PhD scholarship in Computational Optimisation of Biopharmaceutical Drug Development

Warwick Business School Operational Research and Management Sciences Group

The current "one-size-fits-all" approach to drug development is being challenged by a growing ability to treat patients as individuals, with patient populations identified for treatment by genetic pre-screening and diagnostics linked to a companion drug molecule; so-called stratified medicine. A major driver behind this development is the quickly growing biopharmaceutical industry. But as the technology is maturing, the ability to implement processes efficiently becomes increasingly critical for a company's success in this new market.

To address the manufacturing, business and regulatory challenges and to ensure that new targeted biological medicines can be developed quickly and manufactured at a cost affordable to society, EPSRC has recently funded a ± 10 Mio Future Targeted Manufacturing Healthcare Hub.

Associated with this Hub, Warwick Business School is offering one fully-funded PhD scholarship in the area of computational optimisation of biopharmaceutical drug development. The goal of this PhD project is to develop decision-support tools for capacity planning and portfolio selection for companion-diagnosticdriven stratified protein medicine, in particular during the drug development phase. A particular challenge in this domain is the high degree of uncertainty due to uncertain demands, production rates and clinical trial outcomes. Furthermore, there are often multiple objectives and the evaluation of solutions is computationally expensive.

The successful applicant will be working with a first class team of researchers at Warwick and other leading universities in the UK.

Relevant areas of expertise include, but are not limited to:

- Optimisation under uncertainty
- Biopharmaceutical manufacturing
- Machine learning
- Metaheuristics.

An MSc/MEng in a relevant area is required. We expect excellent communication skills and experience in programming.

Funding

The studentship is open to Home/EU and international/overseas students for 4 years from October 2018. It covers fees at home/EU student rates (which is estimated as £4,270 for 2018 entry), and a stipend to cover living cost of ca. \pounds 14,553 per annum. Applicants who will be liable for fees at the international

rate are welcome, but will have to make up the difference between home/EU and overseas fees.

Application

The scholarship will remain open until a suitable candidate has been identified. Reviewing will begin 1 February 2018.

If you are interested, please contact Prof Juergen Branke, University of Warwick, juergen.branke@wbs.ac.uk

The full application has to be submitted online

(<u>http://www.wbs.ac.uk/courses/doctoral/phd/apply/</u> and <u>https://postgrad.warwick.ac.uk/SWIFT.web/skins/pgapp/login.aspx</u>) and candidates should provide the following additional documents:

- 1) A curriculum vitae
- 2) A cover letter explaining your interest and aptitude for this research project, in particular
 - a) why you are attracted to this particular opportunity
 - b) details of your quantitative skills
 - c) details of your programming skills
 - d) descriptions of previous projects you have completed
 - e) how the studentship fits with your career aspirations.
- 3) A short research proposal describing the specific research project you wish to carry out.

Please quote "PhD scholarship in Computational Optimisation" on your application.

For enquiries and details on how to apply please contact: Doctoral Programme Office Tel: +44 (0)24 7652 4754 Email phdadmissions@wbs.ac.uk