OXFORD UNIVERSITY COMPUTING LABORATORY

Research Assistant (Grade 7): Salary £28,983 - £35,646 p.a.

Project: SYNERGY - Modelling and simulation environment for systems medicine (Chronic obstructive pulmonary disease -COPD- as a use case)

Further details

The Computing Laboratory has a vacancy, within the Computational Biology Group (CBG), for a Post-Doctoral Research Scientist for three years as part of an EU research project "**SYNERGY**" funded within the Virtual Physiological Human initiative. The project, under the supervision of Drs Kelly Burrowes and David Kay, concerns research in the area of mathematical and computational modelling of the respiratory system. More specifically this project will be focussed on the development of subject-specific computational models of fluid transport (air and blood) within the respiratory system; the outcomes of which will be integrated into a multi-scale trans-European model of oxygen delivery in patients with chronic obstructive pulmonary disease. This exciting project will provide the successful candidate with the opportunity to interact with members of the consortium partners both within the UK and across Europe forming part of a multi-disciplinary collaboration between academic, clinical and industrial partners.

The post will involve development and implementation of computational models of fluid transport within the lungs. Therefore the candidate should have a strong analytical and computational background in applied mathematics, engineering, or a similar discipline. Software development and solid programming skills are essential. Previous experience in modelling biological systems would be an advantage, but is not essential.

SYNERGY

The Synergy project will develop a simulation environment and a decision-support system aiming at enabling deployment of systems medicine. The project focuses on patients with chronic obstructive pulmonary disease (COPD). The core programme will include at least five well established physiological models addressing: a) pulmonary gas exchange, b) pulmonary ventilation-perfusion heterogeneities, c) central and peripheral O_2 transport and O_2 utilisation, d) skeletal muscle bioenergetics, and e) mitochondrial reactive oxygen species (ROS) generation. The work in Oxford will focus on component (b) – investigating ventilation-perfusion relationships within the lung and assessing/developing a simpler model which can be incorporated into the SYNERGY framework.

Main Duties and Responsibilities

The main duties in this role will include:

- Developing subject-specific models from patient data, using existing software but improving and automating these techniques where possible;
- Software development – implementing and improving fluid flow and gas exchange models in an open-source software platform;
- Comparison of subject-specific functional models with an existing 'black box' type model and improving/modifying this based on project outcomes;
- Interacting with other member groups of the SYNERGY consortium to ensure model usability and interfacing within this project.

Selection Criteria

The successful applicant will have many, but not necessarily all, of the following skills:

- A PhD, graduate or equivalent qualification in the mathematical, computational, or engineering sciences;
- A strong background in computer programming and software development. Previous experience in interacting with complex multi-scale models will be an advantage;
- Experience in visualisation and interface design would be an advantage;
- Experience in parallel coding and super-computing would be beneficial;
- Good English language skills, both written and verbal;
- Good communication skills and willingness to interact with project partners from a variety of EU countries;

Salary and Benefits

The post is a fixed term appointment for up to 36 months; will have a salary on the University grade 7 scale (currently £28,983 to £35,646 pa); includes membership of the University pension scheme; will have an annual leave entitlement of 38 days per year (inclusive of all public holidays and university closed periods), and will be available immediately.

Application Procedure

Applications should be in the form of a letter of application (clearly stating the post title) and setting out how the candidate meets the selection criteria. This should be supported by a full curriculum vitae which includes with the names and addresses of two referees.

The application should be sent by email (most formats accepted) to: job10@comlab.ox.ac.uk

or by post to: The Administrator,
Oxford University Computing Laboratory,
Wolfson Building
Parks Road,
Oxford OX1 3QD.

Applications should be sent in time to arrive by Friday 10th December 2010. Applications received after this time will not be considered.

Candidates must ask their referees to consider the further particulars and email the reference directly to job10@comlab.ox.ac.uk or alternatively to the above address (fax (+44 1865 283532) so that references arrive by the closing date.

The policy and practice of the University of Oxford require that all staff are offered equal opportunities within employment. Entry into employment with the University and progression within employment will be determined only by personal merit and the application of criteria which are related to the duties of each particular post and the relevant salary structure. In all cases, ability to perform the job will be the primary consideration. Subject to statutory provisions, no applicant or member of staff will be treated less favourably than another because of his or her age, sex, marital or civil partnership status, sexual orientation, religion or belief, racial group or disability.

Applicants who would need a work visa if appointed to the post are asked to note that under the UK's new points-based migration system they will need to demonstrate that they have sufficient points, and in particular that:

(i) they have sufficient English language skills (evidenced by having passed a test in basic English, *or*

coming from a majority English-speaking country, *or*

having taken a degree taught in English)

and

(ii) that they have sufficient funds to maintain themselves and any dependants until they receive their first salary payment.

Further information is available at:

http://www.ukba.homeoffice.gov.uk/workingintheuk/tier2/generalarrangements/eligibility/

All data supplied by applicants will be used only for the purposes of determining their suitability for the post and will be held in accordance with the principles of the Data Protection Act 1998 and the University's Data Protection Policy, but if the person appointed to the post is a migrant sponsored under the UK's new points-based migration system, we are required to retain all applications for the duration of the sponsorship.