POST-DOCTORAL RESEARCH FELLOW POSITIONS IN COMPUTATIONAL SYSTEMS BIOLOGY FOR DRUG DISCOVERY

Institute of Big Data and Artificial Intelligence, China Pharmaceutical University (CPU), Nanjing

JOB ADVERT

Applications are invited for highly skilled and motivated Computational Biologists and/or Bioinformaticians to join the new, fully funded Institute of Big Data and Artificial Intelligence, which is embedded within China Pharmaceutical University (CPU) in Nanjing, Jiangsu province. Funding (Lab/Institute startup) is available to support post-doctoral positions for 3 years and promotion to faculty positions is possible.

You will be part of an exciting multidisciplinary research team, carrying out applied research in Computational Systems Biology and Bioinformatics to discover new drug targets for multifactorial human diseases, including cardiovascular (e.g., aortic dissection), kidney (e.g., focal segmental glomerulosclerosis) and brain disease (e.g., traumatic brain injury), and develop these drug targets within CPU.

Candidates should have a foundation in System Biology and Bioinformatics. The successful applicants will be expected to take responsibility for integrative data analyses of multi-*omics* (genomic, transcriptomic, proteomic, metabolomic, *etc.*) data, and implementing Machine Learning (ML), Deep Learning (DL) and Artificial Intelligence (AI) approaches for drug target discovery. Successful applicants will be also directly involved in research project management, coordinate with local and international collaborators, present results at international conferences and publish in high-impact journals. Good written and communication skills and a high level of motivation and commitment are required.

Candidates should hold (or are soon expecting) a Ph.D. in any of these areas: Computational Biology, Bioinformatics, Systems Biology, Integrative Genomics, Statistical Genetics, Data Science, ML, DL, AI, Computer Science, or a related discipline.

The successful applicants will join the Drug Discovery by Systems Biology (DDSB) group, in the new Institute of Big Data and Artificial Intelligence of CPU in Nanjing. Start date and terms are in part negotiable. Applications are welcome from candidates of any nationality, and will be reviewed on a rolling basis.

The DDSB group is led by Prof. Enrico Petretto (https://www.enricopetretto.com/), who has expertise and track record in Systems Biology for drug target discovery. Prof. Petretto holds other appointments at Duke-NUS in Singapore, Imperial College London in the UK and is Systems Genetics Theme Leader for the CardiOmix Research Centre in Italy. Prof. Petretto has an excellent undergrad and post-doctoral training track record (14 PhD students graduated in UK and Singapore Universities to date, 9 former PhD students or post-docs are currently faculty members, lecturers or principal bioinformaticians for biotech or pharma). To date, Prof. Petretto has published more than 120 papers in international peer-reviewed journals with more than 7,000 citations. Selected Systems Genetics publications by Prof. Petretto include: A trans-acting locus regulates an anti-viral expression network and type 1 diabetes risk (*Nature* 2010); Systems-genetics identifies Sestrin 3 as a regulator of a proconvulsant gene network in human epileptic hippocampus (*Nature Communications* 2015); Systems genetics identifies a convergent gene network for cognition and neurodevelopmental disease (*Nature Neuroscience* 2016); Integrative genomics of microglia implicates DLG4 (PSD95) in the white matter development of preterm infants (*Nature Communications* 2017); A systems-level framework for drug discovery identifies Csf1R as an anti-epileptic drug target (*Nature Communications* 2018); WWP2 regulates pathological cardiac fibrosis by modulating SMAD2 signaling (*Nature Communications* 2019); A single-cell atlas of entorhinal cortex from individuals with Alzheimer's disease reveals cell-type-specific gene expression regulation (*Nature Neuroscience* 2019).

To apply: please send your updated Curriculum Vitae (CV) and a Cover Letter detailing your previous research experience directly to Prof. Enrico Petretto (email: enrico.petretto@cpu.edu.cn) and/or Dr. Huimei Chen (email: huimei.chen@cpu.edu.cn).

JOB DESCRIPTION

To provide expertise in conducting research activities in Bioinformatics and Computational Systems-Biology, including but not limited to planning, organizing, conducting, and communicating research studies within the overall scope of at the Institute of Big Data and Artificial Intelligence of CPU in Nanjing.

To start, the job is for a period of 3 years with the opportunity to be apply fast-track to Assistant Professor, based on work performance.

Based on individual circumstances, hired as a post-doctoral research (annual base salary 240,000 Chinese Yen and allowances, and plus bonus based on performance) or post-doctoral faculty (annual base salary 270,000 Chinese Yen and allowances, and plus bonus based on performance). At the same time, post-doctoral personnel enjoy public medical care, provident funds and relevant treatments of the school union during their stay.

Main Job Duties

- Work with a dynamic group of scientists and carry out projects on the Systems-Biology integration of genetic (whole-genome sequencing or WGS), genomics (RNA-seq sequencing, single-cell sequencing, proteomics) and phenotypic clinical data to identify gene/protein targets for drug development at CPU.

- Application of quantitative/data analysis research techniques which include accurate in-depth assessment, interpretation and evaluation of next generation sequencing datasets, conceptualize new ideas and develop plans for independent research.

- Carry out Computational Biology and Bioinformatics analyses, including differential expression analysis, gene regulatory network analysis, integrative genetics and multi-*omics* analysis and statistical genetics.

- Implement Machine Learning (ML), Deep Learning (DL) and Artificial Intelligence (AI) approaches to mine complex multi-*omics* datasets and predict optimal gene/protein targets for drug development in collaboration with other groups at CPU.

- Write and review research papers, presenting research findings and develop connections with local and international researchers for collaboration work.

- Contribute to project management, provision of guidance to more junior researchers as well as undergraduate and graduate students, occasional educational/instructional activities.

- Maintain optimal experimental progress in the laboratory.

- Perform other related duties incidental to the work described herein.

Job Requirements

- PhD in a related scientific area, including Computational Biology, Bioinformatics, Systems Biology, Integrative Genomics, Statistical Genetics, Data Science, Machine Learning (ML), Deep Learning (DL) and Artificial Intelligence (AI), Biomedical Data Science, Computer Science or closely related area.

- Demonstrated experience in Computational Biology and/or Bioinformatics

- Demonstrated very good knowledge, skills and expertise, with potential to achieve research excellence in Systems Biology.

- Demonstrated hands on experience in integrative data analysis and statistical modelling of heterogenous multi-*omics* data, including RNA-sequencing, single-cell sequencing, whole-genome sequencing (WGS), proteomics, *etc.*

- Experience in integrative approaches of multi-*omics* data, gene network analysis and application to the study of complex diseases.

- Proficiency in programming, statistical data analysis and computation, *e.g.*, R, C++/C/C#, Perl, Java, Python, *etc.*

- Excellent communication (written/oral) in English.

- Ability to write research papers in peer-reviewed journals, as demonstrated by existing first-author publications in high impact journals.

- Outstanding interpersonal skills.

- Scientific and technical resourcefulness.

- Strong team player skills and the ability to work harmoniously with a diverse workforce.

HOW TO APPLY

Please send your updated Curriculum Vitae (CV) and a Cover Letter detailing your previous research experience directly to Prof. Enrico Petretto (email: enrico.petretto@cpu.edu.cn) and/or Dr. Huimei Chen (email: huimei.chen@cpu.edu.cn).

DEADLINE

Positions open from January 2021 until filled.