PHD STUDENT IN DISEASE MODELLING FOR DEMENTIA USING IMAGING BIOMARKERS

Employment at Biomediq A/S in Denmark and enrolment and secondment at University College London in the UK from where the degree will be obtained.

Dementia constitutes a major burden on society, both in monetary costs and the suffering of patients and their relatives. Dementia comprises different disease types that are difficult to diagnose correctly because they have clinically similar manifestations, which makes treatment sub-optimal. Imaging biomarkers, medical imaging-derived measurements associated with disease, aid diagnoses as they allow to qualify and quantify pathology. In recent years, a great deal of effort has been applied to identify and model dementia biomarkers as a function of disease progression.

Biomediq A/S in Denmark is seeking a PhD student to work on developing a theoretical foundation and computational method for inferring parametric curves of biomarker values and identification of hidden disease stage. This methodology is then applied to model biomarkers of two dementia types, Alzheimer's disease and vascular dementia. These two types of dementia are the most common, and autopsy studies have shown that a mixed condition of both is more common than previously realised. Contrary to previous research in dementia biomarker modelling, this project seeks to model the dementia types jointly. In essence, a "map" of the biomarker trajectories as function of joint disease progression is inferred. Such a map would provide insight into behaviour and ordering of biomarkers within the considered dementia types. Moreover, patients can be placed on this map based on their individual biomarker values which allows for improved joint clinical diagnosis, and thereby treatment.

The PhD student will together with two fellow PhD students be part of the project "Dementia Modeling (DeMo)" awarded by the European Commission. The project is a collaboration between Biomediq A/S in Denmark and the Faculty of Engineering and the Institute of Neurology both at University College London in the UK. The PhD student will be formally enrolled at University College London and spend time at both places.Why do a PhD between Biomediq A/S and University College London

Biomediq A/S is a spin-out company from the Department of Computer Science at University of Copenhagen that focus on the development of imaging biomarkers of various diseases, including Alzheimer's disease. As a PhD student at Biomediq A/S and University College London you will work in a cross-disciplinary environment with focus on both industrial and academic aspects such as publication in journal papers, dissemination in technical and clinical conferences, patenting, quality-controlled software development and integration within clinical practice and clinical research.

Qualifications

- Master degree in computer science, mathematics, physics or equivalent fields.
- Exposure to developing machine learning applications, for instance imaging-based biomarkers of disease or statistical modelling of disease progression.
- Strong programming skills.
- Proficiency in English, both in speaking and writing.

Additionally, candidates need to stand out in at least one of the following key criteria of excellence used for assessment:

- Grades that document an outstanding academic record
- Scientific publication(s) in recognized, peer-reviewed venues
- Awards and honours
- Professional qualifications and work experience.

Submission of application

The application must be submitted electronically by October 23 2016. The application MUST contain the following:

- Letter of motivation (max. two pages) that includes a description of how the qualifications are met
- Curriculum vitae
- Master thesis as PDF (final or in draft)
- Assessment of master thesis (provisional or final)
- Two references that we may contact
- Transcripts of grades, documenting an outstanding academic record.

Unless the candidate's diploma and transcripts of grades are in Danish or English, the candidate should procure a certified translation. Furthermore, the candidate must include official information about the grading scale and PDFs of up to three scientific publications that they have co-authored.

Shortlisting procedures

After the expiry of the deadline for application, an assessment committee makes a written assessment of all competitive candidates. This assessment is fed back to all competitive candidates for comments. Based on assessments and the candidate's comments, the selection committee may choose to call candidates for a teleconference-based or physical interview or both.

The final selection of the candidate will be made by the selection committee. The selected candidate will then be requested to formally apply for enrolment as a PhD student at University College London.

Terms of employment

Terms are according to EU terms of training and mobility acts and include payment of living allowance, mobility allowance, and, depending on family situation, possibly family allowance.

Note: applicants may not have resided/studied/worked in Denmark for more than 12 months in the 3 years immediately prior to the recruitment date.

Biomediq and University College London wish to reflect the diversity of society and welcomes applications from all qualified candidates regardless of personal background.

The scholarship requires a Master's degree in computer science or a field providing equivalent qualifications (see above), at the time of taking up the position. The appointment is for a period of 3 years and is expected to lead to a PhD dissertation. The scholarship can be commenced as soon as practically possible.

The deadline for applications is October 23 2016 (Midnight GMT).

Applications received after the deadline, or with insufficient documentation or otherwise not complying with the above requirements, may not be considered.

The Team

Biomediq is a research-based company that provides quantitative imaging biomarkers as industry standard software-based solutions for clinical trials and clinical practice. One of Biomediqs core therapeutic areas is neurology and especially dementia. The company is a spin-out from the Department of Computer Science at the University of Copenhagen founded in 2008 and currently employs 10 people. It is located in the Symbion tech park in the northern part Copenhagen with easy access to the city centre by public transport.

The Translational Imaging Group (TIG), within the Centre for Medical Image Computing at University College London has extensive experience in the development of new imaging biomarkers for neuro-degenerative diseases. In collaboration with the Dementia Research Centre at the Institute of Neurology, also at University College London, TIG researchers are heavily involved in the translation of state-of-the-art processing pipelines into clinical research and clinical practice.

Further information

For further information about the position please contact Professor and CEO Mads Nielsen at email madsn@biomediq.com or phone +45 3917 9450 or Professor Sebastien Ourselin at s.ourselin@ucl.ac.uk.