
- Prior use of high-performance computing to train machine learning algorithms.

What we offer
The successful candidate will register as a PhD student and receive a gross monthly salary of €1759.51 for three years to cover accommodation, subsistence and registration fees (ca. €400 per year). This is an exciting opportunity for a bright and motivating scientist to carry out a PhD project on a timely data science problem of great therapeutic importance. It is envisaged that the results of this project will be applied to clinical research case studies in collaboration with IPC oncologists.

The student will join the Ballester team at the CRCM, which is currently composed of two postdocs and a PhD student. In terms of quality of life, the CRCM is located in Marseille and thus the student will enjoy living in an exciting multi-cultural city right by the French Mediterranean coast.

How to apply
Candidates must send an email with their CV, grades for each held university degree and a covering letter (maximum two pages) to pedro.ballester@inserm.fr with subject line "PhD scholarship in Cancer Bioinformatics". This letter must explain how they meet the essential selection criteria, which desirable selection criteria are also met and how this position would fit in their future career plans. This email must also state the names and emails of two scientists involved in assessing their academic performance, who are willing to provide a reference. Please also mention in the letter where did you see this position advertised.