2 PhD student positions: Bioinformatics / Data Science and Computational Biology

UIC, Barcelona, Spain

Objective

Applications are invited for two PhD student positions at the UIC Barcelona.

Position 1: Bioinformatics / Data Science in T-cell receptor immunology

This position addresses highly motivated students with technical backgrounds (e.g. computer science, statistics, math, (bio)physics, bioinformatics) and requires strong computer science and statistics skills. An interest in biology is of advantage but not required. This positon will focus on quantitative analysis and prediction of T-cell receptor / peptide / MHC binding and interaction. This process is known to be essential in a wide variety of diseases such as allergies, cancer, infections, and autoimmune conditions. The student will have the possibility to customise the project to personal interests.

Requirements

Must criteria:

- BSc and MSc in a quantitative field (e.g. computer science, statistics, math, (bio)physics, bioinformatics).
  The average of all marks of both the bachelor as well as the master must be better than 0.75 (on a normalised scale of 0 (worst) to 1 (best)). Please separately state your average mark for your bachelor and master in your CV (and show supporting documents as an attachment). **Applications with marks averages <0.75 or not containing this information for the BSc and MSc cannot be considered**. Unfortunately, also applicants without a master degree (or who already hold a PhD) cannot be considered
- The MSc must have been obtained after the 1 November 2017
- Broad experience and fluency in several programming languages e.g. Python
- Strong statistics knowledge (univariate, multivariate)
- Strong analytical skills, creativity, curiosity, enthusiasm, and ability to work in a team
- Excellent command of the English language

Ideal criteria:

- Basic knowledge of molecular biology, genetics, immunology is an advantage but not required
- Previous experience with Monte Carlo simulations is an advantage
- Knowlegde of data science techniques: Regression (e.g. ANN, Lasso, Ridge) , classification (e.g. SVM, KNN), clustering (e.g. k-means, hierarchical), heuristic optimisation (e.g. genetic algorithms), parallel computing (e.g. MPI, pySpark), SQL, noSQL is an advantage

- Knowledge of common bioinformatics techniques as Immunoinformatics, B- and T-cell epitope predictions, molecular dynamics simulations, free energy predictions, protein/ligand and protein/protein docking, virtual screening, protein structure prediction, sequence alignments, tree building is an advantage
- Knowledge of LINUX operating systems and command line operations is an advantage
- Experience with the use of high performance computing clusters is an advantage
- Previous teaching experience in English and/or Spanish is an advantage

Position 2: Computational Biology in CDK/cyclin interaction

This position addresses highly motivated students with backgrounds in an experimental field (e.g. molecular biology, chemistry, genetics, biomedicine etc). This position requires strong lab working skills as well as at least moderate computational and statistics skills. The position will be combination of bioinformatics research and experimental lab work in the field of cancer molecular biology and particularly on cyclin-dependent kinase (CDK) and cyclin interaction. Cyclins have traditionally been implicated in cell cycle progression or transcription regulation, and are known to be deregulated in cancer. The research project of the student will focus on the pairing and characterisation of CDK/cyclin combinations using a wide range of bioinformatics as well as experimental techniques.

Requirements

Must criteria:

- BSc and MSc in a biological field (e.g. molecular biology, biochemistry, biotechnology, bioinformatics, etc).
  The average of all marks of both the bachelor as well as the master must be better than 0.75 (on a normalised scale of 0 (worst) to 1 (best)). Please separately state your average mark for your bachelor and master in your CV (and show supporting documents as an attachment). **Applications with marks averages <0.75 or not containing this information for the BSc and MSc cannot be considered**. Unfortunately, also applicants without a master degree (or who already hold a PhD) cannot be considered
- First experience and/or strong interest in Bioinformatics (ideally e.g. a BSc in biology and a MSc in bioinformatics)
- Basic programming skills (e.g. Python, R, Matlab or Java)
- Ability and willingness to teach about 10 ECTS credits per year (in English and ideally also in Spanish)
- Strong analytical skills, creativity, curiosity, enthusiasm, and ability to work in a team
- Excellent command of the English language

Ideal criteria:

- Previous lab working experience is an advantage
- Knowledge of common bioinformatics techniques as Immunoinformatics, B- and T-cell epitope predictions, molecular dynamics simulations, free energy predictions, protein/ligand and protein/protein docking, virtual screening, protein structure prediction, sequence alignments, tree building is an advantage
- Knowledge of LINUX operating systems and command line operations is an advantage

Application documents for both positions (as one single pdf file)

1) Letter of motivation (short, max 1 page) answering to each of the "must-criteria" as stated above and stating for which of the 2 positions you are applying
2) CV (including marks averages)
3) Contact details of 2-3 references
4) Documents supporting the stated marks average

Before you apply please keep in mind that common reasons for not being invited for an interview are: (1) not fulfilling one or multiple of the "must criteria" (e.g. marks average), (2) not following the application guidelines, (3) generic copy & paste applications, and/or (4) low level of English.

Please apply (in English) to: bknapp@uic.es

Applications will be reviewed continuously on a 'first come first served' basis. Please note that only short-listed candidates will be contacted.